ILOCOS REGIONAL HOSPITAL

PROCEEDINGS

IRH

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Editorial

The Ilocos Regional Hospital had its humble beginnings at the end of the war in 1945 as a 40-bed first aid center. From there it gradually grew until it became the 150-bed La Union Provincial Hospital. In the early 1980's it was designated as the Regional Teaching and Training Hospital of the Ilocos Region but it was only in the mid-80's that it started to fulfill its mandate. One department after another attained accreditation with the different specialty societies until seven (7) out of nine (9) departments were accredited for specialty training. In the late 80's, the hospital finally assumed the title Ilocos Regional Hospital by legislation.

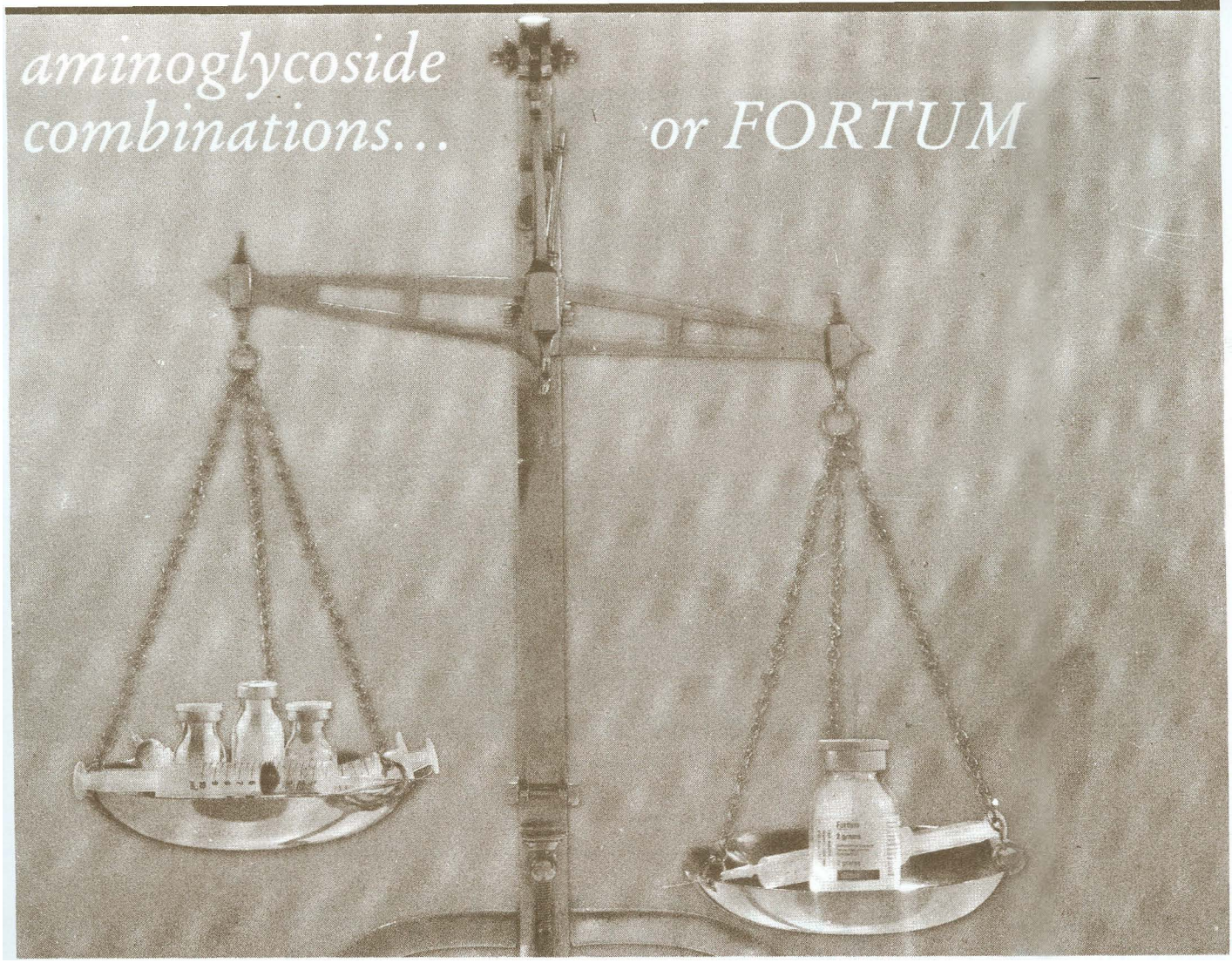
Like the rest of the Teaching and Training Hospitals, IRH was able to produce competent graduates who have passed the different Specialty Examinations. However, it has found the accreditation process exceedingly difficult: the requirements of the Specialty Societies are becoming more and more westernized. Many times they have failed to adapt to local (Philippine) conditions and, at times, have completely disregarded the problems of the Department of Health which are reflective of government difficulties in general - requirements like manpower complement or even capital expenditures for equipment and physical plant. These requirements are difficult to immediately address since the government must follow certain tedious processes, the most difficult and easily most notable of which is legislative approval.

Has the Residency Programs really addressed the Medical Manpower needs of the nation? The answer is quite obvious - most specialists train, and eventually stay in Manila so that we have scarcity of them in the provinces and the regions where they are needed most. In fact there are still many doctorless areas in the Philippines. Recruitment procedures have not substantially changed, yet government is spending quite an enormous amount of money for their training.

We at the Ilocos Regional Hospital would like to see some changes. We would like to rationalize training for specialists; we would like the Specialty Societies to have requirements attuned to Philippine local conditions; we would like to recruit trainees from the more remote areas so that they can be sent back to these areas where they are needed most; we would like to re-direct training from the specialties that are overloaded to those that are acutely needed. In other words, we would like to have training programs that are perfectly molded to fit local conditions.

We would like to see that other Teaching and Training Hospitals will also take steps in this direction.

JUANITO A. RUBIO, MD. FACOG, FPCS
Chief of Hospital III



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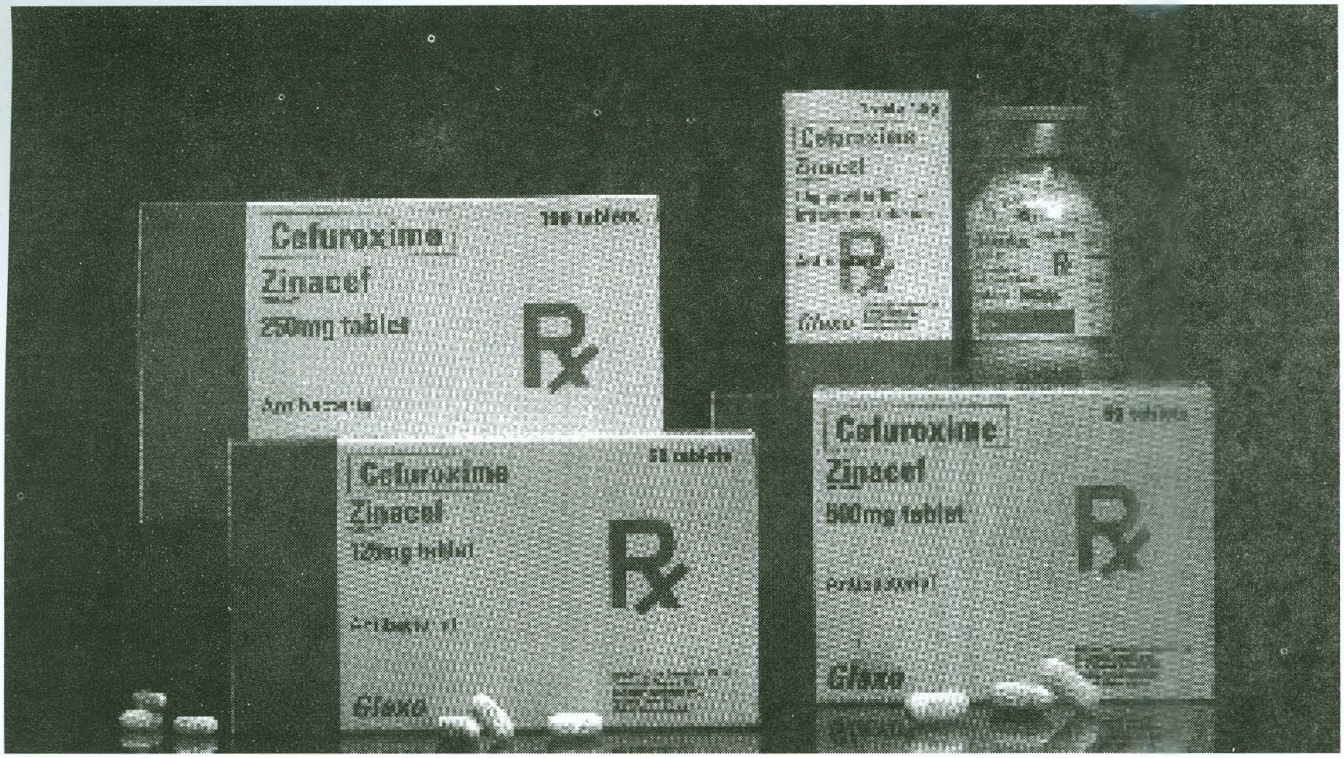

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THE INCIDENCE OF POST-OPERATIVE INFECTIONS AT THE DEPARTMENT OF SURGERY OF THE ILOCOS REGIONAL HOSPITAL A PROSPECTIVE STUDY (SEPTEMBER 1992- SEPTEMBER 1993)

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ABSTRACT

This study describes a thirteen month prospective investigation done from September 1, 1992 to September 30, 1993 to determine the incidence of post-operative infections at Ilocos Regional Hospital Department of Surgery. Data collection was accomplished through completion and collation of case report forms of all patients operated during this period. Operations were classified according to wound category and the incidence of wound infection for each category of operation was noted and compared to acceptable standards.

This study has proven that the post-operative infection rate at IRH Department of Surgery of 6.48% is comparable to national and world standards.

This study concurs with the findings of previous studies that the degree of wound contamination correlated with an increased risk of post-operative wound infection; that most post-operative wound infections are detected at the OPD during subsequent follow-up and that urinary catheterization correlated with an increased incidence of post-operative urinary tract infections.

INTRODUCTION

Even during this modern age of antibiotics, infection still hounds the surgeon. With the abuse and misuse of antibiotics, infection has not only rebounded as a more lethal menace to challenge the surgeon but it has also added to the cost of hospitalization.

Infectious complications prolong the hospital stay for the patient. It adds to the workload of hospital personnel and the need for additional surgical intervention and medication. Added to this is the risk it provides the patient.[1]

The old adage "An ounce of prevention is better than a pound of cure" is apt and appropriate to the management of surgical infections. The answer to proper infection control relies not in bombarding our patients with antibiotics but to be on guard and prevent its dissemination in our environment so that it may be conducive to the health and welfare of our patients. The important thing here is to be vigilant and to adhere to the basic and time-tested tenets of surgical practice.

An important tool in surgical infection control is surveillance which was pioneered by Ignaz Philip Semmelweis in Vienna more than a century ago.[2]

The advocates of surgical infection surveillance have grown and they have proclaimed its relevance, practicality and effectiveness in surgical practice. The initial step in surveillance is to be aware that the problem of surgical infection exists and to assess its magnitude in our own setting.

This study was conceived with the idea to establish the real incidence rate of nosocomial surgical infections at the Ilocos Regional Hospital. Does the problem of nosocomial postoperative infection exist in our setting? If it does, what is its incidence? Is our postoperative infection rate within the acceptable limits? These are but a few questions we would like to answer. By identifying the enemy, we can formulate a rational plan and strategy against the enemy. This study also aims to establish a baseline data as to the extent of postoperative infections at IRH and facilitate in the institution of policies for effective infection control in our department and the hospital.

OBJECTIVES OF THE STUDY

GENERAL OBJECTIVES:

To be able to determine the incidence of postoperative infections among patients operated at the Ilocos Regional Hospital, Department of Surgery from the period of September 1992 - September 1993.

SPECIFIC OBJECTIVES:

1. To be able to determine the post-operative wound infection rate using the type of surgical procedure/wound category as a parameter
2. To be able to determine if the post-operative wound infection rate at IRH is within the acceptable and standard limits.
3. To be able to determine if there is a significant association between the type of surgical procedure/wound category and the incidence of post-operative wound infection.
4. To be able to determine the incidence of the post-operative pulmonary and urinary tract infection.
5. To be able to determine if there is a significant association between the type of anesthesia to the incidence of post-operative pulmonary infection.
6. To be able to determine if there is a significant association between urinary instrumentation and the incidence of post-operative urinary tract infection.

MATERIALS AND METHODS

This is a prospective descriptive study conducted at the Ilocos Regional Hospital Department of Surgery from September 1, 1992 - September 30, 1993. All patients at risk of surgical infections (those who underwent operation during this period) were classified as to the type of surgical procedure they underwent either as clean, clean contaminated, and contaminated. The type of anesthesia used in the operation and the use of urinary catheter in the patient were also noted. Surgical residents in charge of the patient filled up a case report form which contained pertinent data concerning the patient, the patient's operation and course in the ward. Any nosocomial post-operative infection (i.e. post-operative wound, pulmonary and urinary tract infection) detected during the patient's course in the ward was recorded. Patients who presented with wound infections at the OPD during follow-up were also noted. The appropriate entries were then written on the case report form. The reports were then validated, edited and collated by the surgical resident-in-charge of the study. Computation for statistical significance utilized STATCALC function of EPI INFO Version 5.

DEFINITIONS:*

Hospital-Acquired (Nosocomial) Surgical Infection: Infections that occurred either following a surgical procedure, or manifesting 72 hours after admission among previously uninfected patients who did not undergo surgery.

Post-operative Infections: These were nosocomial infections associated with a surgical procedure.

Post-operative Infection Rate: Frequency distribution of patients who developed post-operative infections from among the total patients who underwent a surgical procedure within a given period.

Post-operative Wound Infection: A wound was considered infected if pus was discharging from it.

Post-operative Wound Infection Rate: Frequency distribution of patients who developed wound infection from among the total patients who underwent a surgical procedure within a given period.

Post-operative Pulmonary Infection: The diagnosis was based on the presence of the following criteria: a) oral temperature of at least 38 C; b) purulent sputum; c) physical finding suggestive of pulmonary parenchymal disease; and d) initial or subsequent infiltrates seen in chest radiographs.

Post-operative Pulmonary Infection Rate: Frequency distribution of patients who developed post-operative pneumonia from among the total of patients who underwent a surgical procedure within a given period.

Post-operative Urinary Tract Infection:** The diagnosis of urinary tract infection (taken from the context of this study) is based on clinical symptoms of urgency, frequency, dysuria and suprapubic tenderness and confirmed by abnormal urinalysis results.

Post-operative Urinary Tract Infection Rate: Frequency distribution of patients who developed post-operative urinary tract infection from among the total of patients who underwent a surgical procedure within a given period.

Classification of Surgical Procedures:***

Clean Operation is a non-traumatic, uninfected operative procedure in which neither the respiratory, alimentary, nor genitourinary tract nor the oropharyngeal cavities are entered. Clean wounds are elective, primarily closed and undrained.

Clean Contaminated Operation is a procedure in which the respiratory, alimentary or genitourinary tract is entered without unusual contamination, or a wound is mechanically drained.

Contaminated Operation included open, fresh traumatic wounds, operations with a major break in the sterile technique and incision encountering acute, non-purulent inflammation.

* Adopted from "PGH Surgical Infection Surveillance" by Laudico, de Vera, et.al., PJSS Vol. 47, No. 3, July-September, 1992.

** Adopted from Center for Disease Control (CDC), Garner, 1988.

*** adopted from "Surgical Infections: Current Concepts and Management". UPPGH. Department of Surgery and PCS Committee on Surgical Infections.

RESULTS

A total of eight hundred ninety-five (895) patients were operated at Ilocos Regional Hospital Department of Surgery from September 1, 1992 to September 30, 1993. There were fifty-eight (58) cases of post-operative infections with an overall post-operative infection rate of 6.48%. The post-operative infections were classified as follows: Wound Infection - 3.8% (34/895);

Pulmonary Infection - 1.79% (8/895); Urinary Tract Infection: 0.89% (8/895). Post-operative Wound Infections comprise 58.62% of the post-operative infections noted while pulmonary and urinary tract infections were 27.59% and 13.79% respectively.

The post-operative wound infections were further broken down according to the wound category as shown in Table 1.

Table 1
INCIDENCE OF SURGICAL WOUND INFECTIONS ACCORDING TO WOUND CATEGORY

WOUND CATEGORY	TOTAL OPERATIONS	NO. OF INFECTIONS	PERCENT	P*
CLEAN	157	2	1.27	0.006
CLEAN CONTAMINATED	148	7	4.75	0.477
CONTAMINATED	427	25	5.86	0.642

***Chi-square, Yates corrected.**

Taking the percentages of the different operations according to wound category, Clean operations comprised 17.54%, Clean contaminated operations 16.53%, and Contaminated operations comprised the bulk with 47.40%. Statistical analysis of the results obtained revealed that the incidence of wound infection correlated with the wound category. Wound infection rates for Clean operations were not statistically significant while the post-operative wound infection rates for Clean contaminated and Contaminated operations showed statistical significance. Clean Contaminated operations have a higher risk of causing wound infections than Clean operations.

To check if this holds true for the most commonly done operations categorized according to surgical procedures, the post-operative wound infection rates of these operations were reviewed. The post-operative wound infection rates of the most common operations categorized according to surgical procedures are shown in Table 2.

Table 2
WOUND INFECTION RATE ACCORDING TO OPERATION (IRH Sept. '92 - Sept. '93)

OPERATION	INFECTION RATE	%
Clean:		
MRM	2/9	22.2
Thyroidectomy	0/21	0
Herniorrhaphy	0/78	0
Total	2/108	1/85

Yates corrected: Chi-square: 2.43 p-value: 0.12
Relative risk = 0.29 (0.07 < RR < 1.23)

Clean contaminated:		
Cholecystectomy	4/25	16.0
Acute Congestive Appendicitis	0/42	0
Total	4/67	5.90

Yates corrected: Chi-square: 0.01 p-value: 0.93
Relative risk = 1.25 (0.42 < RR < 3.71)

Contaminated:		
Unruptured appendicitis (Supporative/Gangrenous)	3/104	2.89
Urologic surgery (Prostate/Urolithiasis)	8/60	13.30
Total	11/164	6.70

Yates corrected: Chi-square: 1.28 p-value: 026
Relative risk = 1.96 (0.74 < RR < 5.17)

The wound infection rates do not deviate much from the previous figures of post-operative wound infection obtained when all the operations are counted. Clean contaminated and Contaminated operations still show significant increased risk of post-operative wound infections. For the Clean operations, limiting the number of operations analyzed, shows a significant increased risk of infection especially for MRM.

Important factors that were not included in the study, like proper operative technique for a particular operation and the experiences of the surgeon doing the operation may have contributed to the increased risk of infection for a particular operation. A research paper addressing this is favorable.

About ten (10) of the cases of wound infection were detected during the patient's subsequent follow up at the OPD. This encompasses 29.14% of the wound infection rate.

For the pulmonary infections, there were sixteen (16) patients who presented with pneumonia. It was noted that most of these, about fourteen (14) out of three hundred ninety-five (395) patients who underwent operations under general anesthesia had pulmonary infections compared to only two (2) out of five hundred (500) patients who were operated under local (78 patients) and spinal (422 patients) anesthesia. Statistical analysis though, did not show any statistical significance that general anesthesia causes an increased risk of post-operative pulmonary infections when compared to other types of anesthesia used. [Chi-square = 10.70; p-value = .001; Relative risk = 8.86 (2.03 < RR < 38.78).]

The post-operative urinary tract infection at IRH is 0.89%. A review of the cases who presented with post-operative UTI revealed that these patients had used catheters. Eight (8) out of six

hundred fifty-four (654) patients who used catheters compared to three (3) out of two hundred forty-one (241) who didn't use, had urinary tract infections. Statistical analysis using Fisher exact showed a statistical significance (p-value = 1.0) that catheterization was associated with an increased risk of urinary tract infection.

DISCUSSION OF RESULTS

The post-operative infection rate of 6.48 at IRH is at par with national and world standards. In an Italian study, Ortono, et.al. reported an overall surgical infection rate of 8.7% in a university hospital in Rome in 1987[3], while the Israeli study on Surgical Infections conducted in 1988 reveal an infection rate ranging from 6.3 to 12.4% observed in the general surgery departments of 11 Israeli hospitals.[4] At the UP-PGH, the overall infection rates from May 1989 to April 1990 was 6.9%.[5]

Other Philippine literature dealing with surgical infections disclosed similar trends although differs in the frequency in the type of infection noted. Most studies demonstrated that UTI was the foremost nosocomial infection. A 2-year retrospective study by Quinito-Mateo and Lim at the Santo Tomas University Hospital showed that the puerperal infection rate was 5.45% with UTI and abdominal wound infections accounting for most of the number.[6] A 3-month prospective study by Orencia et.al. at the St. Lukes's Hospital disclosed that the leading sites of surgical wound infections were the urinary tract (48.8%), respiratory tract (20.9%), and surgical wounds (14%).[7]

Littaus and Tupasi, in a 3-month prospective survey of nosocomial infections at the Makati Medical Center in 1985 showed that UTI was the predominating infection (37%) followed by post-operative wound infections (21.5%) and pneumonia (19%).[8]

A 1-year retrospective study done outside Metro Manila by Basa at the Cebu Velez General Hospital disclosed an overall infection rate of 1.6% with the leading sites of respiratory 33.6%, urinary tract 22% and surgical wounds 20%. Although most authors contend that UTI is the most common surgical nosocomial infection, it is actually surgical wound infections and pneumonia which continue to pose problems not only in terms of morbidity but also mortality and the cost of hospitalization.

Urinary Tract instrumentation seems to be the major single risk factor for UTI and maybe associated with infection rates up to 60-80% and many patients have to have a urine catheter inserted for the procedure.[1]

It was shown here in our study that this problem exists due to catheterization. This is one reason why catheters should only be used in the most urgent of situations and that it must be removed the soonest possible time.

Our post-operative pulmonary infection rate of 1.79% (16/895) is within the figures obtained at UP-PGH. The results obtained were 3.1% from May 1989-April 1990 and 1.4% from January-September 1991.[5] The time tested practice of pulmonary care remains an important armamentarium in preventing post-operative pneumonia at our institution. Patients are usually encouraged to sit up and ambulate as early as the first post-operative day. Deep breathing exercises aided by incentive spirometry and steam inhalation and coupled with pulmonary physiotherapy and cough exercises are important methods basically practiced at our institution to prevent pulmonary infection.

The incidence of post-operative wound infection at IRH of 3.8% is revealing. Comparing it to other national and world standards, our infection rate is within the acceptable limits. This is shown in Table 3.

Table 3
COMPARISON OF INCIDENCE OF SURGICAL WOUND INFECTIONS ACCORDING TO WOUND CATEGORY****

REPORT	CL	CL.CN	C N
1. U.S. Multihospital Series (NAS-NRC) 1964	5.1	10.8	16.3
2. Foothills Hospital Canada (Cruse) 1975	1.5	9.1	18.4
3. University of Maryland (Sindelar) 1979	2.9	8.2	16.7
4. Flinders Medical Center Australia (Walsh) 1980	6.6	9.9	
5. Philippine General Hospital 1983	1.5	8.8	11.9

CL = CLEAN; CL.CN = CLEAN CONTAMINATED; CN = CONTAMINATED
****From Laudico, Gatchalian et.al. 1981-1982
PJSS 1983 38 (2)

6. Ilocos Regional Hospital (present study)	1.27	4.73	5.86

Post-operative wound infection rates could also be evaluated if it is within the acceptable limits by comparing the post-operative wound infection rate for Clean wounds to the acceptable standards. Clean operation post-operative infection rates are graded as follows:

Clean Wound Infection Rate	Grade
< 1%	Ideal
1 - 2%	Acceptable
> 2%	Cause for Concern or Investigation

Lifted from "Surgical Infections: Current Concepts and Management" OP-PGH, PCS Committee for Surgical Infections

The infection rate for clean wounds is the most useful measure for surveillance and research. Basing the post-operative wound infection rate for clean operations of IRH to the above grading, we notice that our infection rate of 1.27% is within the acceptable limits.

Approximately 29.41% (10/34) of the post-operative wound infections at IRH were detected during the patient's subsequent follow up at the OPD. This experience was similarly encountered in the study of Laudico and Gatchalian at UP-PGH in 1983[10] wherein almost half of the wound infections were seen initially at the out-patient clinics.

This was again confirmed by a prospective study at the same institution form January to September 1991 which showed that about 46.4% of the wound infections were seen at the OPD.[5] Nichols also noticed this trend and recommended that infection surveillance at the hospital as well as the OPD be set up in order to collect meaningful data.[11]

Herein lies the wisdom of this prospective study. We agree with the observation of Laudico and Gatchalian[10] that a large number of wound infections could be detected after patients were discharged from the hospital and that retrospective studies are inaccurate in this regard. The inaccuracy of retrospective data in establishing the post-operative wound infection rate was also reported by Cruse[12] and Condon.[13]

Our study also attests to the finding of Laudico and Gatchalian [10] that the incidence of surgical wound infections increased according to the amount of contamination.

RECOMMENDATION

This study has proven that the post-operative infection rate at Ilocos Regional Hospital of 6.48% is comparable to national and world standards. Post-operative wound infections accounted for most of the cases followed by pulmonary and urinary tract infections.

Our post-operative wound infection using the grading for Clean operations demonstrates that it is within the acceptable limits. This study attests to the findings of previous studies that the post-operative wound infection rate correlated with the degree of contamination of the operation and that the real magnitude of the problem of post-operative wound infection could be confirmed by following up patients at the OPD.

Our post-operative pulmonary infection rate is comparable to those obtained at UP-PGH. This study debunks the impression that general anesthesia correlates with a higher incidence of post-operative pulmonary infections although other factors should be analyzed. This study also validates the general observation that catheterization increases the risk of urinary tract infections.

CONCLUSION

We may have the best statistical results in the whole world. But to most of us, probably it may not be significant. Infection will always carve its own niche even in the best institutions. It will always be a part of our everyday life as surgeons. We cannot absolutely eradicate infection. The best that we can do is to lower its incidence. There is no room for complacency. We should be on guard at all times against infection. The best game plan against infection is surveillance. We have emphasized the significance of this prospective study in identifying the magnitude of the problem in our institution and highlighted the value of following up patients religiously at the OPD. We recommend Infection Surveillance be pursued vigorously not only at the wards but also at the OPD in order to detect infections at the nearest possible time and prevent its dissemination and instill a "sentinel attitude" among surgical residents and consultants when dealing with the problem.

This study has demonstrated that our post-operative infection rate is within the acceptable standards.

Since this study is limited in scope in determining the other factors which may have contributed to these statistical results, a prospective study to search and identify these factors is welcome. It may be advisable to take into consideration patient factors like age, sex, nutritional status and other medical risk factors as well as the value of prophylactic antibiotics in this regard.

This study is also limited in the population investigated. A prospective study to establish the incidence of nosocomial infection in the other departments and the whole hospital is in order. This will give a clearer picture of the magnitude of the problem at IRH. This should serve as an impetus to our united stand against infections.

BIBLIOGRAPHY

1. GEROULANOS S. Antimicrobial Prophylaxis in Surgery. Basel, Switzerland, 1989. 54, 118.
2. SEMMELWEIS I P. The Etiology, The Concept and the Prophylaxis of Childhood Fever. Leipzig: CA Hartlaben 1861 (Translated by F B Murphy, Med Classics 1941; 5: 350-373)
3. ORTONOL, FEDERICOG, FESTONIM, PALLAVICINIF, RICCIF, ANTIVORI A: A Study on the Incidence of Post-operative Infections and Surgical Sepsis in a University Hospital Infection Control, 1987; 8 (8): 320-324.
4. SIMCHEM E, WAX Y, PENSVER B: The Israeli Study of Surgical Infections (ISSI): Initial Comparison among Hospitals with Special Focus on Hernia Operations. Infect. Control Hosp. Epidem 1989; 9 (6) 241-249.
5. LAUDICO AV, DE VERA RL, DELA PENA AS, CABALUNA ND, LASARTE EA, GOMEZ DC: Final Report of a 4½ Year Project on Surgical Infection Surveillance at the Department of Surgery Philippine General Hospital. Phil J Surg Spec. 1992 47 (3): 109-115.
6. QUINITO-MATEO ZM, LIM CT: Nosocomial Infection in the Puerpera: A Two Year Comparative Review. Philippine Journal Obstet Gynecol 1981; 5 (1): 29-32.
7. ORENCIA AJ, DISIERTO D, LOOT N, SANCHEZ D, GAPPIT M, ZACARIAS M, QUIMOSING E, GATCHALIAN Jr. E, GATCHALIAN Sr. E: Nosocomial Infection at St. Luke's Hospital. A Prospective Study, Philippines J Int Med 1984; 22: 246-253.
8. LITTUA R, TUPASI T: Nosocomial Infections at the Makati Medical Center: A Prospective Study and Analysis of Risk Factors. Makati Medical Center Proc 1987; 1 (1): 24-29.
9. BASA GM: An Epidemiologic and Clinical Investigation of Noso-comial Infections at the Cebu Velez General Hospital. Phil J Int Med 1984; 22: 254-256.
10. LAUDICO AV, GATCHALIAN ER, ROXAS AB, LIMSON AA: Povidone Iodine and the Surgical Wound Infection. Philippine Journal of Surg Spec. 1983: 38 (2): 74-82.
11. NICHOLS RL: Surgical Wound Infection, Am J Med: 1991 Sep 16; 91 (3B) 54s-64s.
12. CRUSE PJE, FORD R: The Epi-demiology of Wound Infection. A 10 year Prospective Study of 62,939 Wounds. Surg Clin North Am 1980; 60 (1) 27-40.
13. CONDON RE, SCHULTE WJ, MALANGONI MA, ANDERSON-TESCHENDORF MJ: Effectiveness of a Surgical Wound Surveillance Program. Arch Surg 1983; 118:303-307.

EFFECT OF DIAPHRAGMATIC LEVEL ON CARDIAC SIZE

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ABSTRACT

This prospective study involves sixty-five patients filmed from July 9, 1993 to September 10, 1993. All subjects have chest frontal films in full inspiration, mid-inspiration, and full expiration taken in succession. Films were assessed as adequate for interpretation by two radiologists. In each film, the following parameters were measured:

(1) Diaphragmatic level based on
a. posterior rib level of dome of right and left hemidiaphragm;
b. distress from mid-clavicle to dome of right and left hemidiaphragm.
(2) Cardiothoracic ratio, and
(3) Frontal area.

Mean and one standard deviation of all parameters were obtained in each of these chest frontal films and are compared using paired t-test. Diaphragmatic level was significantly different ($p < 0.001$) in full inspiratory, mid-inspiratory, and full expiratory films except for the level of the right hemidiaphragm based on posterior rib in full inspiratory film and mid-inspiratory film. Cardiothoracic ratio is significantly different in the full inspiratory, mid-inspiratory, and full inspiratory films ($p < 0.001$). Frontal area did not vary and showed similar values.

In conclusion, this study aims to quantitatively determine variation in cardiac measurement at different diaphragmatic levels. CT ratio are 0.47-0.54, 0.43-0.48, and 0.40-0.46 when diaphragmatic level is at the 9th, 10th, and 11th right posterior rib respectively.

INTRODUCTION

Even in the advent of the more sophisticated imaging modalities, chest radiograph has remained to be an indispensable tool in Medicine. Its most important role is the assessment of the cardio-pulmonary system, the evaluation of the heart, great vessels, mediastinum, and lungs. In the assessment of the heart, size provides the major clue to the presence of an abnormality. At present, the widely used method of assessing the heart is the cardio-thoracic ratio. However, there are discrepancies noted regarding the size of the heart and level of the diaphragm.

Hence, this study is undertaken with the following objectives:

1. to check the effect of the level of the diaphragm on the cardio-thoracic ratio, and
2. to determine if the frontal area is affected by the level of the diaphragm.

METHODOLOGY

Subjects included sixty-five (65) normal subjects with age range 17 to 58, 35 of whom were males and 30 were females who were all seen at the Ilocos Regional Hospital in San Fernando, La Union from July 9, 1993 to September 10, 1993. All subjects have chest frontal films (teleroentgenograms) in full inspiration, mid-inspiration, and full inspiration taken in succession. All films were judged to be adequate for interpretation by two radiologists (the author and a consultant). The basis of patient selection is illustrated in Diagram I.

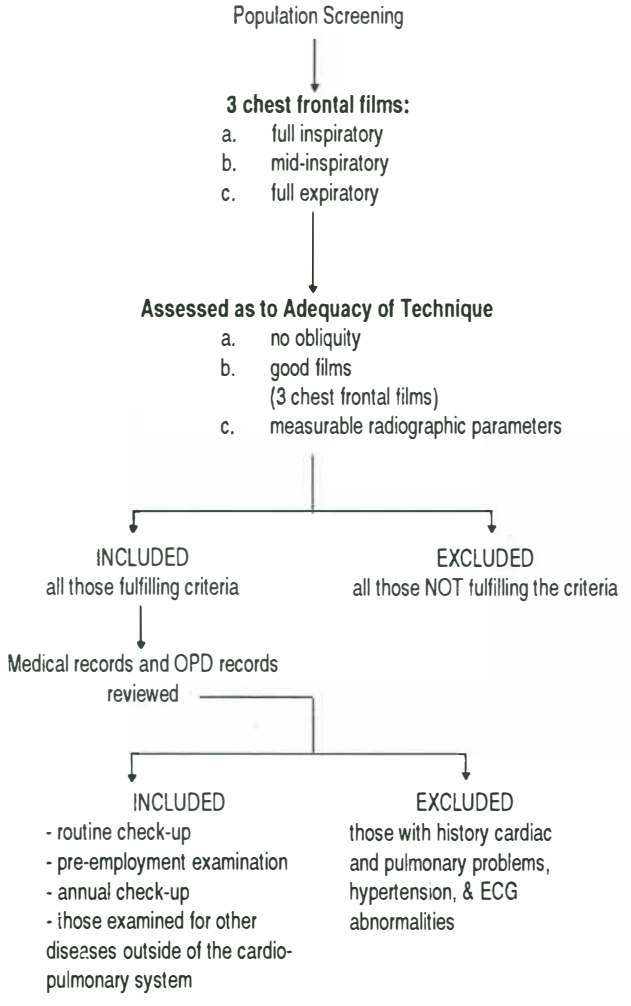
The three (3) chest PA films were assessed as to adequacy of technique using the following criteria:

(1) no obliquity
(2) chest frontal films taken in succession (Diagram II)
  a) full inspiratory
  b) mid-inspiratory
  c) full expiratory
(3) good penetration, adequate for accurate measurement of the parameters

The medical charts or out-patient (OPD) records of those who qualified were reviewed. All those with history of cardiac and pulmonary problems were excluded. Included were those who had chest x-ray for a routine check-up, pre-employment

examination, annual physical examination or those who were examined for other diseases outside the cardio-pulmonary system. All of the subjects satisfied the radiographic and clinical screening criteria.

DIAGRAM I
FLOW CHART FOR PATIENT SELECTION



RADIOLOGIC EVALUATION (Diagram II)

Each patient had three chest frontal films taken in succession: full inspiration, mid-inspiration, and full expiration. The cardio-thoracic ratio and frontal area of the heart were separately measured.

The cardio-thoracic ratio is adding up the widest transverse diameter to the right of the midline with the widest diameter to the left and divides the sum with the greatest transverse thoracic diameter, taken at its inner-to-inner margins.

The frontal area of the heart was computed using the formula A = (¶/4) B x L, where B is the broad diameter and L is the long diameter. The value obtained were rounded to the nearest square centimeter. (cm^2).

The long diameter of the heart (designated as L) is measured from the junction of the cardiac and vascular silhouette on the upper part of the right heart border (where the right pulmonary artery touches the upper part of the right cardiac border) to the apex of the heart on the left.

The broad diameter (designated as B) was measured as the greatest diameter extending from the upper limit of the left ventricular contour to the lowermost point of the right border of the heart. If the heart is transversely placed, it may be necessary to extend the lower right heart border in its natural curve to delineate the margins of the broad diameter. Both measurements were done to the nearest centimeter.

The following parameters were also measured: diaphragmatic level based on the (a) posterior rib level of the dome of the right and left hemidiaphragm, and (b) the distance from the midclavicle to the dome of the right and left hemidiaphragm.

Difference between the right and left hemidiaphragm level is likewise noted.

Reference Points for Diagram II

DDR - distance of the right dome of the diaphragm from the midportion of the ipsilateral clavicle.

DDL - distance of the left dome of the diaphragm from the midportion of the ipsilateral clavicle.

RPR - level of the right dome of the diaphragm based on the right posterior rib.

LPR - level of the left dome of the diaphragm based on the left posterior rib.

TR - maximum projection to the right heart border from the midline.

TL - maximum projection to the left heart border from the midline.

TD - widest thoracic diameter measured in its "inner-to-inner" margin.

L - Long diameter. This line extends from the junctions of the cardiac and vascular silhouette on the upper part of the right border obliquely downward to the apex on

the left.

B - Broad diameter. This is the greatest diameter extending from the upper limit of the left ventricular contour to the lowermost point of the right border of the heart. This is perpendicular to the long diameter in mid-inspiration. If the heart is transversely placed, it maybe necessary to delineate the margin of the broad diameter.

h - difference between the right and left hemidiaphragm
(-) if left hemidiaphragm is lower than the right
(+) if the left hemigiaphragm is higher then the right

TABLE I
LEVEL OF THE DIAPHRAGM IN FULL INSPIRATION, MID-INSPIRATION AND FULL EXPIRATION
(mean values ± 1 standard deviation)

	FULL INSPIRATION	MID-INSPIRATION	FULL EXPIRATION
R hemidiaphragm based on the posterior rib	10.65 ± 0.65	10.65 ± 0.65	10.65 ± 0.65
L hemidiaphragm based on the posterior rib	11.06 ± 1.70	10.49 ± 0.72	0.88 ± 0.70
R hemidiaphragm distance from the clavicle (cm)	18.26 ± 7.17	17.09 ± 2.26	15.43 ± 2.18
L hemidiaphragm distance from the clavicle (cm)	19.81 ± 2.04	18.52 ± 2.20	16.95 ± 2.11
Difference between R and L hemidiaphragm	1.04 ± 0.082	0.77 ± 0.087	0.70 ± 0.082

TABLE II
COMPARISON OF THE LEVEL OF THE DIAPHRAGM IN FULL INSPIRATION AND MID-INSPIRATION
(using paired t-test)

	values (mean ±SD)	t-value	p-value	CONCLUSION
R hemidiaphragm based on the posterior rib	full inspiration = 10.65 ± 0.65 mid-inspiration = 10.14 ± 0.54	0.6678	>0.050	not significant
L hemidiaphragm based on the posterior rib	full inspiration = 11.06 ± 1.70 mid-inspiration = 10.49 ± 0.72	0.493	<0.001	highly significant

TABLE II .... continued:

	values (mean ±SD)	t-value	p-value	CONCLUSION
R hemidiaphragm distance from the clavicle (cm)	full inspiration = 18.26 ± 7,17 mid-inspiration = 17.09 ± 2.29	9.90	<0.001	highly significant
L hemidiaphragm distance from the clavicle (cm)	full inspiration = 19.81 ± 2.04 mid-inspiration = 18.52 ± 2.20	8.412	<0.001	highly significant
Difference between R and L hemidiaphragm	full inspiration = 1.045 ± 0.082 mid-inspiration = 0.77 ± 0.087	7.233	<0.001	highly significant

TABLE III
COMPARISON OF THE LEVEL OF THE DIAPHRAGM IN MID-INSPIRATION AND FULL EXPIRATION
(using paired t-test)

	values (mean ±SD)	t-value	p-value	CONCLUSION
R hemidiaphragm based on the posterior rib	mid-inspiration = 10.14 ± 0.54 full expiration = 9.60 ± 0.55	8.6419	<0.001	highly significant
L hemidiaphragm based on the posterior rib	mid-inspiration = 11.49 ± 0.72 full expiration = 9.88 ± 0.70	26.67	<0.001	highly significant
R hemidiaphragm distance from the clavicle (cm)	mid-inspiration = 19.09 ± 2.26 full expiration = 15.43 ± 2.18	10.71	<0.001	highly significant
L hemidiaphragm distance from the clavicle (cm)	mid-inspiration = 18.52 ± 2.20 full expiration = 16.95 ± 2.11	10.44	<0.001	highly significant
Difference between R and L hemidiaphragm	mid-inspiration = 0.77 ± 0.087 full expiration = 0.77 ± 0.082	1.648	<0.001	highly significant

TABLE IV
COMPARISON OF THE LEVEL OF THE DIAPHRAGM IN FULL INSPIRATION AND FULL EXPIRATION
(using paired t-test)

	values (mean ±SD)	t-value	p-value	CONCLUSION
R hemidiaphragm based on the posterior rib	full inspiration = 10.65 ± 0.65 full expiration = 9.60 ± 0.55	14.89	<0.001	highly significant
L hemidiaphragm based on the posterior rib	full inspiration = 11.06 ± 1.70 full expiration = 9.88 ± 0.70	15.67	<0.001	highly significant

TABLE IV .... continued:

	values (mean ±SD)	t-value	p-value	CONCLUSION
R hemidiaphragm distance from the clavicle (cm)	full inspiration = 18.26 ± 7,17	16.28	<0.001	highly significant
	full expiration = 15.43 ± 2.18			
L hemidiaphragm distance from the clavicle (cm)	full inspiration = 19.81 ± 2.04	15.04	<0.001	highly significant
	full expiration = 16.95 ± 2.11			
Difference between R and L hemidiaphragm	full inspiration = 1.045 ± 0.082	1.7529	<0.05	not significant
	full expiration = 0.70 ± 0.082			

TABLE V
CARDIO-THORACIC RATIO AND FRONTAL AREA IN FULL INSPIRATION MID-INSPIRATION AND FULL EXPIRATION (mean values ± 1 SD)

	FULL INSPIRATION	MID-INSPIRATION	FULL EXPIRATION
CT Ratio	0.44 ± 0.082	0.46 ± 0.036	0.48 ± 0.037
Frontal area cm^2	11.06 ± 1.70	11.49 ± 0.72	9.88 ± 0.70

TABLE VI
CARDIO-THORACIC RATIO IN FULL INSPIRATION AND MID-INSPIRATION (using paired t-test)

	values (mean ±SD)	t-value	p-value	CONCLUSION
CT ratio	full inspiration = 0.44 ± 0.082	8.25	<0.001	highly significant
	full expiration = 0.46 ± 0.006			

TABLE VII
CARDIO-THORACIC RATIO IN MID-INSPIRATION AND FULL EXPIRATION (using paired t-test)

	values (mean ±SD)	t-value	p-value	CONCLUSION
CT ratio	mid-inspiration = 0.46 ± 0.036	1.648	>0.05	not significant
	full expiration = 0.48 ± 0.037			

TABLE VIII
COMPARISON OF CT RATION AND FRONTIAL AREA IN DIFFERENT DIAPHRAGMATIC LEVELS

	11.06 ± 1.70	10.49 ± 0.72	9.88 ± 0.70
Cardiac measurement	9th Posterior Rib	10th Posterior Rib	11th Posterior Rib
CT Ratio	0.502 ± 0.038	0.458 ± 0.03	0.434 ± 0.0294
Frontal Area	112.8 ± 16.7	112.8 ± 16.7	112.8 ± 16.7

STATISTICAL ANALYSIS

To determine the effects of the respiratory phases on diaphragmatic level, the level of the right and left hemidiaphragm based on the number of posterior rib and distance from the mid-clavicle, the mean values in full inspiration, mid-inspiration, and full expiration were compared using paired t-test with the following hypotheses:

(1) the diaphragmatic level based on the number of posterior rib and distance from the mid-clavicle in full inspiration exceeds that of mid-inspiration.
(2) the diaphragmatic level based on the number of the posterior ribs and distance from the mid-clavicle in mid-inspiration exceeds that of full expiration.
(3) the diaphragmatic level based on the number of posterior ribs and distance from the mid-clavicle in full inspiration exceeds that of full expiration.

The decision rule was based on a level of significance $a = 0.05$.

To determine if the values of the cardio-thoracic ratio and frontal area are affected significantly by the phases of respiration, their mean values were compared using the paired t-test in the following manner:

(1) Full inspiration vs. mid-inspiration,
(2) Mid-inspiration vs. full expiration, and
(3) Full inspiration vs. full expiration.
Level of significance was set at 0.05.

RESULTS

The level of the diaphragm based on the posterior rib and distance from the mid-clavicle varies with the different aspects of respiration. The values decrease from full inspiration to full expiration (see table 1).

When the values are compared, using the paired t-test, highly significant statistical difference ($p < 001$) were obtained in all parameters except for one (1): level of the right hemidiaphragm based on the posterior rib in full inspiration and mid-inspiration (Table II - IV).

The cardio-thoracic ratio is significantly different in the full inspiratory, mid-inspiratory, and full expiratory films ($p < 001$). The frontal area did not vary and showed similar values (Table IX).

Based on the posterior rib level of the right hemidiaphragm (Table V), the CT ratio was shown to vary significantly using the independent t-test ($p > 0.001$)

In conclusion, this is the first study which aim to quantitatively determine the variations in cardiac measurements at different diaphragmatic levels. The CT ratio estab-

lished in this study are 0.47 - 0.54, 0.43 - 0.48, and 0.40 - 0.46 when the diaphragmatic level is at the 9th, 10th, and 11th right posterior ribs respectively.

CONCLUSIONS AND RECOMMENDATIONS

As a sequel to the paper done by the same author entitled "**Normal Radiographic Measurements of the Heart in Adult Filipinos**" which based its study on the analysis of 1,200 chest radiograms while correlating range of values with height and weight, this present study was able to establish that the frontal area is not affected by the level of the diaphragm. In each of the 65 subjects, the same values were obtained in full inspiration, mid-inspiration, and full expiration. It showed that any increase in the transverse dimension of the heart with diaphragmatic elevation would be compensated for by a decrease in the vertical dimension of the heart.

The cardio-thoracic ratio which is a widely used technique to check for cardiomegaly will not always be less than or equal to 0.5 to label it normal in size. This is the very first study aimed to quantitatively determine the variations in cardiac measurements at the different diaphragmatic levels. The CT ratio are 0.47 - 0.54, 0.43 - 0.48, and 0.40 - 0.46 when the diaphragmatic level is at the 9th, 10th, and 11th right posterior ribs respectively.

The findings in this study could be applied in the following situations:

(1) The frontal area can be used to monitor cardiac size in patients being followed up for cardiac disease or systemic hypertension,
(2) The frontal area can be used to assess and monitor cardiac size in patients with pulmonary disease,
(3) The achieved values of the cardio-thoracic ratio as the diaphragm decreases from the 9th, 10th, 11th ribs could be used,
(4) The new values obtained in this study regarding the CT ratio can probably be used for patients with COPD where the cardio-thoracic ratio is expected to be low.

BIBLIOGRAPHY

1. Paul and Juhl's Essentials of Radiologic Imaging, 1987, 5th edition, pp. 975-979.
2. Cardiac Roentgenology, Shadows of the Heart by Marvin Daves, MD, 1981, 1st edition, pp. 9, 552.
3. Chest Roentgenology by Benjamin Felson, MD, 1981, 2nd edition, p. 496.
4. Primer on Clinical Radiology by Thomas Thompson, MD, 1980, 2nd edition.
5. Meschan: Atlas of Anatomy Basic to Radiology, Volume II, 3rd edition, 1978, pp. 725-731.
6. Diagnostic Radiology in Clinical Medicine by Rosalind Troupin, 1978, 2nd edition, pp. 19-23.
7. Atlas of Roentgenographic Measurements by Lee Lusted and Theodore Keats, MD, 1977, 4th edition, pp. 226-229.
8. Radiology of the Heart and Great Vessels by Robert Cooley, MD, 1972, 2nd edition, pp. 83-90.
9. Roentgen Signs in Clinical Diagnosis by Meschan, 1958, 1st edition, pp 660-667.

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SAFETY OF TERM VAGINAL BREECH DELIVERY IN UNTESTED PELVES OF HEALTHY PRIMIGRAVIDS

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ABSTRACT

A comparative study was made to test the safety of term vaginal breech delivery in untested pelves of healthy primigravid using caesarean section as the gold standard. Using a randomized method of sampling, patients who fulfilled the inclusion criteria were grouped into caesarean group and the vaginal breech delivery group. Forty-two patients were accepted into the study, 20 were in the CS group while 22 were in the VBD group. Results of the study showed that CS had more risk than VBD in terms of maternal morbidity. A total of 14 (70%) patients showed complications ranging from wound dehiscence to spinal headache. The VBD group showed only 31.82% complication rate. As such, the hospital stay of patients undergoing CS is increased. Neonatal outcome were similar in both groups. The stages of labor for the VBD was not in any way prolonged and did not contribute as a factor in maternal safety or danger. Term vaginal breech delivery then is a very viable alternative for healthy primigravids.

INTRODUCTION

Recent trends in the management of pregnancy with breech presentation show an increasing use of caesarean delivery by 75% in 1983 to 85% in 1991 (Cunningham, 1993). Other authors even reported higher incidence, that from 21.8% to 93.7% (Oian, 1987). The most important reason cited for this increasing trend is the prevailing perception that the abdominal route is the safer method for the mother and the baby. However, retrospective studies have shown that vaginal breech deliveries in multigravids can be as safe as that of caesarean delivery (Bowes, 1979; Mann, 1979; O'Leary, 1979; Jaffa, 1981; Gimovsky, 1982; Mahomed, 1988; Weiner, 1990). They have shown that with term pregnancies presenting with complete or frank breech, estimated fetal age is within normal limits , with no maternal complications and has adequate clinical pelvimetry, vaginal delivery is a much better option than caesarean section. Weiner stated further that routine caesarean delivery of the near-term or term breech fetus increases maternal morbidity and mortality and the cost to society. It does not also provide a foreseeable benefit to the near-term and term-breech fetus. As a consensus, therefore, they have suggested that multigravids with breech presentation should have a trial of labor before contemplating on caesarean section.

Caesarean section , however, should be the method of choice forpreterm breech presentation (Mann, 1979; Croughan-Minihane, 1990; Main, 1983, Duenhoelter, 1979; Woods, 1979; Cunningham, 1993) and for breech primigravids.

Narrative accounts of midwives or local traditional birth attendants concerning primigravids with breech pregnancy successfully delivering vaginally at home raises our suspicion that the criteria used by previous authors in multigravids can also be possibly used in primigravids. There has been no retrospective or prospective study done concerning vaginal breech delivery in untested pelves because the prevailing management is via the abdominal route. The Ilocos Regional Hospital Obstetrics Department is undertaking this study to see whether vaginal breech delivery in an untested pelvis is feasible using carefully formulated criteria.

This study has the following objectives:

General Objective:

To be able to determine the safety of vaginal breech delivery among untested pelvis of healthy primigravids in a rural setting using carefully formulated selection criteria.

Specific Objectives:

1. To be able to determine the maternal safety of vaginal breech delivery among untested pelves of healthy primigravids versus caesarean section using maternal morbidity and mortality, length of labor among those that had undergone vaginal delivery as parameters.

2. To be able to determine the neonatal outcome in vaginal breech delivery in untested pelves versus caesarean section using APGAR Score, neonatal morbidity and mortality.

MATERIALS AND METHODS

The study population consisted of primigravids admitted to

the Ilocos Regional Hospital from September 1, 1992 to August 31, 1993. The inclusion criteria of the study were the following:

1. 37 - 42 weeks by LMP or sonographic aging.
2. Singleton pregnancy with complete or frank breech presentation.
3. Fundic height of 28 to 32 centimeters.
4. Gravid patient is in labor.
5. Adequate clinical pelvimetry.
6. No maternal problems like bleeding, hypertension, sepsis, etc.
7. No signs of fetal distress.
8. No cord prolapse.

Women who fulfilled these criteria were asked to participate and those who gave informed consent were admitted to the study. Subjects were assigned to trial of labor and low transverse caesarean section (LTCS) by random sampling. Sample determination was determined using the Statcalc Program (Mehta, 1985).

Those assigned to the vaginal breech delivery group (VBD) were monitored as to the vital signs, labor progress, cervical dilatation and fetal heart tones. All subjects had internal examination and clinical pelvimetry under the author. Patients in active phase of labor and had poor uterine contractions (no change in cervical dilatation for 2 or more hours) received oxytocin for augmentation. Patients who still did not respond to the augmentation were subjected to caesarean section and were excluded in the study. The standard Friedman curve was used to monitor the progress of labor.

All vaginal breech deliveries were by partial breech extraction or with the aid of Mauriceau's or Piper's forceps on the aftercoming head. The patients were brought to the operating room when they were already in the active phase of labor.

The vaginal breech delivery group were assessed as to the duration of the first and second stage of labor, length of hospital stay, maternal morbidity and mortality.

The LTCS group were also assessed as to the length of hospital stay, operative complications like wound infection, anesthetic sequelae and anemia.

The profile of both groups was described as to age and anesthesia used. **Neonatal** outcome in both groups was also noted. APGAR scores were noted on the first, fifth and tenth minutes after the delivery. The APGAR Scores were compared according to delivery whether oxytocin was used as augmentation. The APGAR Scores were likewise compared between the neonates delivered by Partial Breech Extraction (PBE) alone with Mauriceau's maneuver or PBE with Piper's forceps application on the aftercoming head. Significant neonatal trauma was recorded and was defined as any trauma other than bruising and edema (i.e., lacerations, fractures and nerve palsies). The length of the neonatal hospital stay was also recorded.

The data was analyzed descriptively and statistically using the chi-square test with Yates corrected factor at the 95% confidence level. The tested hypothesis of comparison is accepted or rejected based on the confidence interval limits.

RESULTS

A total of 46 patients came in as frank or complete breech. Four (4) patients were excluded because they came in already fully dilated. Of the patients accepted, 20 underwent caesarean section while 22 had undergone vaginal breech delivery. Twenty patients under the VBD group had frank breech presentation while 2 had complete breech presentation.

Patient's profile between the two groups are almost similar. The age ranges are comparable with patients' age range converging at 20-23 years old (40% and 45% LTCS and VBD respectively). This was followed by the age range of 24 - 27 years old which is 30% for LTCS and 27% for VBD (Table 1).

TABLE I
AGE DISTRIBUTION OF PATIENTS WHO UNDERWENT CAESAREAN SECTION VERSUS VAGINAL BREECH DELIVERY

Age Range	LTCS	Percent	VBD	Percent
16 - 19 yrs.	2	10%	3	13.64%
20 - 23	8	40%	10	45.45%
24 - 27	6	30%	6	27.27%
28 - 31	2	10%	2	0.09%
32 - 35	2	10%	1	4.55%
TOTAL	20	100%	22	100.00%

The LTCS group underwent spinal anesthesia while the VBD had intravenous sedation for 72.7% of the cases, saddle block anesthesia in 13.6%, local anesthesia in 9.1% and 4.5% had general intravenous anesthesia (Table 2).

TABLE 2.
TYPE OF ANESTHESIA USED IN VBD GROUP

Type of Anesthesia	Number of Cases	Percent
IV sedation	16	72.7%
Saddle Block	3	13.6%
Local anaesthesia	2	9.1%
General IV	1	4.5%
TOTAL	22	100.0%

Maternal morbidity were noted between the two groups (Table 3). Seventy percent (14 out of 20) of those who had abdominal route had complications. Of the fourteen, 25% had wound infection, 20% had post-operative anemia, another 15% had urinary tract infection and 5% had spinal headache. As compared to the VBD group, they only had 31.82% (7 out of 22) as a complication rate. The difference between the two groups is statistically significant using the odds ratio, relative risk or the chi-square test. Since the caesarean group had a significantly high incidence of maternal complications, it is but expected that the hospital stay of the patients is longer as compared to the hospital standard (7.25 days versus 5 days). They have stayed approximately 45% longer in the hospital as compared to their VBD counterparts who have stayed 1% longer (Table 4).

There was no note of maternal mortality in both study groups.

TABLE 3.
MATERNAL COMPLICATIONS AS SEEN IN CAESAREAN SECTION VERSUS VAGINAL BREECH DELIVERY

Complications	CS	VBD	Statcalc
Wound infection	5	0	Odds Ratio = 5.0
Post-op anemia	4	3	
UTI	3	4	Relative Risk = 2.2
Spinal headache	2	0	
TOTAL	14	7	p-value = 0.03

TABLE 4.
HOSPITAL STAY OF PATIENTS CS vs. VBD

Type of Delivery	Hospital Stay	Hospital Standard	Percentage Difference
Caesarean	7.25 days	5 days	45%
VBD	2.02 days	2 days	1%

Neonatal outcome in both study groups had similar results (Table 5). There was no note of significant trauma in both groups. All neonates with APGAR's below or equal to 7 had improved to 9 to 10 in 5 minutes time. Tested statistically, the two groups do not differ significantly. The hospital stay of both groups are also comparable with the CS group slightly has longer stay of 2.5 days as compared to the VBD group who stayed approximately 2.36 days.

TABLE 5.
NEONATAL OUTCOME AS MEASURED BY APGAR SCORES

APGAR Score in 1 minute	CS Group	VBD Group	Statcalc
8 - 10	18	18	Odds Ratio =2.0
≤ 7	2	4	Relative Risk = 1.5
TOTAL	20	22	p-value = 0.75

The duration of labor was also noted in the VBD group. The mean duration for stage 1 labor for this group 10.3 hours as compared to acceptable maximum duration of 20 hours (Table 6).

TABLE 6.
DISTRIBUTION OF VBD PATIENTS AS TO DURATION OF FIRST STAGE OF LABOR

Time (hrs)	No. of Cases	Statcalc
5 - 8	5	
9 - 12	12	
13 - 16	5	Mean = 10.5 hrs.
TOTAL	22	

The mean duration for the second stage of labor on the other hand is 24.6 minutes as compared to the allowable time which is 60 minutes (Table 7).

TABLE 7.
DISTRIBUTION OF VBD PATIENTS AS TO THE DURATION OF SECOND STAGE OF LABOR

Time (mins)	No. of Cases	Statcalc
0 - 29	17	
30 - 49	2	
50 - 69	3	Mean = 24.6 mins.
Total	22	

The subjects at the VBD group were further stratified into two groups, those who received oxytocin augmentation and those who did not (Table 8). Their effect on the APGAR Scores were analyzed statistically and there was no significant difference between the two groups. The effect of the manner of

delivery of the aftercoming head was also compared (Table 9) with regards to the APGAR Score. There was no statistical difference noted. All APGAR Scores equal to or less than 7 had all improved to 9 and 10 on the 5th minute.

TABLE 8.
NEONATAL OUTCOME MEASURED BY APGAR SCORE, OXYTOCIN AUGMENTATION vs. NO AUGMENTATION

APGAR Score in 1 minute	With Augmentation	No Augmentation	Statcalc
8 - 10	8	8	OR = 1.0
≤7	33	3	RR = 1.0
Total	11	11	p = 0.63

TABLE 9.
NEONATAL OUTCOME MEASURED BY APGAR SCORE: PBE ALONE (MAURICEAU'S MANEUVER) vs. PBE WITH PIPER'S FORCEP'S APPLICATION

APGAR Score in 1 minute	With Augmentation	No Augmentation	Statcalc
8 - 10	10	6	OR = 1.67
≤7	3	3	RR = 1..25
Total	13	9	p = 0.96

DISCUSSION OF RESULTS

Our results show that vaginal breech delivery using the carefully selected criteria for accepting patients has a place in the management of breech primigravids. Compared with the abdominal route, there are lesser maternal complications seen in the VBD group. Our results concur with the study of various authors. A prospective study by Klufio (1991) showed that attempts to improve the perinatal outcome by elective caesarean section in multigravids with breech presentation showed no significant difference to those delivered vaginally. Our study had similar findings. More so, using the inclusion criteria made for multigravid patients presenting with breech, the results we got were also comparable.

Hospital stay has been considerably shortened in the VBD group and this has a lot of social cost implications. In the Kenney report (1986), the U.S. Federal government can save as much as $718 M by carefully selecting patients who will undergo vaginal breech delivery. In our setting being in a Third World country where 85% of the population is in the rural area, the social cost implication is even more far-reaching. The cost alone at our hospital per caesarean section is equivalent to ₱ 2995.45 as compared to vaginal breech delivery wherein the hospital would shoulder ₱ 883.95 alone. Extrapolated on the total number of cases admitted during the whole year round, the cost of hospitalization must be so staggering. What more if the patient is admitted in private hospitals.

The study used the Friedman's curve to follow labor. The labor pattern is almost similar to that of the vertex peers. The mean duration of the first stage of labor is 10.5 hours which is a little bit longer compared to the cephalic counterparts. There was a little delay in the descent of the fetuses, which is also an observation of Friedman (1978) himself when he did evaluation of the labor pattern of breech fetuses. Likewise, the second stage of labor patterns depicted similar results to that of the vertex peers. The duration of labor therefore, has not been found to be a factor in maternal and perinatal safety in our study.

Our study has unmistakable impressions: first, the strict selection criteria used by the researcher was associated with carefully selected primigravids who underwent trial of labor and ultimately delivered vaginally. This was based and strengthened further by reports of Gimovsky, O'Leary and Bingham who had retrospective studies concerning the profile of patients with breech fetuses and are candidates for vaginal delivery. Second, none of the criteria on which selection was based have been validated prospectively. All constituted "good clinical sense and judgment." Thirdly, the maternal and neonatal results of the caesarean section are comparable to that of the vaginal breech delivery when judicious clinical assessment was applied. And lastly, the caesarean section did not eliminate or lower the risk of maternal complications as compared to the vaginal route. Our results had therefore shown that contrary to previous beliefs that caesarean section is the preferred procedure for breech presentation, vaginal breech delivery in primigravids promises to be the better choice in terms of maternal and neonatal outcome. Vaginal breech delivery in primigravids with the use of a protocol for carefully selecting patients to undergo the procedure is therefore safe, medically acceptable, socially and economically sound.

CONCLUSIONS

This study was done to look into the safety of vaginal breech delivery in primigravids presenting with term breech. Caesarean section for breech presentation has no clinical edge over that of vaginal breech delivery in healthy primigravids using our carefully selected criteria. Maternal outcome in terms in morbidity is higher in the caesarean group than in the VBD group. Hospital stay therefore becomes longer. Neonatal outcome showed no significant difference in both groups.

This study proves that vaginal delivery in primigravids with frank and complete breech presentation is safe in selected

cases. The fears of well-trained obstetricians in breech delivery that this skill will become a thing of the past is unfounded. This skill which is the hallmark of a good obstetrician is here to stay.

RECOMMENDATIONS

We suggest that another related study be made using a bigger sample size in order to better evaluate our feto-maternal outcome and make more definitive conclusions.

We suggest a study to see the long-term effects of the delivery route. It could either be through the children's behavior, health, or scores on the McCarthy scales of children's abilities.

This we hope to do in the near future.

BIBLIOGRAPHY

Bingham P, Lilford Rj. Management of the selected term breech presentation: Assessment of the Risks of selected vaginal delivery against caesarean section for all cases. Obstet Gynecol 1987; 69:965.

Bowes WA, et. al. Breech delivery: evaluation of the method of delivery on perinatal results and maternal morbidity. Am J Obstet Gynecol 1979; 135:965.

Collea JV, Chein O, Quilligan EJ. The randomized management of term-frank breech presentation. A study of 208 cases. Am J Obstet Gynecol 1980; 137:235

Croghan-Minihane MS, et.al. Morbidity among breech infants according to method of delivery. Obstet Gynecol 1990; 75:821.

Cunningham G, et.al. "Williams' Obstet rics" 19th ed.New Jersey: Appleton and Lange, 1993.

Duenholelter JH, et. al. A paired con trolled study of vaginal and abdominal delivery of the low birth weight breech fetus. Obstet Gynecol 1979;54:310.

Friedman EA. " Labor: Clinical Evalua tion and Management " 2nd ed. New York: Appleton Century Crofts, 1978.

Gimovsky ML, Paul RH. Singleton breech presentation in labor - Experience in 1980. Am J Obstet Gynecol 1982; 143:733.

Jagani N, et. al. The predictability of labor outcome from a comparison of birth weight and X-ray pelvimetry. Am J Obstet Gynecol 1981; 139:507.

Jaffa AJ, et. al. Management of term-breech presentation in primigravidae. Br Obstet Gynecol 1981; 88:721.

Kenney AM, et. al. Medicaid expenditures for maternity and newborn care in America. Fam Plann Perspect 1986; 18:103.

Klufio CA, Amoa AB. Breech presentation and delivery. P-N-G Med J 1991; 34(4): 289-95.

Mahomed K. Breech delivery: A critical evaluation of the mode of delivery and the outcome of labor. Int J Gynecol Obstet 1988; 27(1): 17-20.

Mann LL, Gallant JM. Modern management of the breech delivery. Am J Obstet Gynecol 1979; 134: 611.

Mann DM, Main EK, Maurer MM. Caesarean section versus vaginal delivery for the breech fetus weighing less than 1500 g. AM J Obstet Gynecol 1983; 146: 580.

Mehta CR, Patel NR, Gray R, J. Am. Stat. Assoc., 1985; 78; 969-973. Pascal Program by ELF Franco & N Campos-Filho.

Oian P, et. al. Breech delivery: A critical evaluation of the mode of delivery and outcome of labor. Acta Obstet Gynecol Scand 1988; 67;75.

O'Leary JA. Vaginal delivery of the term breech: A preliminary report; Obstet Gynecol 1979; 53; 341.

Weiner C. Vaginal breech delivery in the 1990's, Clin Obstet Gynecol 1992; 35 (3): 559 - 568.

Woods JR. Effects of low birth weight breech delivery on neonatal mortality. Obstet Gynecol 1979; 53: 735.

1st Prize winner, IRH Research Paper Contest, Retrospective Category 1993.

MEASLES OCCURRENCE AMONG PREVIOUSLY IMMUNIZED CHILDREN: A 5-YEAR RETROSPECTIVE STUDY

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ABSTRACT

A retrospective study on measles occurrence was carried out in 539 children admitted to the Department of Pediatrics, Ilocos Regional Hospital during the period of January 1988 to June 1993. Further review of 503 cases whose age groups was and above the target date of immunization (_ 9 months of age) was done. There were 20.5% vaccinated and 79.5% unvaccinated of which both groups had age-specific prevalence greatest among 24-59 month old. These cases were analyzed for exposure histories, risk factors for and incidence of complications and outcome consequences.

INTRODUCTION

Measles has been the most common childhood disease, so that all throughout there's much that has been known about the disease. For the past 25 years now, although it has been reduced, it is still not a rarity. Among the EPI target diseases, it has continuously been the leading cause of infant and child mortality particularly in the Third World countries. More than 2 million children die each year from measles-related complications in the underdeveloped nations.[1] (Henderson, RH).

In the Philippines, according to the Philippine Health Statistics, 1991, measles ranked 9th and 6th among the leading cause of morbidity and mortality respectively for entire population, and 6th among infants with an actual mortality rate of 1.5 per 1,000 live births.[2].

The WHO-EPI recommends a single-dose policy with 9 months as the age for vaccination. However, many Filipino infants still acquire the disease, despite considerable efforts and increasing immunization coverage.

This observation led us to do this study with the following objectives:

GENERAL: To determine the occurrence of measles among previously immunized children from aged 9 months to 13 years.

SPECIFIC:

1. To determine the age-specific incidence of measles among immunized and unimmunized children.

2. To determine the risk factors, complications and outcome of measles cases and its correlation with immunization status.

3. To determine the case fatality rates among the immunized and unimmunized groups.

MATERIALS AND METHODS:

This is a descriptive-retrospective study of all pediatric patients clinically diagnosed to have measles with ages ranging from 9 months to 13 years admitted between January 1988 to June 1993. Measles is defined clinically as 3-7 days fever, cough, coryza and conjunctivitis followed by maculopapular rashes with desquamation. (DOH, case definition of measles circular 157-d-1990). The following data were taken from their record: age, sex, date of admission, residence, nutritional status, associated illnesses on admission, immunization status, exposure history and outcome. Infants less than the eligible age of immunization (< 9 months of age) were not included in the study.

Data was analyzed statistically using Odd-Ratio, Chi-square test 95% confidence limit interval through Pascal program of Franco & Campo-Filho (Mehta, CR, 1985).

RESULTS

During the period covered by this study, i.e., from January 1988 to June 1993, a total of 539 patients were clinically diagnosed as measles. Figure 1 shows the yearly admission of measles cases in this institution. The highest number of admission was in 1988 with 166 (30%), followed by 146 (27%) in midyear 1993, 89 (16.5%) in 1989, 70 (13%) in 1990, 41 (7.6%) in 1991 and 31 (5.75%) in 1992. Figure 1 also

showed a sudden decline in prevalence in 1989 with sudden 5-fold increase in 1993.

All patients were classified according to age as shown in Table 1. Further, Figure 2 revealed that the age-specific incidence was highest in the group between 24-59 months and lowest incidence among below 8 months, with a reportable 5 measles cases earliest at 5 months. Cases of measles that occurred among 24-59 months old reported 38.59% of total cases followed by more than 60 months old at 28.57%, 9-23 months old reported 26.16% with remaining 6.68% among 5-8 months old.

TABLE 1
INCIDENCE OF MEASLES PER YEAR

MONTHS	1988	1989	1990	1991	1992	1993	TOTAL
0-8	7 (4.32)	8 (8.99)	2 (4.88)	2 (4.88)	4 (12.90)	13 (8.90)	36 (6.68)
9-23	44 (27.16)	31 (34.83)	20 (28.57)	15 (36.58)	6 (19.35)	25 (17.12)	141 (26.16)
24-59	80 (49.38)	33 (37.08)	32 (45.71)	14 (34.15)	11 (35.48)	38 (26.03)	208 (38.59)
≥ 60	31 (19.14)	17 (19.10)	16 (22.86)	10 (24.39)	10 (32.27)	70 (47.95)	154 (28.57)
	162 (30.65)	89 (16.17)	70 (13.00)	41 (7.16)	31 (5.75)	146 (27.09)	539

Figures in parenthesis are percentages.

These patient were then classified according to immunization status as shown in Table 2. It revealed a largely unvaccinated group occurring in 1988 coincidental with highest reported incidence of measles. However, midyear 1993 exhibited the highest incidence of vaccinated measles cases, with the peaks among 24-59 and > 60 months old.

TABLE 2
CLASSIFICATION ACCORDING TO IMMUNIZATION STATUS PER YEAR

MONTHS	1988		1989		1990		1991		1992		1993	
	I	U	I	U	I	U	I	U	I	U	I	U
0-8	0	7	0	8	0	2	0	2	0	4	0	13
9-23	7	37	4	27	7	13	1	14	2	4	6	19
24-59	17	63	5	28	7	25	3	11	4	7	10	28
≥ 60	0	31	3	14	2	14	2	8	2	8	21	49
TOTAL	24	138	12	77	16	54	6	35	8	23	37	109

This study was centered on ages greater 8 months old, a total of 503 cases. Table 3 shows that there are 103 (20.5%) immunized cases and 400 (79.5%) unimmunized cases with highest age-specific incidence for both were among 24-59 months old (pre-schoolers) at 45% and 40.5% respectively, except for 3 other patients who had revaccination at 15 months with MMR (2.9%).

TABLE 3
CLASSIFICATION ACCORDING TO IMMUNIZATION STATUS

MONTHS	IMMUNIZED	UNIMMUNIZED	TOTAL
0-8	0	36	excluded
9-23	27 (26.0%)	114 (28.5%)	141
24-59	46 (45.0%)	162 (40.5%)	208
≥ 60	30 (29.0%)	124 (31.0%)	154
TOTAL	103 (20.5%)	400 (79.5%)	503

Furthermore, Figure 3 graphically represents the proportion of age groups as per immunization status, depicting the majority group of vaccinated and unvaccinated among ages 24-59 months.

To further analyze the correlation of age and immunization status, stratified analysis was done using Chi-square test (p=0.74) showing no statistical difference (< 0.05).

TABLE 4
ANALYSIS OF SINGLE TABLE (AGE vs. IMMUNIZATION)

	+		TOTAL
9 - 24 mos.	27	114	141
24 - 59 mos.	46	162	208
≥ 60 mos.	30	124	154

Chi-square = 0.59 p-value = 0.74

Of the 503 cases, there was a female preponderance of 257 (51%) against 246 (49%) male. Analytical study of Chi-square test showed no statistical difference (p = 0.08).

TABLE 5
ANALYSIS OF SINGLE TABLE (SEX vs. IMMUNIZATION)

	MALE	FEMALE
IMMUNIZED	42	61
UNIMMUNIZED	204	196
TOTAL	246	257

Chi-square = 3.03 p-value = 0.08

As to locality, majority of the immunized and unimmunized reside in non-mountainous suburban areas and the rest are from remote rural areas. Using the Chi-square test, results showed no statistically significant difference.

TABLE 6
ANALYSIS OF SINGLE TABLE (GEOGRAPHY vs IMMUNIZATION)

	SUBURBAN	RURAL
IMMUNIZED	62	41
UNIMMUNIZED	205	195
TOTAL	267	236

Chi-square = 2.28 p-value = 0.13

According to exposure histories, about 383 (76.14%) of 503 cases claimed to have been exposed to measles from own household or neighbors while 120 (23.86%) denied any exposure. Figure 4.

The impact of exposure toward immunization status was investigated by comparing its occurrence. The Odd-Ratio analysis revealed OR of 2.80 and Chi-square test of 9.8 proving it to be statistically significant.

TABLE 7
ANALYSIS OF SINGLE TABLE (EXPOSURE vs IMMUNIZATION)

	EXPOSED	UNEXPOSED
IMMUNIZED	91	12
UNIMMUNIZED	292	108
TOTAL	383	120

Odd ratio = 2.80 (1.43 < or < 5.62) 95% CL
Chi-square = 9.80 p-value = 0.01

The risk of complications is quite frequent. As shown in Table 8, the most commonly associated complications with measles is pneumonia (94.24%) followed by diarrhea (16.11%), severe malnutrition (14.5%), parasitism (10.3%) and nutritional anemia (3.98%). Approximately 29 (5.77%) cases of the 503 were admitted as uncomplicated measles.

TABLE 8
COMPLICATIONS AND ASSOCIATED ILLNESSES

	IMMUNIZED	UNIMMUNIZED	TOTAL
Pneumonia	94	380	474 (94.24%)
Gastroenteritis	14	67	81 (16.11%)
Undernutrition	10	63	73 (14.50%)

Table 8...continued

	IMMUNIZED	UNIMMUNIZED	TOTAL
Parasitism	6	46	52 (10.34%)
Oral moniliasis	0	20	20 (3.98%)
Nutritional Anemia	5	15	20 (3.98%)
Primary PTB	3	16	19 (3.78%)
Febrile Convulsions	2	8	10 (1.99%)
Otitis Media	0	6	6 (1.25%)
Urinary Tract Infection	1	5	6 (1.25%)
Pneumothorax	0	4	4 (0.80%)
Subcutaneous Emphysema	0	3	3 (0.60%)
Sepsis	0	3	3 (0.60%)
Encephalitis	0	3	3 (0.60%)
Meningitis	0	2	2 (0.40%)
Keratoconjunctivitis	0	1	1 (0.20%)
Gingitivis	0	1	1 (0.20%)

In correlation to immunization status and complication risks like pneumonia, Chi square test done does not show statistically significant difference ($p = 0.22$).

TABLE 9
ANALYSIS OF SINGLE TABLE (COMPLICATION)

	w/ PNEUMONIA	w/o PNEUMONIA
IMMUNIZED	94	9
UNIMMUNIZED	380	20
TOTAL	474	29

Chi-square = 1.47 p - value = 0.22

Patients were also classified as to nutritional status. Severe undernutrition was defined as <60% weight-for-age by Gomez' classification. In statistical analysis, Chi-square test showed no correlation between the two variables ($p = 0.16$).

TABLE 10
ANALYSIS OF SINGLE TABLE (UNDERNUTRITION)

	SEVERE	WELL TO MODERATE
IMMUNIZED	10	93
UNIMMUNIZED	63	337
TOTAL	73	430

Chi-square = 1.95 p - value = 0.16

From 1988 to 1993, 37 measles-related deaths were reported of which 20 (54%) of all deaths were among the 24-59 months old unvaccinated children. Gross death rate was 7.36%.

Measles-related deaths were defined as either those that occurred during acute phase or within 6 weeks of onset of rash. Most post-measles deaths were due to pneumonia (33 or 89.19%). Five of these deaths had pre-existing severe undernutrition.

TABLE 11
CAUSES OF DEATH AMONG IMMUNIZED AND UNIMMUNIZED

	IMMUNIZED	NONIMMUNIZED
Measles-pneumonia	2	31
Sepsis	0	2
Pneumothorax	0	2
	2	35

As shown in Table 12, the measles case fatality rate among those who were not vaccinated were highest for 24-59 months old (9.1%) and declined with increasing age.

TABLE 12
CLASSIFICATION ACCORDING TO IMMUNIZATION STATUS

		IMMUNIZED		UNIMMUNIZED	
AGE	NO. OF CASES	NO. OF DEATHS	CASE FATALITY RATIO	NO. OF DEATHS	CASE FATALITY RATIO
0-8*	36	0	0.00	2	5.56
9-23	141	1	0.71	12	8.51
24-59	208	1	0.48	19	9.14
≥ 60	154	0	0.00	4	2.60
TOTAL	503	2	0.40	35	6.96

*not included in study

In unpaired analysis, Chi-square and Relative Risk showed statistically significant differences ($p = 0.03$).

TABLE 13
ANALYSIS OF SINGLE TABLE (MORTALITY)

	DIED	IMPROVED
IMMUNIZED	2	101
UNIMMUNIZED	35	365
TOTAL	37	466

Chi-square = 4.62 p-value = 0.03

DISCUSSION

In our institution, a total of 539 patients were admitted as measles from January 1988 to June 1993. As Figure 1 showed, a sudden decline in 1989 with sudden incline in midyear 1993. This is brought about by the effect of immunization programmes which slows down the rate of entry of new susceptible into the population thus, decreasing prevalence and incidence. Children then would be susceptible till an older age, thus there would be a fall. From 1989 to 1992 is the period of low incidence due to high vaccine coverage - called the "honeymoon period".[4] Measles control programmes aims to interrupt transmission by herd immunity, the resistance of a group to attack by measles since large proportion of population are immune. However, due to high transmissiblilty of measles, herd immunity is difficult to achieve. In our local set-up where coverage is less than 100% and vaccine is less than 100% effective, the incidence will soon rise after a low-incidence period.

In age distribution of measles, there was a predominance of admitted patients belonging to pre-school age (24-50 months) followed by schooler (<60 months). In this study, trend shows a similar experience with that of the "pre-school outbreak" in US which occurred in 1985 and 1986 wherein large percentage of cases were less than 5 years of age, most of them were unvaccinated.[5]

According to immunization status, majority of our study population belongs to the unimmunized group (79.5%). There was a significant percentage of cases belonging to immunized groups (20.5%), among of which only 2.9% had MMR vaccination. Both groups had age-specific prevalence highest among pre-schoolers. Such recrudescence of measles may be explained by (1) low immunization rate in pre-school children aged 15 months or older; (2) primary vaccine failure.[6] However, using stratified analysis showed no correlation between age distribution and immunization status.

According to sex distribution, there was a female preponderance at 51%. Data were analytically studied and there was no association - thus proving that sex of the person does not affect susceptibility to measles.

Geographic distribution of measles is nationwide accounted for by its being highly communicable. This variable is tested for it may have some correlation to cold chain effectivity, which ensures vaccine potency. Testing showed no statistical difference, thus proving no association between place of origin and immunization.

Measles being high communicable has an attack rate of 80% among susceptible household contacts, so practically all people are susceptible.[7] Hope-Simpson's model estimated that 75.6% of susceptible household exposure lead to measles transmission.[4] In a study, a little over 76.14% exposure rate was obtained. There was a positive association between exposure and immunization when test statistically. To confirm these, studies done by Aaby et. al. emphasized the role of factors like overcrowding, exposure intensity and intercurrent infection within household especially among the unvaccinated groups.[8]

Pneumonia, among other complications like diarrhea and malnutrition, is by far the most common as shown in the study. Measles pneumonia is caused by either direct extension of inflammation due to the virus or invasion of damaged tissues by bacteria or both.[9] Measles pneumonia has been associated with higher morbidity and mortality. These findings were similar to study done by O' Donovan (1971) on an admitted group of Kenyan children who also showed the same measles-related complication.[10] However, statistical analysis showed no correlation between risk of complication and immunization status.

As acknowledged by Aaby et. al., malnutrition is now considered as an important determinant of morbidity and mortality especially in developing countries. A study done by Chen et. al. in Bangladesh showed that children with very low weight-for-age (<65% of reference population) prior to infection had mortality rate 2.3 times higher than children above threshold. Other data supported that severely malnourished children excrete measles virus for longer period of time than better-nourished children and have altered T-cell function, indicating prolonged risk to themselves as well as increase in duration of infectiousness and intensity of spread to others.[8]

In our study, only about 14.5% had pre-existing undernutrition and mortality-wise about 14.28% were undernourished among unvaccinated and no incidence among vaccinated group. Statistical analysis done revealed a non-significant difference ($p = 0.16$).

Measles play a major role in child mortality. In our study, case fatality rates (6.96) were highest among unvaccinated group with a minimal CFR of 0.40 among vaccinated. To confirm that measles vaccine use may improve child survival, statistical analysis was done revealing an association.

CONCLUSION

Based on data gathered, the following observations can be derived:

1. There was an increase of measles cases during midyear of 1993 as preceded by a decline from years 1989 to 1992. However, based on proportion, there was increasing number of immunized group. A considerable percentage of immunized cases still acquire the disease (20.5%).
2. Risk factors like age, sex, geographical distribution, nutritional status and complication risks were not confounding. These factors when tested statistically were found not to be related to immunization status. This goes to show that both immunized and unimmunized groups had equal chances of acquiring the disease even if they were stratified as to age, sex, locality, nutritional status and complications.
3. There was a statistically significant correlation between exposure and immunization status; between mortality risks and immunization status. There was strong evidence that measles vaccine use may lessen morbidity and mortality.
4. Measles death rate in our study is 7.36% and is largely among unvaccinated. Most common cause of death is still due to pneumonia.

RECOMMENDATIONS

In this study where measles occurrence among previously immunized children still remains at significant levels, we therefore suggest that further assessment of immunization programmes be achieved. We would also recommend that a prospective study be done in order to accurately evaluate risk factors for vaccine failure. It is only through such a study where we can evaluate vaccine efficacy and therefore may even recommend change in our present immunization schedule.

It has been once said that measles immunization is "the most significant public measure available to the developing world" .... and therefore a prerequisite for primary health care.

REFERENCES

1. Henderson. RH: Immunizing the Child of the World Progress and Prospects: Bulletin WHO, 66:535, 1988.
2. Philippine Health Statistics Intelligence Service, DOH, 1991
3. Fauveau, V; Charaborty, J; Sanfer, AM, Khan MA: Khoenig, MA: Measles among under 9 months old in Rural Bangladesh: Its Significance for Age of Immunization: Bulletin WHO, 69, 1991 67-71
4. Cutt, FT; Henderson, RH; Clements, CJ; Chen, RT; Patriaca, PA: Principles of Measles Control: Bulletin WHO, 69, 1991 1-7
5. Markowitz LE; Orenstein, W: Pediatric Clinics of North America: Pediatric Vaccination: Update 1990. Measles Vaccine. June 1990, 603-625
6. Committee on Infectious Disease, American Academy of Pediatricians; Report of Committee on Infectious Diseases, 22nd ed., 1991, 308-342
7. Expanded Programme on Immunization Information System, WHO/EPI/GEN 89.2, July 1989
8. Nieburg, P; Dibley, M: Risk Factors for Fatal Measles Infection, International Journal of Epidemiology, Vol 15 #3, 1991 309-311
9. Krugman, Saul; Katz, Samuel: Measles: Infectious Disease of Children: 7th edition, 1981, 151
10. O' Donovan, C: Measles in Kenyan Children: East Africa; Medical Journal, 48:1971 526-531

2nd Prize winner, IRH Research Paper Contest, Retrospective Category 1993.

MECONIUM STAINING: RISK FACTORS AND NEONATAL COURSE A RETROSPECTIVE STUDY

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ABSTRACT

A study of neonates delivered with meconium-stained amniotic fluid was done from the period of January 1992 to June 1993 using chart review. Of the 415 cases accepted in this study, 160 (38.55%) had thin meconium, 29 (6.99%) had moderate meconium and 226 (54.46%) had thick meconium.

Maternal infection exerted the greatest influence in the predisposition to meconium staining. Premature rupture of membrane when correlated with thick meconium staining showed significant association. Other maternal and fetal factors like third trimester bleeding, hypertension, eclampsia, repeat caesarian section, preterm labor, medications, age of gestation, birth weight and fetal sex were statistically insignificant to the development of meconium staining. Neonatal outcome was determined as to effects of the thickness of meconium. There were 98 patients that developed asphyxia neonatorum; 12 out of 160 (7.5%) cases developed asphyxia in thin meconium, 29 (10.3) in moderate group, while 83 (36.7%) in thick group. There is one to one correlation as to the thickness of the meconium causing asphyxia: the thicker the meconium, the greater the risk. The same correlation was noted with patients developing sepsis and meconium aspiration syndrome. Mortality and morbidity was directly correlated with thick meconium staining.

INTRODUCTION

For over a decade, newborn deaths from aspiration of meconium-stained amniotic fluid has been considered preventable with post-partum management.[1,2,3] What was once viewed as an intrauterine catastrophe with meconium staining of the lungs being a marker for fetal hypoxia [4,5] has become an extrauterine disorder amenable to prophylactic intervention with routines of oral suctioning and vocal cord visualization by direct laryngoscopy. Respiratory morbidity from aspiration has been reported to be sharply reduced with these measures. Moreover, there are reports that meconium aspiration deaths has been eliminated from some hospitals.[1,3,6] The Ilocos Regional Hospital Pediatric Staff is proud, indeed, to say that these routinary measures are being practiced once faced with a neonate delivered with meconium-stained amniotic fluid.

Prospective studies from tertiary centers abroad, where sophisticated and high technologic gadgets and materials are found indicated that the incidence of meconium staining varies from 8.8% to 29 % [1,3,7,8] while others estimated an incidence rate at 7 to 22%. [9,10,11] These data would suggest that high technologies and competent physicians and personnel abroad are able to detect meconium staining intrauterine as well as extrauterine. But why is there a high incidence of meconium staining and why does it carry a high mortality and morbidity? Meconium staining has posed a significant challenge to practicing neonatologists and pediatricians.[12] In 1990, the Philippine General Hospital had an incidence rate of 17.44% of meconium staining and was the leading cause of neonatal morbidity at 73.52%. In this series, the incidence rate was 13.65%.

Meconium is often used as a marker for intrapartum or birth asphyxia and emphasis has been placed on the consistency of meconium - thin, moderate and thick. The consistency of meconium stained amniotic fluid is a product of the amount of meconium passed and the quality of amniotic fluid in which the meconium is diluted. The lesser the amniotic fluid, the thicker the meconium. [13,14]

This retrospective study aims to address the following OBJECTIVES:

1.) To be able to determine the risk factors that affect the consistency of meconium staining.

2.) To be able to determine the neonatal outcome based on the consistency of meconium staining.

2.1) To be able to determine the correlation of birth asphyxia based on APGAR Score at 1 and 5 minutes and neonatal encephalopathy.

2.2) To be able to determine the mortalities and morbidities as related to the thickness of the meconium.

This study is probably the first formal review about meconium staining in a regional hospital with Philippine Pediatric Society (PPS) accredited residency training program.

MATERIALS AND METHODS

For overa period of 18 months, the total number of deliveries was recorded at 3,229 livebirths. There were 441 cases, however, only 415 records were reviewed. About 26 charts were not retrieved from the record section. Inclusion criteria for the study were the following:

1.) All neonates delivered at the Ilocos Regional Hospital from the period of January 1, 1992 to June 30, 1993.
2.) All neonates with the diagnosis of meconium staining.
3.) All neonates with meconium staining that had complete charts.

Meconium staining is defined as one or more of the following characteristics:

a.) Thickness of meconium - thin, moderate, or thick.
b.) Yellowish to greenish umbilical cords or staining of nailbeds.
c.) Yellowish to greenish discoloration of vocal cords as seen by direct laryngoscopy.

Thickness or consistency of meconium is described as follows:

1.) Thin - greater proportion of amniotic fluid volume in relation to particles of meconium.
2.) Moderate - almost equal proportion of amniotic fluid volume in relation to particles of meconium.
3.) Thick - the proportion of amniotic fluid volume is lesser as compared to the particles of meconium which is comparably greater.

In the absence of blood gas and acid-base measurements, clinical criteria had been used for the diagnosis of fetal asphyxia. Commonly used parameters are the presence of meconium, low APGAR Scores with delayed onset of respiration and newborn encephalopathy. The degree of asphyxia was classified mainly as

NORMAL TO MILD ASPHYXIA (Apgar Score of 7 - 10) ;

MODERATE ASPHYXIA (Apgar Score of 4 - 6); and

SEVERE ASPHYXIA (Apgar Score of 0 - 3).

Statistical analysis was conducted using the chi-square test with a 95% confidence limit of the Taylor series for relative risk. This was based on the Statistical Analysis System Software Version 6.0 (SAS Institute Inc. Cary, Nc.).

RESULTS

A total of 3,229 live newborns were delivered during the period of January 1, 1992 to June 30, 1993 at the Ilocos Regional Hospital (Table 1). There were 441 neonates with meconium-stained amniotic fluid. But only 415 records were retrieved giving us a retrieval rate of 94.1% (Table 2). Of the 415 neonates, 160 (38.55%) had thin meconium , 29 (6.99%) had moderate and 226 (54.46%) had thick meconium-stained amniotic fluid (Table 3).

TABLE 1
POPULATION AT RISK IN RELATION TO TOTAL LIVEBIRTHS
(Jan 1992 - June 1993)

	TOTAL NO. OF CASES	%
MECONIUM-STAINED AMNIOTIC FLUID	441	13.66
NON-MECONIUM STAINED AMNIOTIC FLUID	2788	86.34
TOTAL	3229	100.00

TABLE 2
RETRIEVAL RATE

	TOTAL NO. OF CASES	%
RETRIEVED	415	94.1
NOT RETRIEVED	26	5.9
TOTAL	441	100.00

TABLE 3
DISTRIBUTION OF POPULATION TO CHARACTER AMNIOTIC FLUID

CHARACTER OF AMNIOTIC FLUID	TOTAL NO. OF CASES	%
THINLY STAINED	160	38.55
MODERATELY STAINED	29	6.99
THICKLY STAINED	226	54.46
TOTAL	415	100.00

TABLE 4
MATERNAL FACTORS IN RELATION TO MECONIUM CONSISTENCY

MATERNAL FACTORS	THIN N = 68	%	MODERATE N=15	%	THICK N=102	%	X	P=value
MATERNAL INFECTIONS (eg. UTI, URI, Typhoid fever) (118)	52	44.07	9	7.63	57	48.3	7.59	0.0225
PREMATURE RUPTURE OF MEMBRANE (25)	2	8.00	3	12.00	20	80.00	11.9	0.0026
PRE-ECLAMPSIA (19)	3	15.79	3	15.79	13	68.42	4.75	0.0929
HYPERTENSION (7)	3	42.86	0	0	4	21.05	0.67	0.7257
THIRD TRIMESTER BLEEDING (5)	1	20.00	0	0	4	80.00	1.39	0.5000
ECLAMPSIA (4)	1	25.00	0	0	3	75.00	0.78	0.6777
REPEAT C.S. (2)	2	100.0	0	0	0	0.00	3.48	0.1756
PRETERM (3)	3	100.0	0	0	0	0.00	5.25	0.0726
MEDICATIONS (2)	1	0.50	0	0	1	50.00	0.27	0.8737

A. **Maternal Factors.** Maternal factors like maternal infection, premature rupture of membrane, third trimester bleeding, eclampsia, repeat ceasarean section, preterm labor and sedations were tested to determine their effects in the development of the consistency of meconium staining. Among these factors, maternal infection showed to be the most statistically significant.

There were 118 mothers who had history of maternal infection. About 44.07% showed thin meconium staining; 8% (9) with moderate staining while 48% (57) had thick meconium staining. The maternal infection of the mothers under study ranged from urinary tract infection, chickenpox, measles, typhoid fever and rubella. The results were stratified and statistical significance at all counts at 0.05 level of confidence was obtained (Table 4).

Premature rupture of membrane was also a risk factor seen by other researchers. We had a total of 25 mothers with premature rupture of membrane. The samples were stratified with 8% (2) had thin, 12% (3) had moderate and the rest had thickly meconium stained amniotic fluid. The data when tested against mothers without premature rupture of membrane showed no statistical difference (Table 4) but when compared as to its association with the thickness of the meconium, there is statistical significance with thick meconium staining (Table 4).

Other maternal factors like hypertension, third trimester bleeding, eclampsia, repeat caesarean section, preterm labor and intake of medications showed no statistical significance. However, because of the small sample size, the real correlation may have been masked statistically.

Fetal Factors. Fetal factors like age of gestation, fetal sex, and birth weight were also determined. Out of the 415 neonates, 12 (2.8%) were less than 37 weeks age of gestation; 400(96.39%) were between 37 - 42 weeks and only 3 (.72%) were delivered more than 42 weeks age of gestation. It can be noted that majority of our study population are term infants. Statistical correlation with age of gestation as to the development of meconium staining showed no significant difference (Table 5).

As to the birth weight, there were 359 neonates (86%) with birth weights ranging from 2.5 - 3.99 kgs; 53 (13%) with weights less than 2.5 kgs and 29 (1%) with weights more than 4 kgs. Statistical correlation showed birth weight to have no effect on the thickness of meconium staining.

B. NEONATAL OUTCOME

Meconium staining was correlated with the APGAR score, in particular APGAR at 1 minute and 5 minutes. Of the 160 cases of thin meconium staining, 4 (2.5%) had an APGAR score of less than 3; 3 (1.9%) had an APGAR score less than 6 while majority of 153 (95.6%) had an APGAR score of 7 - 10 at 1 minute. At 5 minutes, APGAR scores improved with 4 (2.5%) only having an APGAR score of not less than 4 but not greater 6 while the rest (97.5%) had an APGAR score ranging from 7-10. Among this group, one had seizures. Statistically, the data showed no significant correlation between thin meconium staining to APGAR scores. The trend was likewise seen in moderate and thick meconium staining as seen in Table 6. Of the twenty-nine cases of moderate meconium staining cases, 1 (3.5%) had an APGAR score of less than 3, 1 (3.5%) had an APGAR score of 4-6 at 1 minute. In 5 minutes, the APGAR scores improved with only 1 (3.5%) having an APGAR score of 4 - 6 while 28 (96.5%) had an APGAR score of 7 - 10. There were no seizures noted in this group.

TABLE 5
FETAL FACTORS IN RELATION TO MECONIUM CONSISTENCY

FETAL RISK FACTORS		THIN N=160	%	MODERATE N=29	%	THICK N=226	%
FETAL SEX							
MALE	(235)	86	36.6	16	6.81	133	57.00
FEMALE	(180)	74	41.19	13	7.22	93	51.67
BIRTH WEIGHT							
< 2.5 KG	(53)	17	32.08	4	7.55	32	60.38
2.5-3.9 KG	(359)	143	39.83	25	6.96	191	53.20
> 4.0 KG	(3)	0	10.00	0	0.00	3	0.86
AGE OF GESTATION							
< 37 wks	(12)	3	25.00	1	0.25	8	66.67
37-41 wks	(400)	156	39.00	28	7.00	216	54.00
> 42 wks	(3)	1	33.33	0	0.00	2	66.67

TABLE 6
FETAL FACTORS IN RELATION TO MECONIUM CONSISTENCY

MARKER OF BIRTH ASPHYXIA	THIN N=160	%	MODERATE N=29	%	THICK N=226	%
APGAR SCORE						
1 MINUTE						
0 - 3	4	2.50	1	3.50	32	14.7
4 - 6	3	1.90	1	3.50	17	7.5
7 - 10	153	95.60	27	93.00	177	78.3
5 MINUTES						
0 - 3	0	0.00	0	0.00	11	4.9
4 - 6	4	2.50	1	3.50	18	8.0
7 - 10	156	97.50	26	96.50	197	87.1
SEIZURES	1	0.62	0	0.00	5	2.2

As to the group with thick meconium staining at 1 minute, there were 32 (14.2%) with an APGAR score of 0 - 3; 17 (7.5%) with an APGAR score of 4 - 6 while majority 177 (78.3%) had APGAR score of 7 - 10. After 5 minutes, there was an improvement among the neonates with 11 (4.9%) having an APGAR score between 0-3; 18 (8.0%) with an APGAR score between 4 - 6 and 197 (87.1%) with an APGAR score of 7 - 10. There were 5 cases of seizures in this group.

However, there were 98 patients that had developed asphyxia neonatorum. A careful evaluation of how many patients developed asphyxia, our data showed 12 out of 160 (7.5%) cases developed asphyxia in the thin meconium staining group. Three out of 29 (10.3%) cases had asphyxia in the moderate group while 83 out of 226 (36.7%) had asphyxia in the thick group. There was a one-to- one correlation noted that the thicker the meconium, the greater the chances of developing asphyxia. At 5% level of significance, it was statistically significant (Table 7).

The incidence of sepsis in patient with different consistency of meconium staining was also determined. One (0.63% of 160 cases) was seen in the thin group; 2 (6.9% out of 29 cases) were seen in the moderate group while 12 (5.3% of 206 cases) were seen in the thick group. Statistical correlation showed no significant correlation (Table 8).

As to the development of meconium aspiration syndrome, 12 out of 415 cases (2.9% of all meconium-stained cases) were reviewed. There were no cases seen at the thin group, 3.4% were noted in the moderate group, while 4.9% were seen in the thick group. Statistical correlation showed significant difference in the thick group as compared to the two consistencies of meconium aspiration syndrome (Table 9).

All deaths occurred at the thick meconium staining group (12 out of 226). The statistical correlation was very significant in this group (Table 10).

TABLE 8
NEONATAL OUTCOME: SEPSIS NEONATORUM

MECONIUM CONSISTENCY	DIED (N=12)	%	SURVIVED (N=403)	%
THIN	12	5.3	214	94.7
MODERATE / THICK	0	0.0	189	100.0

TABLE 7
NEONATAL OUTCOME: ASPHYXIA NEONATORUM

MECONIUM CONSISTENCY		w/ASPHYXIA NEONATORUM	%	w/o ASPHYXIA	
THIN	(N=160)	12	7.5	148	92.7
MODERATE	(N=29)	3	10.3	26	89.7
THICK	(N=226)	83	36.7	143	63.3

TABLE 8
NEONATAL OUTCOME: SEPSIS NEONATORUM

MECONIUM CONSISTENCY		w/SEPSIS NEONATORUM	%	w/o ASEPSIS NEONATORUM	%
THIN	(N=160)	1	0.63	159	99.37
MODERATE	(N=29)	2	6.90	27	93.12
THICK	(N=226)	12	5.30	214	94.70

TABLE 9
NEONATAL OUTCOME: MECONIUM ASPIRATION SYNDROME

MECONIUM CONSISTENCY		w/ MECONIUM ASPIRATION SYNDROME	%	w/o MECONIUM ASPIRATION SYNDROME	%
THIN	(N=160)	0	0.00	160	100.0
MODERATE	(N=29)	1	3.4	28	96.6
THICK	(N=226)	11	4.9	215	95.1

DISCUSSION

A. RISK FACTORS

Maternal infections like urinary tract infection, upper respiratory infection, chickenpox, measles, typhoid fever and rubella may also cause in-utero infection Neonates with

mothers who had infection during any part of the pregnancy had their Immunoglobulin M measured to test for in-utero infection. Neonates who showed a high IgM titer are said to have in-utero infection. Romero, et. al. [15] has reported that during these in-utero infection, inflammatory lesions occur in the placenta and membrane causing meconium staining. According to Maudsley, et. al. [16], once meconium staining occurs, it further causes an irritant effect and becomes a foci for microbial invasion, thus, more meconium is produced.

Fetal factors like fetal sex, birth weight, and age of gestation have been reported by various authors to have influenced the consistency of meconium stain. Karinemi and Herrela [17] reported that post-term infants are predisposed to thick meconium staining. Vern, et. al.[18], Usher, et. al. [19], Miller,et. al.,[20] further underscored these findings. However, our results did not show statistical significance as to the effects of age of gestation to consistency of meconium (Table 5).

Fetal sex as reported in 1990 by Kerinemi and colleagues showed no effect on the consistency of meconium staining. Our review showed the same correlation statistically. Sex does not in any way affect the development of the consistency of meconium staining.

Birth weight as reported, showed no significant effect in the development and consistency of meconium. Our results showed the same trend.

B. NEONATAL OUTCOME

There is no consensus as to the effect of meconium staining to neonatal asphyxia. Kenneth, et. al.[21] reported no correlation between meconium staining and birth asphyxia. It was even stressed that APGAR scoring should not be used as the sole tool in the diagnosis of asphyxia. On the other hand, Ortiz in 1992 [12] reported the high incidence of low Apgar score had neonatal asphyxia that had been correlated further with thick meconium staining. The author found out further that mortality increases with those that had meconium staining that developed neonatal asphyxia.

Our results showed two contrasting findings. As to correlation with APGAR scores, we found out that it is not a good parameter to predict the patients that would develop asphyxia secondary to the consistency of meconium staining. There is an improvement of patient's APGAR score after 1 minute. This improvement is due to resuscitative measures done upon assessment. Furthermore, most of the patient's included in the review had APGAR score of 7 - 10.

The correlation between meconium staining consistency and birth asphyxia had a more direct association. The statistical correlation is very significant. Our results are thus more compatible as to that found by Kenneth et al. The type of consistency of meconium staining, therefore, is a more sensitive indicator of the patient's predisposition to asphyxia. Our results further show (Table 7) that there is a greater risk of mortality and morbidity in patient's developing asphyxia due to thick meconium staining. As the meconium thickens the morbidity and mortality increases.

Meconium aspiration as an outcome of the different types of consistency of meconium was reported to have also a direct correlation as reported by Ortiz in 1992 and Rossi et al. [22] Our results showed the same trend. The thicker the meconium, the greater the risk of developing meconium aspiration syndrome hence, the morbidity and mortality is equally correlated.

Meconium serves as a foci for infection. Mudsley et al [16] reported that meconium is a good medium for bacterial growth. In their report, they have found a direct correlation of the meconium consistency to sepsis neonatorum. Our study showed the same association with increasing risk of developing sepsis from thin to thick meconium.

CONCLUSION

Maternal infection exerts the greatest influence in the predisposition to meconium staining. Premature rupture of membrane had a direct association with thick meconium staining. However, no correlation with thin and moderate. Hypertension, third trimester bleeding, eclampsia, repeat caesarean section, preterm labor, intake of medications, fetal sex, age of gestation and birth weight did not in any way affect the outcome of meconium staining cases. There is no significant correlation as to the consistency of meconium staining.

The thickness of meconium is correlated to the neonatal outcome. APGAR scoring is not affected by the thickness of the meconium. It is not a good indicator for predicting the development of neonatal asphyxia. The better predictor is the thickness of meconium itself. It gives a direct correlation to the predisposition to birth asphyxia, meconium aspiration syndrome and sepsis neonatorum.

RECOMMENDATIONS

1. A prospective study on meconium staining could ascertain our data.

2. It would be interesting to follow up the patients who improved, to determine the presence of any complications and evaluate their long-term neurologic sequelae such as cerebral palsy or long term pulmonary abnormality that persist into childhood. A

review of the management of these cases should be done and whatever management that resulted in good outcome should be adopted.

3. Since fetal acidemia and metabolic acidosis signify asphyxia, the procurement of blood gas analyzers would aid in the prompt diagnosis and management of meconium-stained neonates thus resulting in better neonatal outcome.

4. Expertise on the early detection of fetal distress such as amniocentesis, fetal monitoring and other procedures should always be emphasized and should be a challenge to those involved in the care of the fetus and newborn.

5. If blood gas analysis cannot be availed of, other measures to determine degree of asphyxia should be resorted to.

6. For the improvement of perinatal and neonatal care, proper coordination of those involved in the care of the fetus and neonate is essential.

BIBLIOGRAPHY

1. Gregory GA, Goodeng CA, Phibbs et.al.. Meconium aspiration in infants: A retrospective study. Journal Pediatrics, 1984.
2. Ting P. Brady JP. Tracheal suction in meconium aspiration. Am J Obstet Gynecol. 1975.
3. Carson BS, Losey RW, Bowes WA Jr. et.al. Combined Obstetric and pediatric approach to prevent meconium aspiration syndromed. Am J Obstet Gynecol. 1976.
4. Desmond MM, More J, Lindley JE et.al. Meconium staining of the amniotic fluid: A marker of fetal asphyxia. Am J Obstet Gynecol. 1957.
5. Valdes-Dapena MA, Arey JB. The causes of neonatal mortality: An analysis of 501 autopsies of newborn infants. Pediatrics 1970.
6. Carson BS, Bowes WA et.al. Prevention of meconium aspiration. Am J Obstet Gynecol. 1979.
7. Davis RO, Phillip JB III, Harris BA Jr, et.al. Fatal meconium aspiration syndrome occurring despite airway management considered appropriate. Am J Obstet Gynecol. 1985.
8. Nelson KB, Ellenberg JH. Obstetric complication as risk factors for cerebral palsy or seizure disorder. JAMA. 1984.
9. Wiswell TE, Tuggle JM, Turner BS. Meconium aspiration syndrome: Have we made a difference?. Pediatrics 1990.
10. Hageman JR, Conley M, Francis K, et.al. Delivery room management of meconium staining of the amniotic fluid and the development of meconium aspiration syndrome. J Perinatology. 1988.
11. Rossi EM, Phillipson EH, Williams TG, Kallan SC. Meconium aspiration syndrome and intrapartum and neonatal attributes. Am J Obstet Gynecol. 1989.
12. Ortiz, Ma AC. Meconium-crit, method in predicting fetal outcome. Am J Obstet Gynecol. 1992.
13. Benny PS, Malani J, Hoby MA, Hulton, et.al. Role of Obstetric factors and suction. Australia NZ J Obstet Gynecol. 1987.
14. Hageman Jr. et.al. Delivery room management of meconium staining of the amniotic fluid and the development of meconium aspiration syndrome. J Perinatology. 1988.
15. Romero R et.al. Meconium stained amniotic fluid: A risk factor for microbial invasion of the amniotic cavity. Am J Obstet Gynecol. 1991.
16. Maudsley RF, Brix et.al. Placental inflammation and infection: A prospective bacteriologic and histologic study. Am J Obstet Gynecol. 1966.
17. Kariniemi V, Harrela M. Significance of meconium staining on amniotic fluid. Perinatal Med. 1990.
18. Vern et.al. Meconium aspiration syndrome: Reflection on a monkey subject. Am J Obstet Gynecol. 1992.
19. Usher et.al. Assessment of fetal risk in post date pregnancies. Am J Obstet Gynecol. 1988.
20. Muller et.al. Intrapartum assessment of the post date fetus. Am J Obstet Gynecol. 1981.
21. Kenneth et.al. Meconium-crit and birth asphyxia. Am J Obstet Gynecol. 1991
22. Rossi et.al. Meconium aspiration syndrome: Intrapartum and neonatal attributes. Am J Obstet Gynecol. 1989.

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PREDICTORS AND TREATMENT MODALITIES OF COMPLICATED PEPTIC ULCER: A REVIEW OF 44 CASES

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ABSTRACT

A retrospective study using chart review was done to see the profile of patients who will probably bleed, perforate or obstruct at the gastric outlet. There were 44 patient charts reviewed admitted during the period of January 1, 1991 to September 30, 1993 as a case of complicated peptic ulcer disease. Twenty three (23) patients had bleeding peptic ulcer, 16 had perforation while 5 had gastric outlet obstruction secondary to cicatrization of the ulcer.

A male with no specific age range at risk, with history of chronic intake of NSAIDs and ASA, history of chronic smoking and alcohol intake as well as no intake of anti-ulcer medication give us a profile of a patient who will probably have bleeding peptic ulcer. On the other hand, a younger male with history of chronic intake of NSAIDs and ASA as well as chronic smoking will probably present with perforation. Gastric outlet obstruction secondary to cicatrization has been seen mostly in elderly males (50 years old and above) who are known to be chronic smokers and alcoholic drinkers and are taking anti-ulcer medications erratically.

Surgical management of complicated peptic ulcer is dependent on the nature of the operation and the general status of the patient during the time of surgery.

INTRODUCTION

Peptic ulcers arise when damaging effects of acid and pepsin or other noxious agents exceed the restorative processes favoring mucosal integrity and repair. Peptic ulcer have multiple heterogenous etiologies and no single pathophysiologic defects applies in all cases.

A variety of factors have been identified that may favor the development of peptic ulcers in some patients, including gastric acid hypersecretion, NSAIDs, **Helicobacter pylori** infection and impaired mucosal bicarbonate secretion (Quaid, 1992). Such understanding with ulcer pathogenesis gives us a better grasp of the treatment that we can use in our patients. However, as high as 15% (Isenberg, 1991) of patients with peptic ulcer develop complications like perforation, bleeding and obstruction. These complications requires surgical intervention as part of the treatment.

In a local study (Astom and Orencia, 1976) using data from a local setting, perforation was the primary cause of complication. There has never been a review at the Ilocos Regional Hospital as far as the status of peptic ulcer disease is concerned. In view of this, the authors decided to embark on this review with the following objectives:

1. To be able to determine the risk factors predisposing the patients to complications of peptic ulcer disease.
2. To be able to determine the treatment of complicated peptic ulcer disease.

   2.1 To be able to determine the factors affecting the implementation of the contemplated treatment modality.
   2.2 To be able to determine the operative procedures done to the complicated peptic ulcer disease.

MATERIALS AND METHODS

This is a retrospective study using chart review of all patients who were admitted to the Ilocos Regional Hospital and had the admitting diagnosis of Peptic Ulcer Disease. The following were included in the study:

1. All patients admitted during the period of January 1, 1991 up to September 30, 1993.
2. All patients who had the definitive diagnosis of peptic ulcer disease by upper gastrointestinal series (UGIS), endoscopy or histopathology after surgical intervention.
3. All patients who were definitely pepticulcer disease

cases and had shown complications like bleeding, perforation and obstruction.

4. All patients were seen, evaluated, diagnosed and operated on by the surgical training staff under the accredited training program in General Surgery by the Philippine College of Surgeons. As such , the basic tenets in surgical practice is strictly observed.

Probable risk factors that predispose the patients to complications of peptic ulcer disease were identified as to age, sex, type of personality, smoking, intake of alcohol, intake of drugs like non-steroidal anti-inflammatory drugs and aspirin and poor compliance to medications. These factors were correlated with the complications and tested statistically using the Chi-square test with values from the Taylor series at 95% confidence interval limits.

A risk factor is said to have a direct effect if the X^2 values and p-values were within the stated confidence interval.

The treatment modality for the complications of peptic ulcer refers to the medical management or the operative technique or procedure employed by the surgeon based on his surgical decision upon ascertaining the intraoperative findings and the general well-being of the patient intra-operatively. Associated medical and social problems attendant to the disease were also noted.

RESULTS

The review consisted of a total of 224 patients with an admitting diagnosis of peptic ulcer disease from the period of January 1, 1991 up September 30, 1993. Two hundred two charts were retrieved giving us a retrieval rate of 90 %. Of the 202 patients, forty-four (21.8 %) patients had complicated peptic ulcer disease. Out of this 44 patients, there were 23 (52%) patients who presented with bleeding, 16 (36 %) had perforation and 5 (12 %) presented with gastric outlet obstruction secondary to cicatrization (Table 1).

TABLE 1
INCIDENCE OF COMPLICATED PEPTIC ULCER DISEASE AND NUMBER OF CASES OPERATED

COMPLICATION	TOTAL NO. OF CASES (%)	NO. OF CASES OPERATED (%)
BLEEDING	23 (52%)	1 (4.3%)
PERFORATION	16 (36%)	16 (100%)
OBSTRUCTION	5 (12%)	5 (100%)
TOTAL	44	22

Most of the patients, who had bleeding or perforation were in the age range of 40-49 years old (15 cases, combined) while there were 10 cases in the age group of 50-59 (all groups combined). As to the bleeding group, there was no particular age group that was predisposed to bleeding. There was an almost equal distribution. As to the perforated group, the youngest was 25 years old but the bulk of the patient (8/16 = 50 %) are in the 40-49 years old group. It can be surmised that those who bled has no specific age range at risk. On the other hand, obstruction group are much older. They are in the age range of 50-79 years old (Table 2).

TABLE 2
AGE INCIDENCE PER COMPLICATION

AGE RANGE	BLEEDING	PERFORATION	OBSTRUCTION
20 - 29	0	1 (6.25%)	0
30 - 39	5 (22%)	2 (12.5%)	0
40 - 49	7 (30%)	8 . (50%)	0
50 - 59	4 (17%)	5 (31.25%)	1 (20%)
60 - 69	5 (22%)	0	3 (60%)
70 - 79	2 (8.6%)	0	1 (20%)
TOTAL	23 (100%)	16 (100%)	5 (100%)

As to sex, there is a preponderance of males in all the age groups. Data correlated showed statistical significance (Table 3).

TABLE 3
SEX INCIDENCE PER COMPLICATION

SEX	BLEEDING	PERFORATION	OBSTRUCTION
MALE	15 (65.2%)	11 (68.75%)	5 (100%)
FEMALE	8 (34.8%)	5 (31.25%)	0
TOTAL	23 (100%)	16 (100%)	5 (100%)
	X2 = 0.22 P = 0.64	X2 = 0.02 P = 0.87	X2 = 1.04 P = 0.31

The type of personality was also noted. There is an almost 1:1 ratio between Type A and Type B personalities (Table 4) in all study groups. There is no significant statistical correlation between the type of personality and the complications of peptic ulcer.

The personal-social habits of the patients were also looked into. Smoking and history of alcohol intake were evaluated whether they are factors that can predispose the patients to

bleeding, perforation and obstruction as shown in Table 5 and 6.

TABLE 4
TYPE OF PERSONALITY PER COMPLICATION

TYPE OF PERSONALITY	BLEEDING	PERFORATION	OBSTRUCTION
TYPE A	8 (34.8%)	9 (56.25%)	3 (60%)
TYPE B	15 (65.20%)	7 (43.75%)	2 (40%)
TOTAL	23 (100%)	16 (100%)	5 (100%)
	$X^2 = 1.40$ P = 0.24	$X^2 = 0.60$ P = 0.44	$X^2 = 0.05$ P = 0.83

Among patients who smoked, there were 18 (78%) patients who had bleeding, 13 (81%) had perforation and 4 (80%) had obstruction. Statistical correlation showed a very high association of smoking to developing complicated peptic ulcer disease (Table 5).

TABLE 5
SMOKING PER COMPLICATION

TYPE OF PERSONALITY	BLEEDING	PERFORATION	OBSTRUCTION
SMOKERS	18 (78.3%)	13 (81.3%)	4 (80%)
NON-SMOKERS	5 (21.7%)	3 (18.7%)	1 (20%)
TOTAL	23 (100%)	16 (100%)	5 (100%)
TOTAL	X^2 = 0.02 23 (100%)	X^2 = 0.03 16 (100%)	X^2 = 0.32 5 =(100%)

Chronic alcohol intake was seen in 21 (91%) patients who bled. There was an almost 1:1 ratio of alcoholic drinkers in the perforation group while all in the obstruction group were chronic drinkers of alcohol. There was a significant correlation of chronic alcohol intake to the development of bleeding and obstruction (Table 6).

TABLE 6
ALCOHOL DRINKING PER COMPLICATION

TYPE OF PERSONALITY	BLEEDING	PERFORATION	OBSTRUCTION
ALCOHOLIC	21 (91.3%)	9 (56.25%)	5 (100%)
NON-ALCOHOLIC	2 (8.7%)	7 (43.75%)	0
TOTAL	23 (100%)	16 (100%)	5 (100%)
	X^2 = 2.72 P = 0.099	X^2 = 6.29 P = 0.012	X^2 = 0.38 P = 0.54

Intake of Drugs. The use of NSAIDs was reviewed and tested statistically if it can predict the onset of complications of peptic ulcer. There were 10 (43%) in the bleeding group which has a history of NSAIDs use, 8 (50%) in the perforation group had no history of NSAIDs or ASA intake. In the bleeding group, 8 (35%) had a history of ASA intake while 7 (44%) was seen in the perforation group. Tested statistically, the chronic intake of NSAIDs and ASA showed a high correlation to bleeding and perforation but not with obstruction. (Table 7)

TABLE 7
HISTORY OF INTAKE OF DRUGS

	BLEEDING	PERFORATION	OBSTRUCTION
NSAID's	10 (43.48%)	8 (50.00%)**	0 (00.00%)***
ASA	8 ((34.78%)	7 (43.75%)++	0 (00.00%)+++
NO Hx OF INTAKE	5 (21.74%)	1 (6.25%)	5 (100%)
TOTAL	23 (100%)	16 (100%)	5 (100%)
	*x2 = 0.02 P = 0.88 +x2 = 0.00 P = 1.00	**x2 = 0.02 P = 0.88 ++x2 = 0.00 P = 1.00	***x2 = 6.96 P = 0.008 +++x2 = 5.77 P = 0.016

Compliance to medication by the patient was also reviewed. There were 4 patients (18 %) who had history of intake of anti-ulcer medications in the bleeding group, 3 patients (19 %) were noted in the perforation group while 4 out of 5 (80 %) had history of on and off intake of anti-ulcer medications in the obstruction group. Statistical correlation was only noted in the obstruction group (Table 8).

TABLE 8
POOR COMPLIANCE TO MEDICATION

	BLEEDING	PERFORATION	OBSTRUCTION
HISTORY OF ANTI-ULCER MEDICATION	4 (18.0%)	3 (19.0%)	4 (80.0%)
NO CONSULTATION AT ALL	19 (82.0%)	13 (81.0%)	1 (20.0%)
TOTAL	23 (100%)	16 (100%)	5 (100%)
	x2 = 0.76 P = 0.38	x2 = 0.13 P = 0.72	x2 = 6.09 P = 0.013

Of the 44 cases reviewed, 22 cases underwent surgical intervention. The other 22 cases were all managed medically, thirteen of whom died before any surgical intervention was

done. Only one of the bleeding peptic ulcer was operated on. The patient underwent gastrotomy, ligation of bleeders bilateral truncal vagotomy with pyloroplastry. All perforated peptic ulcer cases underwent emergency exploratory laparotomy, 12 (55 %) patients underwent Graham patching, 3 (14 %) underwent bilateral truncal vagotomy with pyloroplasty while 1 (4.5 %) had antrectomy with bilateral truncal vagotomy and Billroth II reconstruction (Table 9).

TABLE 9
OPERATION DONE PER COMPLICATION

COMPLICATION	OPERATION DONE	NO. OF CASES	%
PERFORATION	Graham patching	12	54
	BTV with pyloroplaty	3	14
	Anthrectomy with Billroth II Reconstruction	1	4.5
CONSTRUCTION	BTV with Hemigastrectomy with Billroth II Reconstruction	3	7.3
	BTV with Antrectomy with Billroth I Reconstruction	2	9
BLEEDING	Gastrotomy, Ligation of Bleeders, BTV Lyloroplasty	1	4.5

Under the obstruction group, 3 (14 %) underwent BTV with hemigastrectomy with Billroth II reconstruction, 2 (9 %) had BTV with antrectomy with Billroth I reconstruction.

DISCUSSION OF RESULTS

Our study revealed that certain factors can be used to predict the possible development of complications that may arise in a peptic ulcer disease patient. For patients who are more likely to bleed, they have the following profile: male, no specific age group at risk, chronic user of NSAIDs and ASA, chronic smoker, chronic alcohol drinker and has no previous medical consultation at all.

In a report by Soll in 1989 and 1991, NSAID use is associated with the development of mucosal ulceration in 15 to 20 % of patients. There is an estimated 40-fold increase in gastric ulcers and an 8-fold increase in duodenal ulcers in daily NSAIDs users. Of the more clinical impact, chronic NSAIDs intake increases 4 to 7 times the likelihood of bleeding and perforation. Our report showed a high correlation of NSAIDs intake to bleeding. Our study has further uncovered that not only NSAID's greatly increase the probability of bleeding but also that of ASA. The role of cigarette smoking and chronic alcohol intake has been reported unequivocally to increase the incidence and complication rate of peptic ulcers, to retard ulcer healing and to promote ulcer recurrences. The mechanism for its pathogenesis remains to this date elusive (Chinerton,1989; Chinerton,1988; Isenberg,1991). This report confirmed these previous findings.

The profile of patients with perforated peptic ulcer are the following: younger males with convergence of age at 45 years old, chronic NSAIDs and/or ASA user, smoker and no previous medical consultation at all. In this group, our cases were younger and chronic intake of alcohol does not seem to influence perforation. Our results are very revealing because in other countries like the United States, England, Scotland, Finland and Hongkong, there is an increase in age and a decrease in the male to female ratio (Coleman and Pain, 1985).

On the other hand, Smedly and Hickesh reported that 29 % of the patients admitted to the hospital for perforated gastric ulcer and 16 % admitted for perforated duodenal ulcer were taking NSAID.

The role of ASA has been reported by Cameron (1975) and Gillies (1969) but unfortunately no prospective study has proven this correlation. Our retrospective study however showed statistical correlation for both NSAID and ASA use. A male with an average age of 65, smoker, alcoholic drinker and has a history of erratic intake of anti-ulcer medication would most likely develop gastric outlet obstruction due to cicatrization of the ulcer.

Certain predictors for complicated peptic ulcer disease may overlap but those that develop gastric outlet obstruction were the elderly who had shown chronicity of symptoms and with erratic intake of anti-ulcer medications. We theorize here that as the patients take some kind of anti-ulcer medication, some form of healing occurs. But when treatment was discontinued recurrence might have ensued, forcing the patient to proceed with another treatment regimen, either medically advised or self-medication. Due to on and off treatment and recurrence that may occur on the area of the ulcer, fibrosis and cicatrization may result at the gastric outlet.

Surgical management. Surgical management of the complications depended largely on the intraoperative findings and the general status of the patients. Most of patients with perforation underwent Graham patching. Graham patching is not a definitive ulcer procedure. However, this was done because of the emergency nature of the operation. More so, most of the patients undergoing operations showed generalized peritonitis with frank septicemia (Table 10) and some have associated medical problems which could pose a heavy risk and burden on the patient. Stable patients however, underwent definitive ulcer

surgery . Because of the high incidence of recurrence (33 %) of ulcer in Graham patching, a definitive ulcer surgery was performed in cases where favorable conditions prevailed.

TABLE 10
REASONS AFFECTING SURGICAL DECISION ON WHAT OPERATIVE MODALITY TO BE USED

REASONS	NO. OF CASES	%
Generalized Peritonitis (Heavy Soilage) with Frank Septicemia	12	63%
Associated Medical Problems (e.g. Ischemic Heart Disease/Pneumonia)	7	37%
TOTAL	19	100%

In our review, about 23 % (5 out of 22) of patients were operated on due to gastric outlet obstruction. Our incidence is a little higher because recent reports (Stabile,1992) have 10-15 % only. Depending on the extent of obstruction a definitive procedure was contemplated on such cases.

Our operative procedures done were mostly life-saving procedures as these were done under emergency conditions which usually carry a higher morbidity and mortality. As a result, most of the procedure done were non-definitive anti-ulcer procedures like Graham patching (Table 9).

The reasons for non-surgical management of some patients who had bleeding as a complication showed that 59% died due to delayed consultation and refusal to undergo operative procedure (Table 11).

TABLE 11
REASONS WHY SURGICAL INTERVENTION WAS NOT DONE ON SOME PATIENTS WITH BLEEDING PUD

REASONS	NO. OF CASES	%
Responded to Conservative Treatment	9	1
Delayed Consultatioon	8	36
Refusal to undergo Operative Procedure	5	23
TOTAL	22	100

These deaths could have been preventable but the presence of certain patient's factors may have greatly influenced the outcome of the treatment. The following Filipino psyche that are still prevailing are their inherent fear for surgery, attitude of entrusting all things to God,"Bahala na attitude" (come what may), delayed consultation and referral and their present economic woes. Based on the predictors that we have reviewed for the specific complications, the patient with peptic ulcer disease will therefore know what would probably happen to him and thus avoid further complications.

CONCLUSION

Predictors for the patients that would most probably develop complicated peptic ulcer disease have been studied. Patients diagnosed with bleeding PUD are usually males with no specific age range at risk, chronic smoker and alcoholic drinker, chronic user of NSAIDs and/or ASA and those with no medical consultations are prone to bleeding. Those prone to develop perforation are younger males, smokers and has a poor concept of medical care. As to those who would have gastric outlet obstruction, the patients are mostly elderly presenting chronic peptic ulcer symptoms and on erratic intake of medications (Table 12).

TABLE 12
PREDICTORS FOR COMPLICATED PEPTIC ULCER DISEASE

PREDICTORS	BLEEDING	PERFORATION	OBSTRUCTION
AGE	No specific age group at risk	49 years old and below	50 years and above
SEX	Commonly Males (M:F = 3:1)	Commonly Males (M:F = 3:1)	Commonly Male (M:F = 1:0)
TYPE OF PERSONALITY	Insignificant	Insignificant	Insignificant
NSAIDs INTAKE	High Risk	High Risk	Insignificant
ASA INTAKE	High Risk	High Risk	Insignificant
DRINKING	High Risk	Low Risk	High Risk
SMOKING	High Risk	High risk	High Risk
ANTI ULCER MEDICATION	Insignificant	Insignificant	High Risk

Most of the cases reviewed were operated on an emergency basis with associated generalized peritonitis and frank septicemia so that life-saving shorter procedures like Graham patching were done. Stable patients underwent definitive anti-ulcer surgery.

Mortality is high in bleeding peptic ulcer patients because of delayed consultation and refusal of patients or patient's relatives to undergo operative procedure and the perennial unavailability of blood when the need arises.

RECOMMENDATIONS

The following are recommended based on the results of this study:

(1) that a prospective study be done to prove correlation

of smoking, ASA use, chronic alcohol intake as risk factors in the etiopathogenesis of complicated peptic ulcer disease;

(2) that a review of the nutritional status of patients be done to correlate if it is a risk factor to complicated peptic ulcer disease;

(3) that a module for the prevention of complicated peptic ulcer disease be developed based on the predictors studied, and

(4) that a massive information campaign be done using the developed module in order to inform the public about peptic ulcer and its complication.

If these will not be done, in the next ten years, the profile of patients undergoing surgical intervention for peptic ulcer will perhaps still be the same.

BIBLIOGRAPHY

Astom and Orencia, MD.,: Surgical complications of peptic ulcer in a rural setting; 12 year experience , Journal of Philippine Medical Association, May-June, pp 167-172, 1976.

Cameron AJ: Aspirin and gastric ulcer, Mayo Clinic proc. 50: 565-570, 1975.

Chiverton S, Burget D, Hunt R: Smoking does not impair the response to therapy in duodenal ulcer healing [abstract] Gastroenterology 94: A69,1988.

Chiverton S, Hunt R:Smoking and Duodenal ulcer disease, J Clin Gastroenterology 11:S29,1989.

Coleman JA, Denham JA; Non-steroidal anti-inflammatory drugs and Peptic ulcer perforation, GUT 26: 359-363, 1985.

Gillies M, Skyring A: Gastric and Duodenal ulcer, Med J Aust 2: 280-285, 1969.

Isenberg JI, McQuaid KM, Laine et al: Acid Peptic Disorders, In Yamada T. et al (eds): Textbook of Gastroenterology, Philadelphia, JB, Lippincott, 1241-1352, 1991.

Jordan PH and Marrow C: Perforated Peptic Ulcer; Surgical Clinics of North America, 335-353, 1991.

Mason MC and Brenman TG: Acid secretion in patients with Perforated Ulcer; Scand J Gastroenterology 8th; 421-424, 1973

Quaid KR and Isenberg JI: Medical Therapy of Peptic Ulcer Disease; Surgical Clinics of North America, 315-327, April 1988.

Smedley FH and Hickish T: Non-steroidal anti-inflammatory drugs and peptic ulcer perforation. Gut J 27:114,1984.

Soll AH, Kurata J and McGuigan J: Ulcers, NSAIDs and related matters. J Gastroenterology 96: 561, 1989.

Soll AH, Weinstein WM, Kurata J, et al: Non-steroidal drugs and peptic ulcer disease, J Ann Internal Medicine 114: 307, 1991.

Stabile BE: Current Surgical Management of Duodenal Ulcers; J Surgical Clinics of North America, 335-353, April 1992.

Schwartz SI: Textbook of Principles of Surgery, 5th 1157-1176, 1989.

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REVERSAL OF COBRA-VENOM INDUCED NEUROMUSCULAR PARALYSIS USING ANTICHOLINESTERASE

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ABSTRACT

Neuromuscular paralysis is the outcome of cobra envenomation. Presented are two patients with cobra-bite induced neuromuscular paralysis managed at Ilocos Regional Hospital using anticholinesterase drugs. Neostigmine drip reversed the paralysis. However, because of the high cost of Neostigmine IV, these patients were shifted early to oral Pyridostigmine. This report showed that oral Pyridostigmine may be an alternative drug after respiratory weakness has been initially reversed by intravenous Neostigmine.

INTRODUCTION

No other animal has been so scrutinized, maligned and talked about as a snake. In the United States, approximately 45,000 snake bites occur each year, of which some 8,000 were from poisonous snakes causing approximately 12 to 15 deaths per year. The estimated annual deaths from snake bite throughout the world is between 30,000 to 40,000 with the largest occurring in Burma and Brazil where 2,000 deaths are estimated each year. [1]

Cobra (Genus Naja) and Kraits (Gebus Bungarus) are the principal causes of snake bite mortality in India, Sri Lanka and Southeast Asia which includes the Philippines. Cobra bites carry a 10-50% mortality.[2]

Snake venom neurotoxins produce effects similar to those of curare and myasthenia as illustrated by the identification of acetylcholine receptor abnormality in snake bites.[3]

Clark Air Base made a protocol using intravenous Neostigmine all throughout their management of cobra bites. However, because of the high cost of Neostigmine, wherein 32 ampules is needed per day amounting to ₱ 5,000, an oral substitute in the form of Pyridostigmine (Mestinon) was tried at the Ilocos Regional Hospital. Four to six tablets per day are needed which costs about ₱ 80.00, much less compared to intravenous Neostigmine.

OBJECTIVES

The purpose of this case report is to stress that anticholinesterase is as important as antivenom in the management of cobra-venom induced neuromuscular paralysis. However, because of the high cost of intravenous Neostigmine, this report showed that oral Pyridostigmine (Mestinon) may be an alternative drug after respiratory weakness has been reversed initially by intravenous Neostigmine.

CASE HISTORIES

CASE 1:

A 29 year-old female was bitten by a snake on her right foot. Twenty minutes after, there was difficulty of breathing and inability to speak. She was then subsequently admitted at Ilocos Regional Hospital.

On admission, patient was fully conscious but almost completely paralyzed in all extremities, with bilateral ptosis, gaze and bilateral facial paralysis with shallow abdominal breathing. Blood pressure was 180/120, pulse rate was 120/minute. The site of the bite was slightly tender but not swollen and showed 2 punctured wounds about 1 cm. apart. The relatives identified the snake as a cobra.

Intubation was done and was ventilated manually. Tensilon test was done and there was transient improvement of the ptosis, ocular movements and respiration so Neostigmine drip was started at a dose of 25 mcg/kg/hour. Atropine 0.5 mg intravenously every 6 hours, antivenom, 5 vials intramuscularly after negative skin test, and Clindamycin were given. One hour after Neostigmine drip was started, spontaneous respiration was regained and ambubagging was stopped.

On the 2nd hospital day, Neostigmine drip was decreased to 10 mcg/kg/hour while Pyridostigmine (Mestinon) tablet was started at a dose of 60 mg 1/2 tablet every 4 hours (180 mg/day.) There was gradual improvement of the condition - ptosis lessened, upward gaze was sustained longer, range of eye movement increased bilaterally, but patient was still unable to fully protrude the tongue. On the 3rd hospital day, Neostigmine drip was decreased to 5 mcg/kg/hour and Pyridostigmine was increased to 1 tablet every 6 hours (360 mg/day) and was maintained up to the 8th hospital day. She was extubated on the 4th hospital day.

On the 5th hospital day, she had loose bowel movement, with hyperactive bowel sounds, attributed to Neostigmine, so Atropine 0.5 mg intravenously every 4 hours given until LBM was controlled. NGT was pulled out and liquid diet was started on the 6th hospital day. On the 8th hospital day, Neostigmine drip was discontinued. On the 10th hospital day, Pyridostigmine was decreased to 1 tablet every 8 hours then gradually tapered. On the 11th hospital day, she was ambulatory, speech was normal, and no ptosis was noted. On the 12th hospital day, Pyridostigmine was discontinued and she was discharged improved.

CASE 2:

A 22 year-old male farmer was bitten by a cobra on the right thigh while gathering wood in the seashore. There was the typical 2 punctured wounds 1 cm. apart and the snake was positively identified by the patient and by his relatives. After 30 minutes, there was generalized paralysis so he was brought to a nearby hospital. While on the way, there was respiratory paralysis and mouth to mouth resuscitation was done for about 2 minutes. He was brought to a district hospital where intubation and mechanical ventilation were done and was later referred to the Ilocos Regional Hospital. He was hooked to a respirator and Neostigmine drip was started at a dose of 25 mcg/kg/hour. Surgical debridement was done. Antivenom, 5 vials intramuscularly after negative skin test, tetanus toxoid and Clindamycin were given. Nasogastric tube was inserted. Atropine 0.5 mg intravenously every 6 hour was given.

After 24 hours, spontaneous respiration was regained and respirator was removed but placed on T-tube. Pyridostigmine was started at 60 mg 1/2 tablet every 4 hours and Neostigmine drip was decreased to 12 mcg/kg/hour. On the 3rd hospital day, he was extubated, can raise hands but eye movements were still paralyzed. On the 5th hospital day, he can say "ka..ka", but developed crampy abdominal pain so additional Atropine was given at 0.5 mg intravenously as needed up to the 7th hospital day. Neostigmine was further reduced to 5 mcg/kg/hour and Pyridostigmine was increased to one tablet every 4 hours. On the 7th hospital day, Pyridostigmine was reduced to one tablet every 6 hours.

On the 8th hospital day, patient had full extraocular movement, can swallow liquid but still with ptosis. Neostigmine drip was discontinued. On the 10th hospital day, NGT was removed and was given soft diet. On the 12th hospital day, Pyridostigmine was reduced to 1 tablet every 8 hours then gradually tapered.

After 2 weeks, he was ambulatory, speech was normal, with no ptosis noted so Pyridostigmine was discontinued. He was then discharged improved.

DISCUSSION

Muscle contraction is achieved by a nerve impulse which is conducted through the neuromuscular junction.[4] Acetylcholine is found in the synaptic vesicles in the pre-synaptic membrane and released into the synaptic cleft when an electrical impulse passes down the axon. Acetylcholine crosses the clefts and depolarizes the post-synaptic membrane by binding with the postsynaptic receptors resulting in excitation-coupling. Acetylcholine is inactivated by the enzyme cholinesterase.[10]

The pathophysiology of myasthenia gravis and cobra neurotoxicity is similar; both involves the post-synaptic receptor blockade.[5] Therefore, the symptoms are also identical and so is the management.

Snake venom neurotoxin binds to the acetylcholine receptor site on the motor end-plate acting as a competitive blocker to Acetylcholine preventing depolarization leading to muscular weakness and even respiratory paralysis.[6]

Neostigmine and Pyridostigmine (Mestinon) are anticholinesterase drugs.[7] The characteristic pharmacological effects of these agents are due primarily to the prevention of hydrolysis of acetylcholine in the synapse. The residence time therefore for acetylcholine in the synapse increases, allowing for rebinding of transmitters to receptors.[8]

Anticholinesterase drugs have been proposed as being of potential use in the therapy of neurotoxic snake bites. Dr. George Watt of the U.S. Naval Medical Unit made a study on the ability of anticholinesterase to reverse the potentially fatal paralytic effect of the cobra venom.[9] Tensilon test was first carried out in 10 adults with neurotoxic envenoming caused by Philippine Cobra. After a positive Tensilon test was manifested by improvement of ptosis, endurance of upward gaze, they were maintained by longer acting anticholinesterase such as Neostigmine IV, SQ or continuous IV infusion and all 10 patients survived.

In 2 previous unreported cases in our hospital, Neostigmine was given intramuscularly every 6 hours. Respiratory paralysis was not reversed before pulmonary complications set in. In one case, pneumothorax was caused by excessive tidal volume during artificial respiration. In another, mucus plugging caused sudden asphyxia. Hence, we decided to use Neostigmine drip because of lessons learned from these 2 cases. We had to reverse the respiratory paralysis before pulmonary problems arose. We, therefore, used intravenous Neostigmine drip in our latest 2 cases.

The 2 cases being reported had myasthenic-like signs such as inability to speak, ptosis and respiratory paralysis. Tensilon test was positive in the first case so Neostigmine drip was started. In the second case, the Tensilon test was not done because the relatives positively identified the snake as a cobra and response to Neostigmine was already positive. After regaining spontaneous respiration within 36 hours, Neostigmine drip dose was reduced and oral

anticholinesterase in the form of Pyridostigmine was given even if there were still other neurotoxic manifestations. To counteract the side effects of anticholinesterase drugs, Atropine sulfate was intravenously given.

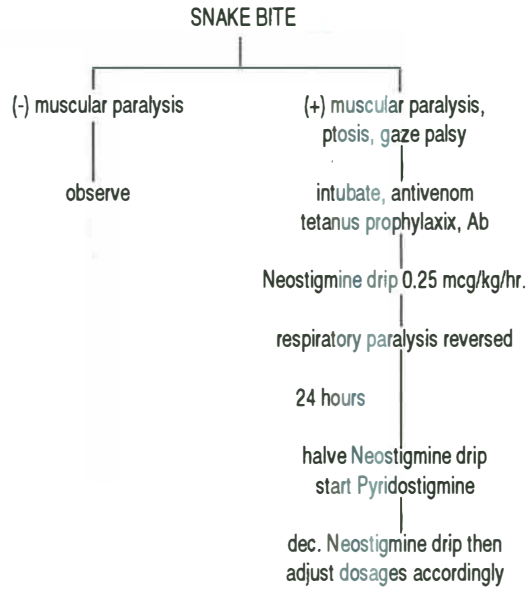
As expected, Pyridostigmine gradually reversed the neurotoxic manifestations in both cases. Early shifting of the intravenous Neostigmine to an oral Pyridostigmine had minimized the cost of hospitalization of these patients. Further, the problem with Neostigmine availability in such quantities has been alleviated, therefore Pyridostigmine is an effective alternative drug in patients with neurotoxic envenomation. Possible complications of Neostigmine drip include heart block, diarrhea, and other parasympathetic effects. Patients should also be monitored for Atropine toxicity and appropriate adjustments be made.

CONCLUSION

Neuromuscular paralysis is the outcome of cobra envenomation thus the use of anticholinesterase drug is therefore recommended in the management. Early shifting of the IV Neostigmine to oral Pyridostigmine minimized the cost of hospitalization and showed that Pyridostigmine may be an alternative drug after respiratory weakness has been reversed initially by IV Neostigmine.

In the Philippines, snake bite cases are usually admitted to the surgical department. However, attendant complications of snake bite cases such as pulmonary problems, Neostigmine side effects, Atropine toxicity are better managed by the internist or neurologist. Therefore, we recommend that snake bite cases are better admitted to the medical department as co-management with the surgical department.

MANAGEMENT PROTOCOL FOR SNAKE BITE



BIBLIOGRAPHY

1. Adams, R., Victor, M., Principles of Neurology. McGraw-Hill Book Co., 1989.
2. Gilman, A. et al, The Pharmacological Basis of Therapeutics. MacMillan Publishing Co., Inc., 1980.
3. Guyton, A., Guyton's Textbook of Medical Physiology. W.B. Saunders Co., 1982.
4. Haddad, L.. Clinical Management of Poisoning and Drug Overdose. W.B. Saunders Co., 1982.
5. Kumar, S., Usgaonkar, R.S., Myasthenia Gravis-like Picture Resulting from Snake Bite. J. Indian Medical Association, 1968.
6. Rowland, L., Merritt's Textbook of Neurology. Lea and Febiger, 1989.
7. Stoelting, R., Pharmacology and Physiology in Anaesthetic Practice. J.B. Lippincott Co., 1987.
8. Watt, G., Positive Response to Tensilon in Patients with Neurotoxic Envenoming by Cobras. 1986.
9. Warrell, D.A., et al., Severe Neurotoxic Envenoming by the Malayan Krait Bungurus candidus (Linnaeus): Response to Antivenom and Anticholinesterase. British Medical Journal, 1983.
10. Wilson, J., et al., Harrison's Principles of Internal Medicine. McGraw-Hill, Inc., 1991.

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INTRACECAL HEMANGIOMA IN A NEONATE

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ABSTRACT

A 3 day-old female infant presented with abdominal distention, bilious vomiting and a right quadrant mass. Surgical intervention revealed a solitary intraluminal cystic mass in the cecum. Treatment consisted of a limited right hemicolectomy and post-operative course was unremarkable. Histopathologic report revealed hemangioma of the cecum.

INTRODUCTION

A 3 day old female infant was referred to the Department of Surgery because of abdominal distention , bilious vomiting and right quadrant mass. Histopathologic report revealed hemangioma of the cecum.

Hemangiomas are common lesions found in infants, however, mostly are located on the face or scalp. Hemangiomas of the gastrointestinal tract are very rare and usually associated with cutaneous lesions. Ibarguen et. al., in 1988, reviewed 22 reported cases of visceral hemangioma in children with only one case of an isolated hemangioma of the cecum.

Although presentations may vary, majority of the cases were managed surgically. A few, however, benefited from other modalities of treatment such as radiotherapy and steroids. At present, trials are being made with regards to the use of other agents to treat these angiomatous lesions.

This case is being presented to document a very rare case of an isolated cecal hemangioma which presented not with bleeding but manifested as an intestinal obstruction. Hospital records from 1985 up to the present revealed no other reported cases such as the one being presented. This will also serve as a reminder to us that although hemangiomas are considered as benign lesions, a few may pose as threat to life because of their critical location.

CASE REPORT

A female infant was born to a G6P4(4014) mother at term, by normal spontaneous delivery, with an APGAR score of 8 and 10 at 1 and 5 minutes respectively. Although she had only three prenatal check-ups, she took multivitamins daily and the pregnancy was uncomplicated.

On the third day of life, patient suddenly demonstrated abdominal distention, bilious vomiting of two episodes, poor suck and fever. A concomitant mass on the right hemiabdomen was also noted. Abdominal radiograph was requested which revealed adynamic ileus. Oral intakes were withheld and an orogastric tube was inserted. Patient was then referred to the Department of Surgery.

Initial evaluation by the Department of Surgery revealed a neonate with diminished activity and the following vital signs: CR: 150/min, RR: 40/min, and temperature of 38.5° C. Physical examination confirmed a distended abdomen with an abdominal circumference of 32 cm from a baseline of 29-30 cm, hyperactive bowel sounds, soft, with a palpable mass on the right lower quadrant , mobile, firm, smooth, measuring about 3 x 2.5 cm. Digital rectal examination was unremarkable.

Surgical suggestions were as follows: ultrasound and radiograph of the abdomen, withhold oral intake, insert NGT, monitor abdominal status hourly, intravenous fluids and antibiotics.

Patient responded with regression of abdominal distention, down to 30 cm, on the fourth day of life. No vomiting noted and the patient became afebrile. She also passed out yellowish non-bloodstreaked, soft stools. Ultrasound of abdomen was done which showed an anechoic structure measuring 2.3 x 3.1 x 2.1 cm on the right lower quadrant with an unremarkable right kidney. A barium enema was also done which gave an impression of an extraintestinal mass, right lower quadrant.

On the sixth day of life, with no recurrence of symptoms, OGT was pulled out and breastfeeding was resumed.

On the ninth day of life, abdominal distention recurred (32 cm), with bilious vomiting and diminished activity. Preparations were then carried out for a contemplated emergency surgical procedure.

Operative findings were as follows:

-an intraluminal cecal mass , cystic in consistency, meas-

uring 3x2 cm, almost completely obstructing the lumen
-dilated small intestines proximal to point of obstruction
-aspiration of cyst revealed a clear yellowish fluid
-the rest of abdominal organs, grossly normal

A limited right hemicolectomy was done and specimen was sent for histopathology examination.

Post-operative course was unremarkable with the patient exhibiting bowel sounds and passing out flatus on the fourth post-operative day. Breastfeeding started on the fifth day. Sutures were removed on the seventh post-operative day, with a small stitch abscess noted which was drained and eventually improved. Patient was discharged on the twelfth day and advised regular follow-up. On the fourteenth post-operative day, result of the histopath was obtained which revealed hemangioma of the cecum.

DISCUSSION

Hemangiomas are common tumors, making up 7% of all benign tumors, and most common in infancy and childhood[1]. Mostly, they are located in the skin especially the face and scalp. Hemangiomas of the gastrointestinal tract are rare, and usually the lesions are single or just a few in number [2]. Table 1 shows a review of literature of gastrointestinal tract hemangioma in children.

A unique characteristic of hemangiomas is the presence of abundant mast cells which probably produce a cytokine which in turn induces other cell populations to produce angiogenic factors. These factors may affect any of the steps necessary for new blood vessel growth— endothelial cell proliferation, locomotion, and differentiation (lumen formation and anastomosis) [3]. Current trend of thought points to basic fibroblast growth factor as the primary angiogenic factor inciting growth of hemangiomas.

Presentations of gastrointestinal tract hemangiomas are variable. They can be a source of chronic blood loss and anemia as well as a cause for intussusception, intestinal obstruction, perforation, failure to thrive, protein-losing enteropathy, and consumption coagulopathy [2].

Two disease entities that may be associated with visceral hemangiomas are worth mentioning. First, the Kasabach-Merritt syndrome, the cardinal feature of which include an enlarging hemangioma, thrombocytopenia, and microangiopathic hemolytic anemia with acute or chronic consumptive coagulopathy [3].Second, the diffuse/disseminated neonatal hemangiomatosis. This is an often fatal disorder characterized by widespread capillary hemangiomas of the skin and visceral organs. The organs most commonly affected are the gastrointestinal tract, brain, liver, and lung [4]. Death can follow hemorrhage into a vital organ, heart failure or sepsis or both. The patient in question had a single hemangioma and did not manifest any of the above mentioned features critical to the diagnosis of either disease entities.

Presented with a patient who manifested with signs and symptoms of intestinal obstruction, a number of differentials would come into mind. Foremost among them are the congenital malformations such as atresias and stenoses. Intussusception can also be considered as well as a mesenteric cyst.

Diagnosis may be difficult because of the variation of clinical presentations and the rarity of the lesion, but may be confirmed by direct visualization of lesions by proctoscopy or colonoscopy. Radionuclide scan studies wherein the isotope zero in on areas of platelet sequestrations are also being used. CT scan and ultrasound may detect larger lesions. Still, the most accurate diagnostic procedure is angiography, albeit an invasive one.

Treatment has been mostly surgical as shown on Table 1. Radiotherapy is limited for larger hemangiomas. Corticosteroids produced satisfactory results in many cases. Trials are ongoing with the use of fibrinolytic inhibitor epsilon aminocaproic acid producing local thrombosis within the hemangioma. Because of previously described antiproliferative effects of a group of naturally occurring cytokines, the inteferons, synthetic interferon alpha-2a has been used to treat several angiomatous diseases with life-threatening outcomes, including Kaposi's sarcoma and pulmonary angiomatosis [3]. Successful control have been reported for consumptive coagulopathy of Kasabach-Merritt syndrome, rapid tumor growth of facial and retroperitoneal hemangiomas using this agent. CO_2 laser, on the other hand, may be used as an adjunct to surgical procedure when involvement is widespread and not amenable to surgery alone.

TABLE 1.
Review of the Literature Concerning Hemangiomas of the Gastrointestinal Tract in Children.

AUTHOR	AGE	FINDINGS	ASSOCIATED LESIONS	TREAT-MENT
Abrahamson	8 yr	single cavernous hemangioma of the rectum	cavernous hemangioma of the calf	surgical
	8 yr	cavernous hemangioma of the appendix	not known	surgical
	7 yr	five small cavernous hemangiomas of the small bowel	none	surgical
	13 yr	cavernous hemangiomas of appendix	not known	surgical

Table 1...continued:

AUTHOR	AGE	FINDINGS	ASSOCIATED LESIONS	TREAT-MENT
	18 mo	single cavernous hemangioma of the rectum	hemangio-mas on toes and buttocks	intra-rectal radium
	5 mo	single cavernous hemangioma of the rectum	hemangio-ma of scalp	surgical
	7 yr	seven cavernous hemangiomas of the small bowel	tetralogy of fallot	surgical
Holden	12 hr	hemangiomas of the esophagus	diffuse hemangioma-tosis affect-ing liver, spleen, lung and brain	none, fatal case
	35 days	diffuse hemangiomas of entire GI tract	diffuse hemangioma-tosis affect-ing liver	none, fatal case
		cavernous hemangioma of the colon	none	surgical
Mellish	1 yr	multiple hemangiomas of small bowel and colon	cavernous hemangioma of left foot	multiple excision ligation
	2 yr	multiple hemangiomas of the entire GI tract	giant hemangioma on the back	ligatures exci-sions electro-coagula-tion and steroids
Stillman	4 wk	hemangiomas of small bowel	hemangioma of face and choroid of right eye	surgery & steroids
Vallete	10 yr	single large hemangioma of rectum	none	surgical
Bower	6 yr	single hemangioma of cecum	intussusception	surgical
Oliver	4 yr	single hemangioma of small bowel	multiple hemangio-mas neck & back	surgical
Diamond	2 yr	single hemangioma of jejunum	none	surgical
Elefant	4 days	single hemangioma of small bowel	intestinal atresia & volvulus	surgical
Newman	9 yr	single hemangioma of sigmoid colon	none	surgical
McGaughey	6 days	single hemangioma of distal iluem	perforation of small bowel at site of lesion	surgical

Taken from Ibarguen ES. Review of the Literature Concerning Hemangiomas of the Gastrointestinal Tract in children : Ibarguen ES, Sharp HL, et. al. "Hemangiomatosis of the Colon and Peritonuem: Case Report and Management Discussion Clinical Pediatrics 1988; 27: 425-30.

REFERENCES

1. Robbins SL, Cotran RS, Kumar V: Diseases of infancy and childhood. Pathologic Basis of Disease, 1984; 539.

2. Ibarguen ES, Sharp HL, et.al. Hemangiomatosis of the Colon and Peritoneum: Case Report and Management Discussion. Clinical Pediatrics 1988; 27:425-30.

3. Silverman RA. Hemangiomas and Vascular Malformations Pediatric Clinics of North America 1991; 38: 811-833.

4. Golitz, LE et al: Diffuse neonatal Hemangiomatosis. Pediatric-Dermatol; 3(2); P 145-52; 1986 Feb.

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GILLES DE LA TOURETTE'S SYNDROME:
" ... An Enigma No More."

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ABSTRACT

Tics are the most common movement disorder in childhood. Gilles de la Tourette first recognized this disorder as a neurologic disorder and not a demonic possession as once believed, thus bearing his name. Gilles de la Tourette's Syndrome is characterized by involuntary, sudden, rapid, recurrent, non-rhythmic, stereotypic motor movements and vocal productions. Commonly seen but often ignored by clinicians, teachers, and parents, the signs and symptoms persist in the individual resulting to psychologically maladjusted personality. A classic example is a case of a 7 year-old boy with eyeblinking, facial grimacing and head tossing. He became the butt of jokes in class and was evaluated as a difficult child. Diagnosis of Gilles de la Tourette's Syndrome is clinical and the main criterion is the presence of motor and vocal tics. Patient has normal PE and Neurologic examinations although 50% has subtle neurologic findings. Electroencephalogram reveals generalized slowing of theta waves. Interesting involuntary components of Gilles de la Tourette's Syndrome are coprolalia, echolalia, palilalia and copropraxia. The current concept is an overfunction of the mesolimbic neurotransmitter system. There is no current cure for Gilles de la Tourette's Syndrome. Medical palliation using Haloperidol reduces tics in 70% of cases. This is coupled with behavioral and environmental modification to prevent maladjustments in personality development.

INTRODUCTION

Current local knowledge underestimates the true prevalence of tic disorder in the Philippines. To date, there are no local/national studies pertaining to this movement disorder. Local textbooks in Pediatrics do not contain this disease phenomenon when in fact, "tics are the most common disorder in childhood." [1,2]

With this limited knowledge, most often a child with tics have been accused by parents and school authorities to be difficult, with unusual acts and sounds and were ordered to stop, not fully understanding that directing attention towards the movement with the aim to correct will only exacerbate the very motor disturbance they are trying to stop.

Furthermore, the diagnosis is often initially difficult. Such initial symptoms as tics without the vocal component may not be diagnosed as Tourette's disorder. The clinical course may need to develop before the diagnosis can be established, delaying the treatment. Untreated, the symptoms persist and secondary psychosocial effects inevitably develop, affecting the patient's quality of life and his personality, limiting the potentials the child will be able to contribute to the society and the world.

This case is reported to be able to attain the following specific objectives:

1. To present a very common disease but which is currently ignored and unheard of by many clinicians, parents, school authorities and the general population.
2. To awaken the interest among local investigators in the hope that future studies be undertaken regarding movement disorders in the Philippines.
3. To define the current concept of its obscure etiology.
4. To present new advances in the treatment of Gilles de la Tourette's syndrome.

CASE REPORT

A 7 year-old male child began to be fretful, restless and hard to handle 3 weeks prior to opening of classes. He used to be a normal and happy child. One week later, parents noticed their child to have frequent eyeblinking, constant facial grimacing and head tossing. When classes started, teachers reported back that the boy was disruptive in class because of his uncontrollable head movements and classmates began teasing him and laughing at him. He oftentimes ended in fistfights in retaliation. The parents sought consult to a physician and a referral to a neurologist was done. Further investigation revealed a family history of facial tics in an uncle. Prenatal period, developmental milestones and past medical history were normal.

Physical and neurological examinations were normal. EEG done revealed a generalized slowing with theta waves. Patient was managed as a case of tic disorder and was started on Haloperidol.

One week later, vocal tics appeared but the head tossing seemed to have lessened in frequency. The vocal tics were characterized as throat clearing, barking, guttural sounds alternating high pitched sounds. Patient's Haloperidol was increased to 0.5mg/day and advised for weekly follow-up.

DISCUSSION

Diagnosis of tic disorders relies on the principle of "Pattern recognition" whereby a strong association is made between clinical appearance of a patient and a given textbook diagnosis. To diagnose movement disorders correctly, the astute clinician must learn to recognize certain patterns and distinguishing features of each of the tic disorders. Such is the case with Gilles de la Tourette's Syndrome. The diagnosis of Gilles de la Tourette Syndrome remains clinical,[2] and the main criterion for diagnosis of Gilles de la Tourette Syndrome is the presence of chronic, variable motor and vocal tics.[3] One feature without the other casts doubt in the diagnosis.

As earlier mentioned, early diagnosis of Gilles de la Tourette's Syndrome remains a big challenge for any astute clinician. Shapiro et. al., illustrated a case of a 10 year-old female whose symptoms began at age 8 with eye blinking and sniffing. At age 10, she began to have persistent throat clearing and coughing. The family consulted an allergist who recommended allergic desensitization but which failed to alleviate the signs and symptoms. Treated with Haloperidol, 85% of the symptoms were controlled.

As defined, tics are involuntary, sudden, rapid, recurrent, non-rhythmic, stereotyped motor movements or vocal productions.[2,5,6]

The patient presented with eye blinking, facial grimace and head tossing. Simple motor tics (eg. the motor tics displayed by the patient) are usually the initial symptoms of Gilles de la Tourette's Syndrome in 80% of cases and typically occurs around age 7 as seen in the patient although <5% of patients have vocal tics first without motor symptoms. According to Shapiro et. al., the most frequent simple motor tics associated with Gilles de la Tourette's Syndrome are eye 80%; head 69%; shoulders 55%; facial grimace 36%; mouth 34%; and hands 34%. Complex tics were the first signs in 7.1% of the author's patients. The most frequent were hit self 21.6%; jumping 19.8%; copropraxia 15%; touch self 13.23%; smell hands 11.8%; touch others 11.4%; smell objects 10.9%; and echopraxia 8%.[4]

The diagnosis of Gilles de la Tourette's Syndrome would not have been made were it not for the appearance of vocal tics in our patient characterized as throat clearing, barking, guttural sounds with high pitched noises.

The simple vocal tics seen in Gilles de la Tourette's Syndrome include inarticulate noises and sounds, such as throat clearing 57%, grunts 46%, sniffs 33% coughs 25%, screams 21%, snorts 20% shouts 20%, barks 19%, word accentuation 10%, high pitched noises 33% humming 18%, spitting 18%, hissing 15%, clicking 14%, stuttering or stammering 13%.[4]

Other symptoms may be seen in fullblown Gilles de la Tourette's Syndrome such as coprolalia (involuntary obscene utterances), echolalia (involuntary repetition of another's words), palilalia (involuntary repetition of one's last heard word or phrase with increasing rapidity), copropraxia (involuntary touching the genitals) but are not essential for the diagnosis. Coprolalia is pathognomonic of Gilles de la Tourette's Syndrome but because it may occur only in 60% of patients[1] or may appear 6 to 35 years after onset, diagnosis should not be deferred in its absence.[7]

Boys are affected more commonly than girls with ratio of 4:1.[3,8] Age of onset has been changed from 2 to 15 years[1,9] to onset before age 21.[4] The prevalence of Gilles de la Tourette's Syndrome has been estimated to be 1 per 2,000 while one review estimated this common disorder to occur 1 per 200 to 300 persons.[5] At present, there is no available data for local statistics which leaves an open door for future clinical studies.

Etiology was initially demonic possession during the Middle Ages. The first historic references to the Gilles de la Tourette's Syndrome appeared in the book Malleus Malificarum (or Witches' Hanumer written by Springer and Kraemer).[4] In the 20th century, etiology shifted to psychodynamic disturbance evidenced by extensive compilation of knowledge in Psychiatry books up to the present, in contrast to the limited contents in Neurology texts.

At present, Gilles de la Tourette's Syndrome is attributed to an overfunction of dopamine neurons in the mesolimbic system of basal ganglia generating the complex tics of Gilles de la Tourette's Syndrome. This is supported by the ability of Haloperidol and other dopaminergic-blocking medications to suppress tics.

Neurologic examinations of patient with Gilles de la Tourette's Syndrome may be normal in 98%[3] as seen in our patient. Subtle neurologic abnormalities occur in 50% of cases consisting of unilateral impairment of rapid alternating movements, pronator drift and hyperreflexia.[3] EEG abnormalities occur in 25 to 75% of cases which take the form of irregular or rhythmic slowing in the theta range (Lucas and Rodin, 1973).[1]

DIFFERENTIAL DIAGNOSIS

There are very few conditions that really mimic the clinical features of Gilles de la Tourette's Syndrome. A careful history taking and complete physical and neurological examinations will exclude conditions such as Sydenham's chorea, and other tic disorders in the spectrum. Sydenham's chorea is a disease of childhood with unknown cause considered to be a manifestation of Rheumatic Fever. In mild cases, there may be only general restlessness, facial grimacing and uncoordination in the performance of willed movements. Girls are affected more than twice as

frequently as boys. There is weakness of voluntary muscles with ability to maintain any sustained effort. This is demonstrated by the increasing and decreasing of force of pressure when the child grips the examiner's hand. The appearance of the hands when the hands are held extended in front of the body is characteristic. The wrist is sharply flexed with the fingers hyperextended at the proximal and terminal phalanges (Warner Hand). Careful neurologic examination of the patient did not reveal any of these findings. There was no history of previous streptococcal infection to account for a possible Rheumatic Fever with choreas as its clinical presentation. Besides, our patient with repetitive, rapid, stereotyped involuntary movements associated with vocal tics in contrast to that expected to be found in Sydenham's chorea which is characterized as irregular, aimless, random, non-repetitive, jerky dancing movements slower than tics.

It is also important to differentiate Gilles de la Tourette's Syndrome from other tic disorders in the spectrum such as transient tic disorders and chronic tic disorders since these two might be tolerable enough that won't require medication. Transient tic disorder is a single tic that disappears within a year. This is the mildest form that is usually seldom disruptive enough to require treatment. Chronic motor tic disorder lacks the fluctuations seen in patients with Gilles de la Tourette's Syndrome and usually not accompanied by vocal tics.

TREATMENT

There is no cure for Gilles de la Tourette's Syndrome.[2] Medications used to alleviate the symptoms should be used with extreme care and only when the symptoms compromise the patient's development. This is due to its attendant side effects. The drug of choice is Haloperidol. Haloperidol reduces tics in 70% of treated patients, 50% complained of side effects and 25% had significant improvement without sided effects.[3] These side effects noted were rigidity, tremors, masked facies, drooling, shuffling gait and dystonia. The treatment program is balancing the beneficial response against the incidence of side effects, thus the therapy began with the least dosage for one week. On follow-up, the motor tics seemed to have been reduced but there was the appearance of vocal tics. The dosage was increased to 0.5mg/day. Patient is currently advised for weekly follow-up.

Cases refractory to Haloperidol are started on Pimozide (Orap), a diphenylbutylpiperidine with powerful dopamine-blocking activity with a starting dose of 1 mg BID and increase by 2 mg/week as tolerated to a maximum dose of 8 mg/day.[2] Side effects are similar to those seen with Haloperidol. Caution is mandated with the use of this drug in <12 years old.

Other drug regimen are seldom helpful but have been tried although the use of these drugs are still not currently approved. Clonidine HCl, an inhibitor of central noradrenergic function, benefits only a few patients. The starting dose is 50 ug/week to maximum of 150 ug/day.[2]

Additional treatment involves psychotherapy, behavior modification and manipulation of environment.

PROGNOSIS

Prognosis of Gilles de la Tourette's Syndrome is variable. It does not result in intellectual deterioration and psychosis as once believed. The main effect of Gilles de la Tourette's Syndrome is on the psychosocial adaptation with the environment. Patients may become withdrawn and introvert. The disorder may regress during late adolescence and sometimes not recur in 7-19%.[11]

CONCLUSION

Gilles de la Tourette's Syndrome is a motor-vocal tic disorder of childhood that predominantly persist in adulthood with strong preponderance among boys. Though the most common movement disorder, this subject has not been properly addressed to nor given due attention by clinical experts in the field of investigation. The dramatic response of the tics to the treatment using Haloperidol gave a strong indication that the underlying culprit is a disorder of neurotransmitter metabolism. The basis of therapy is to assist the patient pharmacologically coupled with behavioral modifications to prevent maladjustment in personality and to enable him to live a full, happy, well adjusted productive life.

BIBLIOGRAPHY

1. Lawrence A. Lockman. MOVEMENT DISORDERS. The Practice of Pediatric Neurology, 2nd Ed. 1982. Vol 1 : 287-308
2. Gerald Erenberg, MD. TOURETTE'S SYNDROME. Current Therapy in Neurologic Diseases - Mar 91 : 278-283
3. Cesar C. Santos, MD; E. Wayne Massey, MD. TOURETTE'S SYNDROME; Tics, Jerks and Quirks, Post Graduate Medicine Journal for Primary Care Physicians, 1990, 87 (2) : 71-78
4. Shapiro & Shapiro. MOTOR DISORDERS: Comprehensive Textbook of Psychiatry 5th Ed. 1865-1878
5. Kaplan & Saddock. MOVEMENT DISORDERS. Modern Synopsis of Psychiatry 5th Ed. 609-614
6. Sarah M Roddy MD. BAD HABIT, TIC OR TOURETTE'S SYNDROME; Patient Case. The Practical Journal for Primary Care Physicians, 24 (16) : 61-76
7. Shapiro E; Shapiro AK. TIC DISORDERS. JAMA, 1981; 245 (15) : 1583-1585
8. Golden GS, Hood OJ. TICS AND TREMORS. Pediatric Clinics of North America 1982; 29 (1) 15-95-103
9. Stanley Fahn. GILLES DE LA TOURETTE'S SYNDROME. Merrit's Textbook of Neurology 7th Ed. 1984 : 522
10. Devinsky O. NEUROANATOMY OF GILLES DE LA TOURETTE'S SYNDROME: POSSIBLE MIDBRAIN INVOLVEMENT. Neurology 1983 40 : 508-514
11. IJ Butler MD. TOURETTE'S SYNDROME. Neurologic Clinics. Symposium on Movement Disorders Aug 1984 V 2 (13) : 571-580

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BILATERAL FACIAL ATROPHY:
A Rare Presentation of Romberg's Disease

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ABSTRACT

Romberg's Disease had always been synonymous with Progressive Facial Hemiatrophy and it being bilateral is an uncommon feature. A 27-year old female sought consult at IRH because of progressive bitemporal depression for 2 years. Electromyelogram, Nerve Conduction Velocity, Brain Auditory Evoked Responses, Erythrocyte Sedimentation Rate, Isoenzyme Creatinine Phosphokinase-MM, total Creatinine Phosphokinase, skull radiographs and Computerized Axial Tomography Scan were all normal. Rapid Plasma Reagin was non-reactive and negative for Lupus Erythematosus (LE) smear. Skin biopsy revealed fibrosing dermatitis. A review of the literature on this rare and obscure disease is included.

INTRODUCTION

In 1825, Caleb Parry published the first description of facial hemiatrophy. Twelve years later, in 1837, Bergson referred this entity as "prosodysmorphea" (Gr.: prosopon - face). Later in 1846, Romberg termed the disease as "trophoneurosis" because of its dermatomal distribution. Other names given since then were Romberg's disease and Parry-Romberg Syndrome. Finally, in 1871, a more appropriate term of "progressive facial hemiatrophy" was coined by Eulenberg[1].

According to Adams[2], "the facial hemiatrophy of Romberg is an obscure disorder characterized by the disappearance of fat in the dermal and subcutaneous tissues on ONE or BOTH sides of the face", while Billson et al[3] described it as a "rare disorder characterized by progressive hemifacial atrophy that is USUALLY UNILATERAL, involving the skin, subcutaneous tissue and subsequently the muscle, cartilage and bone".

Up to the present, the etiology is still a mystery and remains controversial[1,4,11]. Several hypotheses were offered with no definite one established[1,5]. The pathogenesis is uncertain[5]. Likewise, the incidence of Romberg's Disease is unknown and clinical course is poorly recorded[1]. Although more than 1035 cases have been reported in literature up to 1963, only 772 patients had sufficient documentation to be considered having Romberg's disease, with sex predilection[1]. In our review of literature, not one reported a bilateral facial atrophy as defined by Adams and Billson.

It is then the purpose of this paper: 1) to present a rare case of progressive facial hemiatrophy unusually presenting as bilateral facial atrophy, and therefore create an awareness for such a peculiar disease entity, 2) to document a case of progressive facial hemiatrophy with bilateral involvement, probably the first to be reported in the Philippines and one of the few reported cases in the world, and 3) to briefly review the latest literature regarding etiopathogenesis, clinical manifestations, and treatment available for Romberg's disease.

The Case

This is the case of a 27 year-old, right-handed female, married from Naguilian, La Union seen at the IRH-OPD because of deepening temporal areas.

The condition started 2 years prior to consultation, during her third month of pregnancy, as slight depression of both temporal areas of the face which were slowly and progressively getting worse affecting the more inferior areas. This was associated with on and off tolerable headache over the vertex. No other signs and symptoms noted. Six months later, she sought consult to an ophthalmologist for possible eye problem as the cause of the headache and was diagnosed as migraine. Medications were unrecalled but gave relief. She was then referred to the Ilocos Regional Hospital-Neurology Clinic.

On examination, patient was conscious, coherent, ambulatory, and apprehensive with a BP=110/70, CR=82/min, RR=20/min. Physical Examination was centered on the face. The head was normocephalic, with no alopecia, no changes in skin pigmentation, with symmetrically depressed, soft, thinned out skin and subcutaneous tissue on both temporal areas making the superior border of the zygomatic arch prominent. The skin is not bound to the underlying structures. No sensory deficits on the affected areas nor weakness of the facial, masseter and temporalis muscle were noted.

The following laboratory examinations were requested: Electromyogram (EMG) (Table I), Nerve Conduction Velocity

(NCV) (Table II), Brainstem Auditory Evoked Responses (BAER), Erythrocyte Sedimentation Rate (ESR), Isoenzyme Creatine Phosphokinase (CPK-MM) and total CPK (Table III). Results were all normal.

With progressive thinning of the skin over the affected areas and apparent progression of the disease, she was admitted to the Ilocos Regional Hospital for further work-up. A CT scan done revealed normal findings. Skull x-ray was normal and EEG was within normal limits. Rapid Plasma Reagin (RPR) was non-reactive along with a negative LE smear to screen for connective tissue diseases. Skin biopsy showed a thin epidermis, fibrosis, linearization of hair follicles and appendages with sclerosed collagen fibers and, subcutaneous and dermal fats were notably atrophied. This was read as "fibrosing dermatitis." She was referred to the Department of Ophthalmology and except for astigmatism, she was cleared of enophthalmos and ocular disorders.

Case Discussion

An unusual presentation of a rare and little known disease could cause agony to the patient and confusion to the doctor. It serve to be a motivation to review available literature to enlighten both the patient and the doctor, as well as my colleagues. The establishment of a definite diagnosis is imperative so that definitive treatment will follow. If therapy is not available, at least understanding the disease can give comfort to the patient.

A young married woman with bilateral facial atrophy was admitted at the Ilocos Regional Hospital. Because of the dermatologic involvement, a connective tissue disease, specifically scleroderma, was considered. Though scleroderma is common in our patient's age group (onset at the 3rd to the 5th decade) and preponderant in women[7], the absence of environmental factors predisposing to scleroderma and the absence of other organ involvement, made this diagnosis remote. Although in "Limited Cutaneous Scleroderma" the thickening is limited to the fingers or distal extremity and to the face, it is frequently associated with the **CREST** syndrome (**C**alcinosis, **R**aynaud's phenomenon, **E**sophageal dysmotility, Sclerodactily, **T**elangiectasia)[7], which were absent in this patient. The pathology in scleroderma is excessive collagen deposition secondary to fibroblast activation[8], and the diffuse fibrosis of the subcutaneous fat will make it firmly bound to the underlying structures[9]. Secondary contracture of the fingers will later follow. None of these were present in our case. Scleroderma was further ruled out with the skin biopsy. The ESR in our patient was also normal. Other diagnostic work-ups such as EMG, NCV, BAER, and CPK-MM determination were all normal which practically ruled out a motor neuron disease, peripheral or cranial neuropathy, and myopathy[10].

Romberg's disease is characterized by progressive wasting or loss of subcutaneous tissue in one half of the face, occurring more in women and begins during adolescence or early adulthood[6]. According to Moschella and Hurley[6], in 5 % of the cases, bilateral involvement was observed. However, in this incidence, they included patients with scleroderma. The skin is soft, atrophic and usually not bound to the underlying structures, and veins become more prominent[6]. Though some histologicchanges similar to those of scleroderma were reported suggesting an association with connective tissue disease, there were other interpretations, like overlapping of the two diseases (Abele, et al, 1990)[11].

Romberg's disease has fascinated clinicians for more than one and a half century. Etiology remains elusive as much today as when it was described by Parry in 1825. According to Rosende[5], the main pathogenetic hypotheses are: 1) sympathetic alterations/irritations; 2) localized scleroderma; 3) trigeminal changes; and 4) possibility of genetic origin. Rosende[5] proved the sympathetic alteration theory by ablating the superior cervical sympathetic ganglion in animals where hemifacial atrophy and other related manifestations resulted; Nakazawa[12] concluded in his report that localized scleroderma may have had the same pathological background with progressive facial hemiatrophy. Pensler et al[1], in their review of charts of patients with Romberg's disease, hypothesized that the pathogenesis involves lymphocytic neurovasculitis along branches of the trigeminal nerve. Clinical manifestations of the disease had a wide range among reported cases, each claiming to be part of the syndrome. There were descriptions from the usual subcutaneous and dermal atrophy, to ocular manifestations like enophthalmos[1,4,5,16], uveitis and retinal vasculitis [3,16], pupillary and iris abnormalities[16], to anosmia and osteoporosis [1,5] Atrophy of the tongue and fasciculations[18], alopecia[4,5,12] and the rare masticatory spasm [13,14,15] were also described.

In the most authoritative review of Romberg's disease made so far, Pensler et al[1] evaluated the chart of 41 patients by history, physical examination and facial radiographs. The following were noted:

1. female gender predilection (37 females: 4 males, $p<0.01$)
2. age of onset of clinical symptoms =8.8 +/- 6.6 years
3. period of active tissue loss = 8.9 +/- 6.2 years
4. significant enophthalmos (80%)
5. osseous involvement (65%)
6. (+) correlation between age of onset and degree of bone hypoplasia
   * with osseous hypoplasia = 5.4 +/- 2.3 years
   * without bone involvement = 15.4 +/- 5.1 years
   * none of the patients without skeletal alterations had onset of skin changes prior to age 9

7. skin pigmentations (24%)
8. in all cases, the atrophic changes in the soft tissue correspond to area of trigeminal nerve distribution (Fig I and II)
9. in all cases, the disease was unilateral.

Sensory, sympathetic, parasympathetic and sudomotor functions of the involved area were normal in all patients. Muscles of mastication and facial expression were fully functional. CT scans were normal except for one with the vascular malformation.

In comparison, we have a female patient, in her early adult years, progressively having active facial tissue loss bilaterally for the last 2 years, in the dermatomal distribution of the trigeminal nerve. Sensory, sympathetic, parasympathetic and sudomotor functions are intact. Skull x-ray revealed no osseous destruction. CT scan ruled out central nervous system involvement such as a compressive lesion. The integrity of the brainstem was attested to by the Brainstem Auditory Evoked Response (BAER). Electromyogram and nerve conduction studies, along with normal CPK-MM isoenzyme, failed to demonstrate a neurogenic or myogenic process. ESR was normal ruling out the possibility of an inflammatory process (either infectious or connective tissue). SLE preparation is likewise negative.

With the diagnosis established, therapeutic modalities still remain a dilemma. With different possible etiopathologies[1], there are different possible therapeutic options each still to prove its worth. A stellate ganglion block with local injection of lidocaine for several doses based upon the assumption that atrophy may result from sympathetic irritation was done by Miziguchi and Kamiya[19]. Steroid was tried but to no avail (Gancher, et al, 1990[20]). With the advent of plastic surgery, microsurgical reconstruction of the deficient face-contour is being advocated. Flaps from the scapular region[21], latissimus dorsi[22], groin[23], and silicone implants[6,23] were reported to have their own advantages.

Surgery is not yet possible for our patient as the disease process has not ceased. At the moment, however, we know what kind of disease she most probably has. It is self-limited so we know she will survive and that at least is a consolation.

Romberg's disease, a rare entity presenting with bilateral facial atrophy which is extremely unusual, is thus presented and documented.

Recommendation

With the overlapping manifestations of Romberg's disease and scleroderma, a study should be made: 1) to establish the criteria for a pure Romberg's disease different from scleroderma, 2) to establish the components of Romberg's disease so that it would be appropriately called a syndrome, and 3) that the misnomer "Progressive Facial Hemiatrophy" be changed with the terms "Progressive Facial Atrophy" or "Romberg's disease" to acknowledge the possibility of being bilateral, as this report has shown.

BIBLIOGRAPHY

1. Pensler, et al., Clinical and Ultrastructural Studies of Romberg's Hemifacial Atrophy., Plastic and Reconstructive Surgery, 1990, May; 85(5); 669-674. Abs.
2. Adams, R., Principles of Neurology, 4th edition, 1989, p.1083.
3. Ong, K., Dillson, FA., et al. ABS: A Case of Progressive Facial Hemiatrophy with Uveitis and Retinal Vasculitis., Australian-New Zealand Journal of Ophthalmology, 1991 Nov; 19 (4):295-298. Abs.
4. Auvinet, C. et al., Parry-Romberg PFH and Localized Scleroderma. l-Fr-Ophtaimol., 1989; 12 (3) 169-173. Abs.
5. Rosende, L. et al., Experimental Study of Progressive Facial Hemiatrophy: Effects of Cervical Sympahtectomy in Animals. Rev_neurol-Paris. 1991; 147 (89): 609-611. Abs.
6. Moschella and Hurley. Dermatology, 3rd edition, vol. II, 1992, pp.1329; 1548.
7. Wilson, et al. Harrison's Internal Medicine, 12th edition, vol. II, 1991, pp.1443-1448.
8. Cotran, et al., Robbin's Pathologic Basis of Disease, 14th edition, 1990, pp.204-210.
9. Lever, W., Histopathology of the Skin, 6th edition, 1983, pp.461-466.
10. Tan, et al., Progressive Hemifacial Atrophy with Localized Scleroderma. Eu-Neurol 1989; 29(1); 15-7. Abs.
11. Abele, DC., et al., Progressive Facial Hemiatrophy and Borreliosis. Am J Dermatol. 1990 Mar; 22(3); 531-3. Abs.
12. Nakazawa, A., et al., Progressive Facial Hemiatrophy with Localized Scleroderma. Abs.
13. Yoshii, et al, A Case of Unilateral Masticatory Spasm without Hemifacial Atrophy. No-To-Shishei. 1989 Apr; 41(4);343-6.; Abs.
14. Talacko, AA; Reade, PC., Hemifacial Atrophy and Temporomandibular Joint Pain-Dysfunction Syndrome. Int-I-Oral-Maxillofaci-Surg, 1988 Aug; 17(4); 224-6. Abs.
15. Parisi, L. et al, A Case of Facial Hemiatrophy Associated with Linear Scleroderma. Ital-I-Nero, 1987 Feb; 8(1); 63-5. Abs.
16. Miller, MT., et al., Progressive Hemifacial Atrophy (Parry-Romberg Disease). J-Pediat-Opthalmol_Strabismus. 1987 Jan-Feb; 24 (1); 27-36. Abs.
17. Ong, B., Chang, PN., Progressive Hemifacial Atrophy - A Report of 2 Cases. Singapore - Med-I. 1990 Oct; 31(5); 497-9. Abs.
18. Tsuda, N. A Case of Unilateral Lingal Atrophy and Ipsilateral Muscular Atrophy Supplied by the Trigeminal Nerve in relation to PFH. Rinsho-Shinteiyaku 1991 Sep; 31(9); 1007-9. Abs.
19. Misuguchi, M. et al., Stellate Ganglion Block Therapy against PFH. No-To-Hattatsu. 1989 Nov; 21(6); 574-8. Abs.
20. Gancher, C., et al., Optic Neuropathy and Parry-Romberg Syndrome. J-Fr-Opthalmol. 1990; 139 (11-12); 557-61. Abs.
21. Uptron, J., Albin, RE., The Use of Scapular and Parascapular Flaps for Cheeck Reconstruction. Plast-Reconstr-Surg. 1992 Dec; 90(3); 959-971. Abs.
22. Inigo, F. et al., Aesthetic Treatment of Romberg's Disease: Experience of 35 cases. Br-J-Plast-Surg. 1993 Apr; 46(3);194-200 Abs.
23. Nerobyeyev, AI, et al., Surgical Treatment of PFH. Acta-Chir-Plast. 1990; 32(2); 65-73.F Abs.

LABORATORY RESULTS

Erythrocyte Sedimentation Rate		= 2 mm./hr.
Complete Blood Count:	Hemoglobin	= 120 gm./L
	White Blood Cell	= 5.7 x 10^9/L
	Segmenters	= 0.69
	Lymphocytes	= 0.31
Fasting Blood Sugar		= 4.14 mmol/L (N.V.= 4.12 - 6.32)
Triglycerides		= 1.1 mmol/L (N.V.= 0 - 1.71)
Total CPK		= 77 u/L (N.V.= 10 - 98)
CPK-MM		= 69.1 mmol/L (N.V.= 8.0 - 97.0)
Rapid Plasma Reagin (RPR)		= non-reactive
Urinalysis:		
	color	light yellow
	transparency	clear
	macroscopic:	
	reaction	acidic
	specific gr.	
	albumin	negative
	microscopic:	
	epith cells	occasional
	pus cells	0 - 1 /hpf
	RBC	0 - 1 /hpf
	tyrosine	crystals few

Skull X-ray: No definite abnormalities seen

EKG: regular sinus rhythm
within normal limits

Lupus Erythematosus (LE) smear: negative

Skin Biopsy: Section slides shows thin epidermis, fibrosis, linearization of hair follicles and appendages, and sclerosed collagen fibers. Subcutaneous and dermal fats are notably atrophied.

Impression: Fibrosing dermatitis

2nd Prize winner, 2nd IRH Case Presentation Contest 1993.

FETUS PAPYRACEOUS: A CASE REPORT

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ABSTRACT

This report presents a case of a FETUS PAPYRACEOUS, a rare type of twin gestation diagnosed in a 25 year-old, primigravida. It's incidence, etiology, complications and suggested mode of management are discussed.

INTRODUCTION

During pregnancy, many physical changes, physiological alterations and biochemical values have been well established. Twins bring differences to many of these normal pregnancy observations. The mother has exaggerations of normal pregnancy changes. Twin fetuses often respond differently from singletons.

Women with twin pregnancies have some unique problems and some occur more frequently than those seen in singleton pregnancies. Examples of the former are the "vanishing twin" and the death of one fetus. Examples of the latter are congenital anomalies, hydramnios, and anemia. Prenatal care must be altered because of these complications, wherein perinatal morbidity and mortality are increased.

One fetus may die at anytime in gestation and it may also completely disappear. This has been referred to as the "vanishing twin phenomenon". The death of one twin leads to the compression of its remains by the surviving twin. Its water resorbed and it becomes a fetus compressus, and it may even become paper-thin, a FETUS PAPYRACEOUS.

The intrauterine fetal demise of one of the twins in multiple pregnancy is not a common occurrence. Similarly uncommon is the diagnosis of this event prior to birth. A review of foreign literature revealed that until recently, the presence of a dead co-twin was an incidental finding at birth in most cases.

This case report aims to present a relatively uncommon type of twin gestation. Its incidence, etiology, complications and suggested mode of management are discussed.

CASE REPORT

A 25 year-old, G1P0, Filipino, married, housekeeper, from Baraoas, Naguilian La Union, admitted for the first time at Ilocos Regional Hospital, because of active labor pains of 7 hours duration, accompanied by watery vaginal discharge 20 minutes prior to admission. Her estimated age of gestation was 36 4/7 weeks, and had her prenatal check-ups from a nearby health center. She received 2 shots of tetanus toxoid injections. No serious illnesses contracted during the course of pregnancy. Negative family history of twinning.

For the pertinent physical examination, patient came in with stable vital signs, revealed the abdomen to be globularly enlarged with a fundic height of 30 cms., and the fetal head occupying the uterine fundus, with strong uterine contractions. The fetal heart tone was 132/min, best heard at the RLQ area, strong and regular. The cervix was fully dilated, 100% effaced with ruptured membrane, footling breech presentation, station zero to plus one. The impression on admission was, Pregnancy Uterine, 36 4/7 weeks AOG, footling breech, in labor, G1P0.

Partial breech extraction under IV sedation was performed with delivery of a 1,900 gms male infant and with an APGAR score of 8 & 10 at 1 and 5 minutes, respectively. The placenta was manually extracted with a dead male FETUS PAPYRACEOUS in an intact amniotic sac.

The live twin had a crown-to-heel length of 43 cms. Apparently he had no congenital anomalies. Blood studies were made and showed no evidence of any clotting disorder.

The dead fetus weighed 65 gms with a crown-to-heel length of 130 mm. He had a brownish to tannish skin with excoriations. The head was distorted and flattened. Detailed structures of extremities were distorted. The umbilical cord was thin and fibrous measuring 28 cms. A 2-cm. constriction was noted 11 cm. from its insertion.

The single placenta was monochorionic, diamnionic, weighing 500 gms. Two umbilical cords noted. There were no gross evidence of placental infarction.

Postpartum, the mother appeared apparently well. Blood studies to detect abnormalities in the clotting mechanisms were within normal limits. She was discharged asymptomatic on the third hospital day with the following final diagnosis; Pregnancy Uterine, 36 4/7 weeks by LMP, 35-36 weeks by PA, delivered by partial breech extraction to a live baby boy with a BW = 1900 gms., BL=43 cms.,, and with an APGAR score of 8 & 10 at 1&5 minutes, respectively; Multifetal Pregnancy with FETUS PAPYRACEOUS, G1P1.

DISCUSSION

Embryology:

Generally 2 kinds of twin gestation are distinguished, those arising from one ovum and those from separate and

distinct ova.[2,4] Hence, thus maybe monozygotic or dizygotic.

Monozygotic twin, as we have in this case, arise from the different stages in the division of the fertilized ovum. Division within the 72 hours following conception will result in diamnionic dichorionic monozygotic twin pregnancy. At this point in development, the inner cell mass has not formed and the outer layer of the blastocyst is not yet committed to become chorion. Each embryo will then have a separate amnion and chorion. At 4-8 days after fertilization, diamnionic monochorionic monozygotictwin pregnancy develop. At this time the inner cell mass has formed, and with it, cells destined to become the chorion have differentiated, two embryos will then have separate amniotic sac but share a common chorion. Division of fertilized ovum at 8 days or more post fertilization after the amniotic cell have differentiated will result in monoamnionic monochorionic twins.[5,8,10]

INCIDENCE

The incidence of single intrauterine fetal death in a multifetal pregnancy was noted to be 1:12,000 live births (0.00081%) or 1:184 twin deliveries (0.55%)[3]. Review of world literature cited a report by the National Collaborative Perinatal Project in which it was noted that 7 out of 188 monozygotic twin pregnancies were complicated by this intrauterine accident. However, occurrence in dizygotic twin pregnancy is less common. Most published cases revealed that IUFD in twin pregnancy occurs in the second trimester.[3]

Fetal death in one of the twin is unusual and according to many reports the risks of morbidity of the living twin is increased after the death of its sibling.

The overall perinatal mortality for twin births is 14.2%, seven times greater than that for singletons. Monochorionic twins like in this case are at much greater risk with a mortality of 26% compared to dichorionic twins with a perinatal mortality of 9%. Monoamnionic twin however have the highest perinatal mortality, 50% of these twins do not survive, their demise generally due to cord entanglement.[5,8]

ETIOLOGY

The death of one twin may result in various postmortem intrauterine alterations. In our case, this may initially result from the compression of the dead fetus between the amniotic sac or structures of the surviving twin and the uterine wall, and with further loss of body fluid & soft tissue, marked flattening occurs resulting in a FETUS PAPYRACEOUS. The dead twin may also become macerated or mummified in which the fetus hardens without much loss of the body contour. Still in some, there may be complete resorption of one twin. This phenomenon, termed the "Vanishing Twin".[1,5,8]

Various factors have been implicated in the causation of a single uterine fetal demise in twin pregnancies. Among these, the type of placental configuration appear to play a major role. The finding of a monochorionic type of placenta in this patient is consistent with the finding that fetal death in utero is 2.5x more common in monochorionic that in dichorionic placentas.[6]

Vascular anastomoses are usually present in 85% of twins with monochorionic diamnionic placenta. Their presence in dichorionic diamnionic placenta, though rare, is a possibility. Linkages maybe artery-to-artery, vein-to-vein, or artery-to-vein. The presence of interfetal anastomoses have been shown to cause "twin-to-twin transfusion syndrome", which can result in severe intrauterine growth retardation of one twin with hyperperfusion and hydrops on the other.[6,8] The twin transfusion syndrome result when one placental cotyledon is fed by an artery from the first twin, and drained by a vein that leads to the second twin. In its full blown picture, the hyperperfused twin is polycythemic and have hypertension, cardiac hypertrophy and edema. On the other hand, the hypoperfused twin is anemic, under growth and hypotensive. This mechanism has been proposed as the cause of death in the second trimester of pregnancy. [3,6,7,8] In the case presented, whether twin-to-twin transfusion really occurred remains a question.

Intertwining, knotting, or entanglement of the cord is more commonly the leading cause of death in twins with monochorionic monoamnionic placenta. This is not evident in our case.

Although there is no evidence of placental infarction in the case reported, a 2-cm. constriction noted in the umbilical cord of the fetus papyraceous may have contributed to the death of one twin.

It is difficult to pinpoint exactly which factor could have caused the death and subsequent fetus papyraceous formation of one twin.

COMPLICATIONS:

Reports on the effects of the presence of a dead twin in utero vary. Through the years, there seems to be a growing consensus that although adverse effects in maternal health are rare, the presence of a dead twin significantly affects perinatal morbidity and mortality of the surviving twin.[6]

Based on reported cases, the presence of a dead fetus affect the course of labor. Preterm labor, as seen in this patient, is common. In 1979, Lippert reported an undiagnosed case of fetus papyraceous which caused an arrest in the cervical dilata-

tion and subsequent delivery by caesarean section.

Prolonged retention of the dead twin may also result in the development of infection or puerperal hemorrhage. Postpartum bleeding was not a problem in this patient. There is no clinical manifestation to show that she suffered from infection.

Disseminated Intravascular Coagulopathy is a feared complication of IUFD in singleton pregnancies. The mechanism of consumptive coagulopathy involves the absorption of thromboplastin from the tissues of the dead fetus and placenta. This triggers an enzymatic release process that ends in the formation of a stable retracted clot, and through the action of plasmin, the fibrinolytic system opposes the clotting system. Hence, the clot dissolved and eventually hypofibrinogenemia results.[3,7]

In multifetal pregnancy complicated by death of one twin, transient decrease in maternal fibrinogen was observed. However, inspite the absence of therapy, fibrinogen levels spontaneously rose to normal levels while that of fibrin degradation products decreased. This leads to the normalization of coagulation mechanism. Studies have demonstrated the presence of massive fibrin deposition in portions of the placenta related to the dead co-twin. It has also been suggested that through the process of fibrin deposition and hyalinization, the transfer of thromboplastin to the maternal circulation is prevented, thereby inhibiting the development of consumptive coagulopathy.[3,5]

The presence of a clotting defect was not seen in our patient. However, occurrence of consumptive coagulopathy in the sibling of the dead twin is more often encountered, especially in monozygotic twin pairs who posses a shared circulation.

DIAGNOSIS

Optimal obstetric management of twin pregnancies begin with early diagnosis. At this time, an appropriate plan for the prenatal care, laboratory and ultrasound surveillance, labor and management can be formulated. Without this important anticipation many of the increased risks associated with multiple gestation may remain unrecognized, as in antepartum fetal demise of one twin which is often goes undetected. But due to its consequences, every effort should be made to detect its occurrence early in pregnancy as possible.

Clues to multiple gestation often present in the initial history and physical examination.

Certain laboratory values are elevated in the presence of twin gestation. Ninety five percent of twin gestation will have Human Placental Lactogen level greater than 1 standard deviation above the singleton mass for gestational age. Maternal serum alpha protein is higher in multiple than in singleton pregnancies.

Twin gestation and complications related to twinning are now more frequently and accurately diagnosed because of the advent of ultrasound. Real time ultrasonography provides a rapid assessment of fetal growth and identification of structural fetal anomalies.

Unfortunately, these diagnostic modalities were not done in this particular patient for she had her prenatal checkups outside this hospital and only came in already in active labor with fully dilated cervix, fully effaced at station zero to plus one. She was then immediately brought to the operating room hence diagnose with multifetal pregnancy with fetus papyraceous after delivery.

MANAGEMENT

Our patient came in with a cervix that was fully dilated and fully effaced. The presenting part was a breech footling at station zero to plus one with ruptured membranes, with no prolapsed cord. With these findings, the dilemma was whether to deliver vaginally or abdominally. With a clinical pelvimetry which was adequate, vaginal delivery was contemplated and partial breech extraction under IV sedation done 25 minutes after admission.

A review of literature offers no clear-cut guideline in the management of twin pregnancies complicated by fetus papyraceous or fetus compressus. Once a single fetal death is diagnosed, the gestational age of the pregnancy and the condition of the surviving fetus will dictate clinical management. But the liberal use of caesarean section for a malpositioned twin on a non-presenting viable twin is advocated.[3] Perhaps a more important consideration would be when to deliver. When diagnosed prior to 34 weeks gestation the risk of delivery should be weighed against the harmful effects of exposure of the viable twin to a hostile environment in-utero which could lead to the death of the other twin. If the pregnancy is 34 weeks and beyond, delivery when the fetus is mature would seem reasonable. When to deliver is no longer a problem in this case for she came in with a fully dilated cervix, fully effaced, station zero to plus one, with strong uterine contraction thus prompt delivery was instituted.

Although maternal DIC is rare, monitoring of maternal coagulation factors should not be neglected. Antefetal monitoring of fetal well-being should be done regularly. However, in the presence of high risk conditions, delivery is favored. In addition, emotional support should not be overlooked.

Inspection of placenta has been emphasized to determine zygosity and the presence of anastomoses. It serves to identify

neonates who are at risk of developing complications later in life.

Management of this problem should involve a team approach. Due to greater risks to the surviving twin, the obstetrician and pediatrician must work hand in hand in order to minimize perinatal loss.

SUMMARY AND CONCLUSION

The recognition of the fetus papyraceous is important for it maybe accompanied by developmental abnormalities of the other twin.

Possible cause of death could be attributed to its monochorionic diamnionic placentation which is associated with vascular anastomoses in 85% of cases.

Morbidity and mortality of these twin gestations potentially can be reduced with identification of at risk pregnancy and with close antenatal care.

It is fortunate that no grave complications were seen in both the mother and the surviving twin. For as long as there are no threat to the life, conservative management is advocated to allow surviving twin to mature as much as possible.

BIBLIOGRAPHY

1. Spellacy, W.N.: Antepartum Complication in Twin Pregnancies, Clinics in Perinatology, Volume 15(1) 79-82 1988.
2. Greenhill, Friedman: Biologic Principles and Modern Practice of Obstetrics, 434
3. Hedriana, L.: Single IUFD in Multiple Pregnancy, Philippine Journal of Obstetrics and Gynecology: 73 83,1988.
4. Babcan, Benson: Management of High Risk Pregnancy & Intensive Care of the Neonate, 3rd Edition, 191-193.
5. Cunningham, Macdonald, Gant: Williams Obstetrics, 19th Edition, 1993.
6. Benirschke,K.: The Placenta in Twin Gestation, Clinical Obstetrics & Gynecology, 33(1): 18-28 1990.
7. Duckett,J.: Fetal Death of second Twin in Second Trimester: American Journal of Obstetrics Gynecology: 740-742.1988.
8. Burke, S.: Single Fetal Demise in Twin Gestation: Clinical Obstetrics Gynecology, 69-76,1990.
9. Enbom, J.A.: Twin Pregnancy with Intrauterine Death of One, American Journal in Obstetrics and Gynecology: 152 424-429, 1985,
10. Trofatter, KF.: Management of Deliveries, Clinics in Perinatology, Vol 15 (1): 101-104, 1988.
11. Wenstrom, Gall,: Incidence, Morbidity Mortality and Diagnosis of Twin Gestation: Clinics in Perinatology 1-10, 1988.
12. Bardawil, Reddy: Placental Consideration in Multiple Pregnacy; Clinics in Perinatology, Vol 15 (1), 25-32 1988.
13. Hollenbach, Hickok,: Epidemiology and Diagnosis of Twin Gestation, Clinical Obstetrics and Gynecology, vol 33 (1) 7-10,1990.

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EBSTEIN'S ANOMALY: THE FIRST IN ILOCOS REGIONAL HOSPITAL A CASE REPORT

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ABSTRACT

A 30 year old female who presented with palpitations, chest pain and muscle cramps. was previously managed as a case of Rheumatic Heart Disease based on echocardiographic readings of "mitral stenosis." A review of history and physical examination in our hospital revealed discrepant findings. This prompted another echocardiogram which revealed, this time Ebstein's Anomaly, a rare type of congenital heart disease, diagnosed in a provincial setting.

INTRODUCTION

Congenital heart anomalies which produce stenosis or incompetence of the tricuspid valve, are unusual[1]. Among these are Ebstein's anomaly, and congenital tricuspid valve incompetence or stenosis due to other types of valve dysplasia. Ebstein's anomaly has a prevalence rate of 0.5 % and the latter types are rarer[1,2,3,7]. Ebstein's anomaly was first described about a century ago, in 1866 by Wilhelm Ebstein, after doing an autopsy in a 19 year old laborer who had a history of dyspnea, cyanosis and palpitations since early youth. Postmortem examination revealed, a curious anomaly of the tricuspid valve described as a markedly redundant valve which abnormally originated from the right ventricular wall below the tricuspid valve annulus[1,7]. Only its anterior cusp originated from its normal position. Following Ebstein's publication, accounts of similar cases were reported. It was not until 1949 that the presence of the anomaly now known by its eponym was diagnosed during life by Tausig and slowly, thereafter, by others[1,7]. This was followed by reports that established Ebstein's anomaly as a clinical entity. Hernandez et al were able to make the diagnosis by simultaneously recording intracavitary pressures and electrocardiograms, an approach suggested earlier by Sodi-Pallares.

While the diagnosis of Ebstein's anomaly is usually not made until adult life, others present in infancy with a very pronounced anomaly leading to intrauterine death[2]. There is no clear dominance of either sex among published cases or among the authors own patients. Familial occurrence of the anomaly has been reported[1,2].

With an ultrasound available locally and an able reader, the first case of Ebstein's anomaly is hereby documented in Ilocos Regional Hospital with the following objectives:

1) To create an awareness for a rare type of congenital heart disease discovered during adult life which may be mistaken for rheumatic heart disease, which is very common among Filipinos.
2) To emphasize the importance of history and physical examination in the diagnosis of heart diseases.
3) To stress that an echocardiogram is the gold standard in the diagnosis of Ebstein's anomaly, and should be read by a cardiologist.

REPORT

This is a case of a 30 year-old female, single, Filipino, Roman Catholic from Nagrebcan, Sta. Lucia, Ilocos Sur first seen at the Out-Patient Department of the Ilocos Regional Hospital last July 20, 1992 with complaints of palpitations, chest pains and muscle cramps.

The patient was told to have a "heart disease" since childhood but symptoms started about 13 years prior to consultation when she experienced dizziness, easy fatigability, and headache. This was attributed to an error of refraction by a physician. With persistence of the signs and symptoms, another doctor was consulted who diagnosed her to have rheumatic fever and she was given unrecalled medications. Easy fatigability persisted until 2 years prior to consultation another physician was consulted who treated her as rheumatic heart disease and was given enalapril maleate 5 mg daily, dichlotride 1/2 tab once daily and monthly intramuscular injections of 1.2 million units of Benzathine Penicillin. The condition "improved" until 5 months prior to consultation, palpitations, chest pain and muscle cramps recurred. She consulted at Ilocos Regional Hospital-Medicine Out-Patient Department where an echocardiogram requested by a resident was read by a general practitioner as "mitral stenosis". Prophylactic benzathine penicillin was continued. Persistence of the easy fatigability , palpitations, chest pain, and muscle cramps prompted another consult a year after at Ilocos Regional Hospital, this time at the

Cardiology Clinics where the patient was referred to our cardiologist.

Perinatal and natal history is not known. Social and environmental history is unremarkable.

Physical examination revealed a poorly nourished, poorly developed female. She was conscious, coherent, ambulatory, and not in cardiorespiratory distress. Vital signs were: BP of 120/80, cardiac rate of 100/min, respiratory rate of 18/min. Skin was essentially normal with no cyanosis. There were no palpable neck masses nor neck vein engorgement. Chest and lungs were essentially normal. Her precordium was adynamic. PMI was at the 5th intercostal space, left midclavicular line . Apex beat was at the 5th intercostal space, left midclavicular line with a width of 3 cm. There were no heaves nor thrill. A grade 3/6 holosystolic blowing murmur was heard over the 3rd to the 4th intercostal spaces left mid-clavicular line. S1 was fairly loud and was split at the base. S2 was accentuated at the base. S4 was appreciated at the apex. Rhythm was regular; rate was normal. The abdomen was unremarkable with no palpable masses. The nail beds were dusky with no edema nor clubbing of the digits.

Electrocardiogram revealed right bundle branch block and chest radiograph demonstrated cardiomegaly. Echocardiogram, this time done by our cardiologist using an Ausonics machine with a 3.5 cardiac transducer, revealed findings compatible with Ebstein's anomaly.

Case Discussion

Ebstein's anomaly is a congenital heart disease of the tricuspid valve comprising a wide variety of anatomical derangements[2]. The principal abnormality is the downward displacement of a malformed tricuspid valve into an underdeveloped right ventricle. Typically, the anterior leaflet of the tricuspid valve is abnormally elongated with a whip-like redundant motion during each cardiac cycle. This valve leaflet may also be thickened and tethered (illustration I). The septal and posterior tricuspid leaflets in Ebstein's anomaly are displaced into and are adherent to the right ventricular wall, which is thereby partitioned into a proximal atrialized zone that is functionally integrated to the right atrium and a distal trabecular and outlet zone that constitutes the functional right ventricle[7]. Differences in the anatomy of Ebstein's anomaly principally reflect the degree of abnormal attachment of the large anterior tricuspid leaflet to the inlet trabecular edge. The malformed tricuspid valve is usually incompetent but may be stenotic or, rarely, imperforate. Commonly associated anatomical defects include secundum atrial septal defect, patent foramen ovale, ventricular septal defect, pulmonic stenosis or atresia and mitral valve prolapse[2].

Tricuspid valve cusp are derived primarily from the interior of the embryonic right ventricular myocardium[7]. The chordae tendinae and cusps are therefore initially muscular but subsequently become fibrous. The anterior cusp is freed early in embryogenesis (in a 16 mm embryo) (illustrations II & III), but the posterior and septal cusps are not fully formed until the end of the first trimester. In Ebstein's anomaly the pathogenetic fault is apparently so timed that the early development of the anterior cusp is well underway, but the development of the septal and posterior leaflet from the inner layer of ventricular myocardium does not proceed or is incomplete.

The degree of haemodynamic compromise to the right ventricular function depends on the amount of right ventricular tissue above the tricuspid valve, as well as the extent of adherence of the valve tissue to the right ventricular wall[1,5]. Tricuspid regurgitation is a problem frequently associated with the condition which further compromises the effective right ventricular output. Our patient did not show any signs and symptoms of right ventricular failure which was compatible with the absence of a right ventricular S3, a common finding in Ebstein's anomaly.

In Ebstein's anomaly, growth, development and body built are generally normal. In exceptional cases, like our patient, they may be small in stature or slight in built[7], but this is not uncommon among Filipinos.

On physical examination, patients with Ebstein's anomaly may demonstrate central cyanosis and clubbing of the digits in 50 to 80 %[1,4]. Our patient presented with dusky nail beds which was improved on subsequent visits. A history of relatively good tolerance of physical effort despite conspicuous cyanosis should suspect the diagnosis of Ebstein's anomaly[7]. Conversely, acyanotic patients can appreciably be handicapped. The first heart sound is typically loud and widely split. Our patient had a fairly loud but not accentuated first heart sound as would be expected of rheumatic mitral stenosis without calcification. The second heart sound was accentuated at the base. There was splitting of S1 at base with an S4 at the apex. Loud S3 and S4 are common in other patients. The most common murmur is that of tricuspid regurgitation which vary from absent to loud enough to generate a thrill, but are typically grade 2 or 3 of 6. Our patient presented with a grade 2/6 systolic murmur but Carvallo's sign was not elicited because the functionally inadequate right ventricle cannot increase its stroke volume and regurgitant flow. A phonocardiogram would have been helpful to distinguish the different heart sounds but was not available in our setting. In contrast to a supposed diagnosis of rheumatic mitral stenosis, a right ventricular heave, opening snap, diastolic rumble and an accentuated S1 were not clearly appreciated.

Electrocardiogram in Ebstein's anomaly usually reveals peak P waves, right bundle branch block of the Wolf-Parkinson-White usually type B resembling left bundle branch block occurring in 10-25 %. A normal sinus rhythm, is usual, but supraventricular tachycardia occur in 25-30 % of patients[1,2,7]. Our patient's electrocardiogram only revealed a regular sinus rhythm and complete right bundle branch block. (illustration

IV)

Chest radiograph revealed cardiomegaly with secondary right atrial enlargement[1,4] which was compatible with the x-ray finding in Ebstein's anomaly.

Echocardiogram is the diagnostic procedure of choice in patients with Ebstein's Anomaly. Two-dimensional echocardiography is more specific and sensitive for making the diagnosis because it allows simultaneous visualization of the atrioventricular ring, the displaced tricuspid valve leaflets, the true and atrialized right ventricle, the anatomical right atrial and left sided chambers[1].

Two-dimensional echocardiographic findings done by our cardiologist revealed the following:

The anterior mitral valve leaflet appears thickened at its tip and the thickened tricuspid valve is readily visualized on long axis parasternal view (figure I). The mitral valve exhibits the normal M configuration on M-mode scan (figure II). The posterior mitral leaflet is thin and pliable. The tricuspid valve is thickened and is readily visualized on long axis parasternal view as seen in figure II. On the right ventricular inflow tract view (figure III), it appears elongated and is apically displaced from the tricuspid annulus. On M-mode, its closure is delayed (figure IV). On 4-chamber view (figure V), the anterior tricuspid leaflet is elongated and appears tethered to the lateral wall of the right ventricle and the septal leaflet is inserted 19 mm from the annulus. On 5-chamber view, its septal leaflet is also apically displaced (figure VI). The aortic valve is thin with adequate opening (figure VII). The pulmonic valve is poorly visualized (figure VI). The right atrium is huge and practically invades the right ventricular cavity, giving rise to an enlarged "atrialized" right ventricle (figure VIII) The left atrium and left ventricle are relatively reduced in size with adequate left ventricular motion and contractility (figure IX). Injection of contrast did not clearly demonstrate crossing of air bubbles from the right to the left atrium. (The complete report is attached in the appendix).

A color doppler echocardiography done at a later date did not reveal any atrial septal defect but patent foramen ovale was not totally ruled out as it requires transesophageal echocardiogram. We can explain the right ventricular hypertrophy (see echocardiogram report), although not a feature of Ebstein's anomaly, due to a pulmonary hypertension of 55 mm Hg documented by color doppler echocardiogram.

The differential diagnosis in individuals who have mild forms of the malformation with little or no cardiomegaly from other forms of cyanotic congenital heart diseases may be difficult[1,2,4]. Rheumatic mitral stenosis, a common heart condition among Filipinos, may be mistaken for Ebstein's anomaly because of right ventricular predominance. In adults with Ebstein's Anomaly and a large heart, the condition must be differentiated from pulmonic stenosis in heart failure, pericardial effusion, Uhl's anomaly (in which all the right ventricle is paper thin), and other primary right ventricular myocardial diseases such as the rare familial form of progressive fibrosis, all of which are readily excluded by the echocardiogram.

Since the clinical picture is so variable, the management of patients with Ebstein's anomaly must be individualized[1]. In general, prolonged strenuous activity and competitive athletics should be discouraged. Medical management involves treatment of heart failure and arrhythmias and prevention and treatment of complications of cyanosis and endocarditis. Treatment of infants is medical alone. Our patient is receiving prophylactic penicillin injections and pentoxyfilline.

Palliative surgical procedures has little to offer. The aim of surgery in Ebstein's anomaly is to prevent cyanosis by closing the atrial septal defect (or foramen ovale), to restore a competent tricuspid valve by replacement, and to improve right ventricular ejection by plicating the fibrotic anterior portion[1,2].

Many patients remain asymptomatic until the third to fourth decade of life. One third of patients die before age 10. Others survive beyond the sixth decade and sudden death is usually due to dysrhythmias. Patients with milder forms of Ebstein's anomaly may even have a normal life expectancy. Women who are cyanotic and have mild Ebstein's Anomaly may safely and successfully complete a normal pregnancy[1]. Our patient remains asymptomatic up to this date and it is our hope to see her around longer.

CONCLUSION

Ebstein's anomaly is a rare congenital heart disease which can be misdiagnosed as Rheumatic Heart Disease with Mitral Stenosis. A good clinical history and a careful physical examination are important in the diagnosis of heart diseases. Although an echocardiogram is diagnostic, it should be interpreted properly. An ultrasound with a 3.5 mHz transducer is an alternative tool, which brought about the diagnosis of this case at Ilocos Regional Hospital.

BIBLIOGRAPHY

1. Adams, F. et al., Moss' Heart Disease in Infants, Children, and Adolescents, 4th edition, 1989, pp.361-368.
2. Braunwald, E., Heart Disease, 3rd edition, vol 2, 1988, pp. 951-952, 997-998.
3. Wilson et al., Harrison's Principles of Internal Medicine, 13th edition, vol. 1, 1991, pp. 931-932.
4. Del Mundo, F., Textbook of Pediatrics and Child Health, 3rd edition, 1990, pp.750-752.
5. Wyngaarden, J., Smith, L., Textbook of Cecil, 17th edition, 1982, p. 177.
6. Feigenibaum, H., Echocardiography, 4th edition, 1986, pp.375-376.
7. Perloff, J., The Clinical Recognition of Congenital Heart Disease, 3rd edition, 1987, pp. 235-253.

ABSTRACTS OF CLINICAL RESEARCH PAPERS OF IRH FOR THE YEAR 1993

ACCURACY OF THE 1.25 DIOPTER RULE IN I.O.L. POWER CALCULATION

EMMANUEL T. ARENOS, M.D.; RALPH A. ASUNCION, M.D., D.P.B.O., F.P.C.S.
Department of Ophthalmology

ABSTRACT

Cataract operation with posterior chamber intraocular lens implantation was studied during the period Sept. 1992 to Aug. 1993 at IRH. The patients were followed up on the 1st, 2nd, 3rd, and 6th weeks post-operative to determine the preciseness of the 1.25 diopter rule or otherwise known as Basic Refraction Method of Intraocular Lens (IOL) power calculation. Results showed that 56.25% of the patients had a visual acuity of 20/40 or better with the highest residual refractive error clustered at 1.25-2.0 diopter range or 43.75% of the patients at the final third to sixth weeks post-operative check-up.

FACTORS THAT AFFECT THE OUTCOME OF OPERATION IN AGE-RELATED CATARACTS AT ILOCOS REGIONAL HOSPITAL

CARLOS C. ONG, M.D.; RALPH A. ASUNCION, M.D., D.P.B.O., F.P.C.S.
FLORANTE LICUDINE, M.D., D.P.BO., REVELYN RAYRAY, M.D, M.S. III
Department of Ophthalmology

ABSTRACT

Four hundred eleven age-related cataract cases were reviewed from the period of January 1, 1989 to December 31, 1992. Three hundred thirty six patients underwent cataract extraction alone. Fifty-three percent underwent extracapsular cataract extraction while 47% underwent intracapsular cataract extraction. Seventy five patients (18%) underwent cataract extraction with intercurrent anterior vitrectomy. Several factors like age, sex, occupation and altitude of residence were correlated to the risk of developing complications and results showed no statistical significance. The inherent risk of the operative procedure was also tested and proved to have no statistical significance. Some reasons were advanced as to why there was a low complication rate at the hospital and they were as follows: (1) technical expertise; (2) strict asepsis and antisepsis preparation; (3) judicious use of antibiotics and ophthalmic eyedrops; (4) thorough pre-operative and post-operative care; and (5) good nursing care and persistent health teachings by the nursing and medical staff.

INDUCED ABORTION: PROFILE OF 51 CASES

FELOMINA S. FLOR MATA-JULOYA, M.D., ALEXANDER F. ALVIAR, M.D., F.P.O.G.S.
Department of Obstetrics & Gynecology

ABSTRACT

A descriptive prospective study using an interview schedule was done to determine the profile of patients admitted at the Ilocos Regional Hospital from April 1, 1993 to September 30, 1993 with the admitting diagnosis of Induced Abortions. The patients were characterized as to age, marital status, reasons for undergoing abortion, educational attainment, occupation, no. of living children, desire of additional children, religion and, use of contraceptives. Statistical analysis using Chi-square test with p-value of acceptance at 95% level of confidence was done. The characteristics of the subjects were stratified against the main reason of the respondent which is economic reason vis-a-vis unemployment of the respondent or husband.

A total of 51 patients were accepted to the study representing a 3.63% of the total obstetric admission and is 29.31% of the total cases of abortions. This study that a woman who is young, married, minimally educated, unemployed with completed family size, desiring no additional children and with history of failure or no use of contraception at all when confronted with unexpected pregnancy will probably seek illegal termination of pregnancy. More than half of the subjects of this study sought the help of a hilot who did abdominal manipulation on the first trimester of pregnancy. This study also showed that there is a new trend in the use of prostaglandins as an abortifacient and that instrumentation still poses the greatest danger as a method of terminating pregnancy.

THE EFFICACY OF BCG ACCELERATION TEST IN CHILDREN: A REVIEW OF 295 CASES

LILIAN B. PASCUA, M.D.; HAZEL A. BALBIDO, M.D., D.P.P.S.; JEISELA BALDERAS, M.D., D.P.P.S.
Department of Pediatrics

ABSTRACT

Our institution cater to the most underprivileged and undernourished patients where tuberculosis is one disease that we can't ignore. The advocacy of BCG acceleration test, a simple, safe and sufficiently sensitive test for pediatric age group marks a new milestone in diagnosing Primary Tuberculosis infection. BCG vaccine is given and interpreted 48° - 73° post vaccination. Two hundred ninety five (295) patients were enrolled in the study group. Two hundred twenty one (221) were BCG acceleration test (+) which is about 75% of total patients tested. The computed incidence is 170/100000 of the population at risk.

In the study, evaluation as to the efficacy of the test was done. As to sensitivity, the computed value is 74% while specificity is 30.77% BCG acceleration test tested against the results of chest X-ray using the Chi-square test revealed no significant difference between diagnostic modalities which depicts that BCG is a good diagnostic tool for Primary Tuberculosis infection. The more important finding here is, there is no significant difference between the two when used as diagnostic modalities. It was also demonstrated that the schooler's group with 85.5% positivity showed higher sensitivity to BCG acceleration test. The correlation of BCG reactivity nutritional status revealed no statistical significance. It is therefore recommended that this test be implemented especially in remote areas where X-ray is a rare commodity thus playing a vital role early detection of Primary Tuberculosis infection.

NORMAL PELVIC MEASUREMENTS USING THE SNOW'S METHOD IN FILIPINO WOMEN WITH ADEQUATE PELVIS: A PRELIMINARY STUDY

JESSICA TADENA, M.D.; JEROME GAERLAN, M.D., F.P.C.R.
Department of Radiology

ABSTRACT

A study using Snow's method of X-ray pelvimetry was done on fifty pregnant women who have previously delivered normal weight infant by normal vaginal route. Ten parameters for pelvic measurements were obtained and mean values and standard deviation for each were computed and are as follows: Diagonal conjugate - 11.63cm. ±0.7796; Obstetric conjugate - 11.63cm. ±0.8132; True conjugate - 11.87 cm. ±0.7747; APMP - 11.81 cm. ±0.8915; PSMP - 4.58 cm. ±0.6575; PSMP (CM) - 5.70 cm. ±0.7143; PS Outlet - 6.98 cm. ±0.8015; PS Inlet - 11.66 cm. ±0.7453; Midpelvis - 10.44 cm. ±0.7062; Outlet - 11.49cm. ±0.7178. Obtained values in this paper are comparable in trend to one local study (Fabella) and one foreign study (Berman). Since the sample size is not yet representative of Filipino multiparous women population, this is just a preliminary study.

CONGENITAL URETEROPELVIC JUNCTION OBSTRUCTION IN ADULT " AN UNUSUAL UROSURGICAL CASE"

ALFREDO P. BERNAL, M.D.; MANNY C. ONG, M.D.; JOSE MAGNO VALDEZ, M.D.
Department of Surgery

ABSTRACT

Ureteropelvic junction obstruction is the most common ureteral abnormality, usually found in children. It is very unusual if present in adult in the absence of recurrent UTI, exposure to radiation and history of trauma. The intraoperative finding of band over the ureteropelvic junction strongly suggest that the etiology of obstruction is congenital.

HEMANGIOSARCOMA: A PRIMARY RETROPERITONEAL TUMOR

SIXTO R. ORDOÑO, M.D.; ALFRED GUTOMAN, M.D.; NATHANIEL RIMANDO, M.D., F.P.C.S.
Department of Surgery

ABSTRACT

A 13 year-old child presented with a huge abdominal mass accompanied by vague gastrointestinal and urinary manifestations. Initial management was surgical excision. The histopathologic report showed hemangiosarcoma, a primary retroperitoneal tumor.

Retroperitoneal tumors, according to Norton, Steele and Eiseman, constitute 0.07 - 0.5% of all neoplasms. At least 65 - 85% are malignant. Locally no large series are available.

Peak incidence is about sixty years, approximately 15% are found in children. Malignant tumors are considered as one of the leading causes of death in the pediatric age.

This case is being reported to document an uncommon human experience by the Department of Surgery regarding retroperitoneal tumors. A review of the hospital's medical records from 1987 up to the present revealed the poverty of such reported cases.

OCULOPLASTY: MUSTARDE'S PROCEDURE FOR SQUAMOUS CELL CARCINOMA IT'S SECRETS AND ITS PEARLS

CARLOS C. ONG, M.D.; RALPH A. ASUNCION, M.D., D.P.B.O.; FLORANTE LICUDINE, M.D., D.P.B.O.
Department of Ophthalmology

ABSTRACT

To appropriately treat eyelid tumors, it is first necessary to establish a diagnosis. Many tumors have a characteristic clinical appearance, but an exact diagnosis usually depends upon the histopathologic examination of tissues removed by biopsy. This particular case presents not only a surgical and oculoplastic treatment of a squamous cell carcinoma of the lower lid but also the physical and psychological implications obtained compared to the lifesaving exenteration which causes much disfiguring results. To illustrate this point, we present our first ever Mustarde Procedure done at the Ilocos Regional Hospital on a case of histopathologically proven squamous cell carcinoma, poorly differentiated, medial aspect of the left lower lid, unassociated with any lymph node metastasis.

INTRAPLEURAL ANALGESIA: A BREAKTHROUGH AT IRH

LUZ U. MANZANO-GANDIA, M.D.; MARY WEVELYN DY, M.D.; SAMMY B. REYES, M.D.
Department of Anesthesiology

ABSTRACT

Intrapleural analgesic technique is a new and relatively simple procedure for post-operative pain relief in selected group of patients. The primary advantage appears to its simplicity, the relatively long analgesia obtained, and the ability to provide a continuous analgesia either by intermittent injection or constant infusion of local anesthetic to the catheters.

With these advantages, it is therefore highly recommended that intrapleural analgesia be routinely used in upper abdominal and thoracic surgeries.

LUTEMBACHER'S SYNDROME

JANET RUTH B. FRIGILLANA, M.D.; BRENDA M. ESPINOSA, M.D., F.P.C.P.
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ABSTRACT

This was an 11 year-old female with facial edema, easy fatigability, dyspnea on strenuous activity and palpitations. Physical examination of the heart reveals a right ventricular heave, a loud S1, grade 4/6 ejection systolic murmur loudest at the 2nd LICS MCL with radiation to the right chest wall and apex.

ESR and ASO titre were elevated, normal serum electrolytes. Chest X-ray was cardiomegaly with right ventricular hypertrophy. ECG was prolongation of PR interval.

A 2-D echocardiography with Color-Doppler Study reveals an Atrial Septal Defect with Mitral Stenosis, a relatively rare association conjoining a syndrome — the LUTEMBACHER'S SYNDROME.

A rare pathology recognized in 1916 by a French cardiologist with a recorded incidence of only 4%. Atrial Septal Defect is 7-10% of all cardiac congenital malformations and mitral stenosis found in 0.42%. Many patients with this syndrome give no history of Rheumatic Fever.

Fewer than 50 operations were done for this complex lesion. The complex and rare nature unfavorably stands no criteria for surgical intervention and often times result into dreaded complication.

SYNDROME XY - A NEW NEUROCARDIOCUTANEOUS SYNDROME

JESSICA TADENA, M.D.; JEROME GAERLAN, M.D., F.P.C.R.; RAYMOND L. ESPINOSA, M.D., F.P.N.A.
BRENDA MUÑOZ-ESPINOSA, M.D., F.P.C.P.; EDNA TALAVERA-NISCE, M.D., D.B.P.S.
Department of Radiology

ABSTRACT

This is the case of a 24 year-old male, single, who was admitted because of TB meningitis. However, subsequent work-up revealed a unique

conglomeration of varied conditions such as a congenital hear disease, nevus sebaceous of Jodasshon, pituitary adenoma, primitive hypoglossal artery, hypoplastic nails.

RADICAL VULVECTOMY: A FIRST AT THE ILOCOS REGIONAL HOSPITAL

MARIA CIELLO D. MALLARI, M.D ; ALEXANDER F. ALVIAR, M.D., F.P.O.G.S., F.P.C.S.
Department of Obstetrics and Gynecology

ABSTRACT

A rare form of gynecologic malignancy is presented in the case of a 72 year-old G-VI,P-VI(6006) who was admitted because of an ulcerated mass at the right labia majora first noted 2 months prior to admission. This was initially treated as an allergic reaction or infection by a private physician. No improvement of the condition until a biopsy was done at Ilocos Regional Hospital 14 days PTA which revealed an undifferentiated carcinoma of the right labia majora.

Radical vulvectomy with bilateral groin dissection, the first ever done in this institution, which consisted of an en bloc dissection of the whole vulva together with the inguinal skin, subcutaneous fat and nodes in the groins and the femoral triangles, was done on her 18th hospital day and was discharged improved on her 36th post-operative day. Patient was followed up regularly up to the present with no recurrence noted.

Thus, we can see that surgery, if adequate, offers the best chance of cure in vulvar carcinoma and its survival rates are among the highest for all malignancies of the female genital tract.

CERVICAL PREGNANCY: A RARE CASE OF ECTOPIC PREGNANCY

BENELYN C. PARAOAN, M.D ; ALEXANDER F. ALVIAR, M.D., F.P.O.G.S., F.P.C.S.
Department of Obstetrics & Gynecology

ABSTRACT

This is a case of a 28 year-old G3P1 (1011) woman who at 18 1/7 weeks gestation was admitted because of persistent minimal to moderate vaginal bleeding associated with hypogastric pain despite history of completion curettage. An admitting diagnosis of abnormal uterine bleeding most probably secondary to incomplete curettage and uterine myoma was made to r/oectopic pregnancy. While completion curettage was underway, no placenta tissues were curetted. Bleeding became profuse despite administration of Oxytocin and Methylergometrine maleate. Thus, an exploratory laparotomy was done. Operative findings revealed a uterus enlarged to 8 weeks size with a markedly dilated lower uterine segment and a cystic right ovary. Histopath results revealed placenta tissues at the cervical area consistent with cervical pregnancy and a benign cystic teratoma, right.

HETEROTOPIC PREGNANCY

MA. ROSARIO ENCARNITA C. BERNAL, M.D.; ALEXANDER F. ALVIAR, M.D., F.P.O.G.S., F.P.C.S.
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ABSTRACT

A 39 year-old woman, married, G5P4(4004) with a missed period of 8-9 weeks arrived at the Emergency Room with severe abdominal pain associated with nausea and vomiting. Physical examination revealed a rigid abdomen with positive muscle guarding and rebound tenderness. On internal examination, the cervix was tender on motion but the uterus cannot be fully assessed due to voluntary muscle guarding. With an impression of ruptured ectopic pregnancy, an exploratory laparotomy was done. Intraoperative findings revealed a dilated right fallopian tube with a point of rupture, an enlarged uterus 8-10 weeks size and hemoperitoneum of 800 cc. Histopath confirmed the diagnosis of Ruptured Ampullary Pregnancy, right.

Patient was discharged improved and recovered after 5 days. Three months later, still amenorrheic and with an enlarging abdomen, patient came back for follow-up and pelvic ultrasonography revealed a single, live, intrauterine pregnancy with an estimated AOG of 22-24 weeks. Four months after, the patient gave birth to a live baby boy.

Combined pregnancy, or the co-existence of an intrauterine and extrauterine gestation, despite its rarity does exist. And we have proven such in this case.

RENAL ECTOPIA: A CASE REPORT

DONATELA L. DUQUE, M.D.; HAZEL A. BALBIDO, M.D., D.P.P.S.
Department of Pediatrics

ABSTRACT

This is a case of a 13 year-old child who presented with recurrent vague right lower quadrant pain of one month, fever, chills and hematuria of 2 days. Physical examination revealed direct tenderness over the right lower quadrant. Urinalysis revealed hematuria, pyuria and proteinuria. Urine C & S failed to isolate the organism. BUN and creatinine levels were normal. Renal ultrasonography revealed a small-sized right kidney measuring 5.6 x 2.5 x 2.2 cm. that was not visualized in its normal position. The left kidney measures 9.3 x 5.8 x 3.4 cm. KUB-IVP revealed a slightly dilated right renal collecting system at the level of L4 to L5 with anteroposterior rotation along its horizontal axis. Patient was diagnosed as Renal Ectopia, L4, right, malrotation with secondary Acute Pyelonephritis. Patient was admitted and treated for Acute Pyelonephritis as a sequelae of the Ectopic Kidney. After 3 weeks of antimicrobial therapy, repeat urinalysis revealed resolution of the hematuria and pyuria.

Failure of the metanephros to ascend leads to ectopic kidney and failure to rotate during ascent causes a malrotated kidney.

In the Philippines, the true incidence of Ectopic Kidney remains underscored. Renal Ectopy among Filipinos is as yet not that common with no published data currently available. Oftentimes, Renal Ectopia are discovered only during episodes of acute infection for which it simulates. Hence, greater emphasis on clinical acumen and diagnostic visualization is warranted for early detection to prevent dreaded complications from it.

GENITAL TUBERCULOSIS UNUSUALLY PRESENTING AS CARCINOMA

MADEL JADORMIO-RETUTA, M.D.; GILBERT DE LEON, M.D., F.P.S.P.
Department of Pathology

ABSTRACT

A case of a 40 year-old multiparous patient with a history of an enlarging hypogastric mass which, with the physical examination findings of a hypertrophied cervix with multiple erosions, an enlarged uterus, and a multinodular adnexae, was highly suspected to have a disseminated pelvic

malignancy. Histopathologic findings, however, turned out to be one of the single, most common infection affecting mankind, yet a rare organ affectation - that of tuberculosis of the genitalia - a possibility which was remotely considered, thus altering totally the patient's course and prognosis.

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EXTENDED TOTAL GASTRECTOMY FOR GASTRIC MALIGNANCY (A RADICAL PROCEDURE IN A PROVINCIAL SETTING)

RUEL AMOR NAVALTA, M.D.; ALBERT GALUT, M.D., F.P.C.S.
Department of Surgery

ABSTRACT

At present, only radical surgical resection of gastric cancer offers a chance for cure. The objective of an operation for patients with a disease, that is confined locally, is to maximize the potential for cure. The objective for patients with advance incurable disease, obstruction, hemorrhage and intractable pain is to provide the best palliation.

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PRIMARY BENIGN TERATOMA OF THE URINARY BLADDER: THE PHILIPPINE'S FIRST

CIPRIANO FERNANDEZ, M.D.; E. EDGAR J. BANAÑA, M.D.
JOSEPH J. BAUTISTA, M.D.; MAGNO JOSE C. VALDEZ, M.D.
Department of Surgery

ABSTRACT

Benign Teratomas frequently arise in areas composed of cells that are totipotent in nature. While they are found mostly in the gonads, mediastinum and elsewhere, it rarely manifests in the urinary bladder. After an extensive and exhaustive literature search along domestic and international lanes, only one case has been officially reported so far. This paper reports another case of a 33 year-old female who had **Primary Benign Teratoma of the Urinary Bladder** as officially confirmed by histopathological report.

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GRADENIGO'S SYNDROME: A RARE COMPLICATION OF OTITIS MEDIA

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ABSTRACT

Otitis media is a very common infection yet presents many complications, one of which is the rare Gradenigo's Syndrome. An 18 year-old male presented the classical symptom triad of persistent otitis media, lateral rectus paralysis and retro-orbital pain on the affected side. Diagnosis was mainly clinical, although radiographic studies of the temporal bone showing petrositis aid in the diagnosis. Medical treatment with massive antibiotics is one management but if signs and symptoms worsen, surgical intervention like Radical Mastoidectomy is employed which was done to this patient. Although recurrence after surgery maybe possible, prompt recovery without recurrence was attained in this patient.

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HERPES B ENCEPHALITIS: A FATAL ZOONOTIC DISEASE

BRENDALENE S. SI, M.D.; HAZEL A. BALBIDO, M.D., D.P.P.S.
JEISELA BALDERAS, M.D., D.P.P.S.; MARY ANN GUZON-CASTILLO, M.D., D.P.P.S
Department of Pediatrics

ABSTRACT

This is a case of a 13 year-old female who initially presented as low-grade fever and headache a week after patient was bitten by a domesticated monkey. She was noted to have slurred speech with numbness and tingling sensation of upper extremities followed by grotesque, irregular spastic movements of upper extremities and right sided weakness. Other manifestations were urinary incontinence, loss of bowel control, confusion and incoherence. Pertinent neurologic findings were unsteady gait, right hemiparesis with sensory deficits on upper extremities, hyperreflexic on both extremities and spontaneous bilateral Babinski. CBC, urinalysis, CSF analysis with India Ink preparation were all normal. EEG showed a severe generalized slowing of background consistent with diffuse encephalopathy. Serologic test using Heme Agglutination Inhibition test revealed normal IgG and IgM. Viral culture showed suspect B virus.

The most probable diagnosis is Virus B encepnalitis which has been considered to be a rare disease with only 24 cases reported in literature. Man may acquire infection through bites, scratches and abrasions, and virus enters through the skin and localizes at the site of the bite producing vesicles and necrosis of the area and enters the CNS by way of peripheral nerves with an incubation period of 10-21 days. The clinical picture can be extremely non-specific and can simulate any intracranial infection with no specific treatment once clinical disease is manifested.

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KARTAGENER'S SYNDROME

SILVERIO R. RETUTA, M.D.; BRENDA MUÑOZ-ESPINOSA, M.D., F.P.C.P.; BALTAZAR RIVERA, M.D., F.P.C.C.P.
Department of Medicine

ABSTRACT

A 29 year-old male was admitted at Ilocos Regional Hospital due to anasarca. Past history revealed on and off upper respiratory tract infection associated with otitis media since childhood and was given symptomatic treatment. He was noted to have dextrocardia yet no further work-ups were initiated. On admission, the patient's heart tones were noted to be on the right side of the chest, liver dullness was appreciated on the left side of the abdomen with symptoms of right ventricular failure. X-ray finding of the chest ans sinuses had revealed dextrocardia, bronchiectasis with sinusitis respectively. These findings clinched the diagnosis of Kartagener's Syndrome. This syndrome is compatible with long life with early diagnosis and proper management. However, diagnosis should be made early to prevent its complications this patient had at an early age.

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THE ILOCOS REGIONAL HOSPITAL POST-GRADUATE-SPECIALITY ACCREDITED RESIDENCY TRAINING PROGRAM - IN FOCUS

FERNANDO A. ASTOM, M.D.; F.P.C.S.; F.I.C.S.*
JUANITO A. RUBIO, M.D.; F.A.C.O.G.; F.P.C.S.**

INTRODUCTION

Amidst the ruins brought about by the Second World War, a 40-bed first aid center, at first located within the confines of Bethany Hospital emerged in 1945 to serve the health needs of a war torn population. The local government subsequently relocated this first aid center to a sprawling 4.7 hectare lot (present site) in Barangay Parian, about 3 kilometers to the south of San Fernando town proper. At this site, the people of La Union witnessed the metamorphosis of this former first aid center to what it is today, a 200-bed hospital regional training center. The groundwork for its development as a training center was significantly pursued about 9 years ago (1985) through the outstanding and dynamic leadership of the then newly appointed and still incumbent Chief of Hospital, JUANITO A. RUBIO, M.D., F.A.C.O.G., F.P.C.S., M.H.A.

It is a well known fact that the best medical centers renowned for their excellent and responsive health care services usually also have a well developed and respected training and research programs. At the Ilocos Regional Hospital (IRH) today, a comprehensive health service exist which involves the preventive, promotive and curative aspect of diseases that is integrated in a mileu of a dynamic, vibrant and responsive specialty accredited residency training program making IRH, a Focal Hospital for the north.

The IRH residency training board believes that planning for the training program is a dynamic and vibrant process therefore a final master plan would be difficult to achieve, because a continuous reassessment, review and updating should be done, that the plan would conform with realistic and dynamic objectives that could meet the current and future needs of exemplary patient care, as well as a responsive residency education program.

The IRH training board (also serves as the Resident's Review Committee) composed of the Heads of the various training programs in the hospital realizes that post-graduate residency training program is a complex educational experience, therefore an academic environment conducive to teaching and learning must be a priority in the undertaking. Training residents of IRH are given increasing stepladder responsibility for patient care: a continuing responsibility anytime of the day, week or months under the watchful eye and supervision of attending consultants who are diplomates and fellows in their respective specialties.

In order to get the "best among the many applicants" to the training program, a rigid screening procedures has been instituted, which consist of a written and oral examination followed by a minimum of one month practical immersion programs and panel deliberations conducted by members of IRH Residency Training Board. This stepladder screening starts August of every year, in time for January appointments.

Specialty Residency training programs have always been noted for long hours of hard work, with rigid emphasis on accountability and responsibility for patient care, and keeping with, past and present medical knowledge as well as voluminous informations gathered from journals and researches in the medical world.

The IRH Residency education program is dedicated in the molding and training of highly qualified specialists motivated to serve the underserved areas and communities in the region.

MISSION, VISION, GOALS AND OBJECTIVES OF IRH RESIDENCY TRAINING PROGRAM

VISION:

The IRH Training program envision itself to be the hub of medical, paramedical and administrative training center for Region I, to include the adjacent Regions, as well as the center for the highest level of quality medical and surgical care in the area.

MISSION:

The IRH Training program is deeply committed in maintaining and translating into action IRH Motto of "Service, Training and Research", with the idea of continuously upgrading the quality of service rendered to patients, and the production of a safe, ethical, competent, humane, compassionate medical and surgical specialists who will later-on serve the less served communities not only in the Region but also where their services maybe urgently needed.

* Training Officer
** Chief of Hospital

GOALS AND OBJECTIVES:

The developmental goals and objectives of IRH training program is the enhancement and maintainance of the Specialty Board Accredited programs now currently in place which are the following:

- Medicine
- Surgery
- Pediatrics
- Obstetrics and Gynecology
- Ophthalmology
- Radiology
- Pathology

To work for the accreditation by their respective specialty board the following:

- Anesthesia
- Orthopedics
- ENT
- Urology

To maintain, develop and enhance the following sub-specialty clinics:

- Cardiology Clinic
- Pulmonary Medicine (Asthma, COPD Clinic)
- Diabetes Clinic
- Pain Clinic
- Tumor Clinic
- Psychiatry Clinic
- Gastroenterology Clinic
- Regional Pediatric Surgical unit
- Nephrology Unit
- Community Medicine Concept (Primary Health Care, Phil. Med. to include traditional and non-traditional concepts)

To set-up the following Regional Units to serve the community:

a). Regional Poison Control Center
b). Hemodialysis Unit
c). Cancer Control and Therapeutic Radiation Unit (Cobalt, Chemo.)
d). Regional Neuro-Surgical Unit
e). Regional Thoracic and Cardiovascular Unit
f). Regional Gastroenterology Diagnostic and Therapeutic Center
g). Regional Nuclear Diagnostic and Therapeutic Center
h). Regional CT scan
i). Regional Physical Rehabilitation Unit

The next few pages will highlight the admission requirements, screening procedures, performance evaluation and training protocol for the Specialty Accredited training programs of Ilocos Regional Hospital.

1. General Surgery
2. Obstetrics-Gynecology
3. Pediatrics
4. Medicine
5. Ophthalmology
6. Radiology
7. Pathology

IRH RESIDENCY TRAINING BOARD

Chairman : DR. FERNANDO ASTOM
Co-Chairman : DR. HAZEL A. BALBIDO
Members : DEPARTMENT HEADS AND CONSULTANTS

QUALIFICATION STANDARDS:

A. General Requirements

1. Graduates of a recognized medical school
2. Certificate of licensure to practice medicine issued by the Board of Medical Examiners of the Professional Regulation Commission.

B. Qualification of Candidates for Residency Status

1. Must pass both written examination and interview phase given by the board.
2. Good moral and professional conduct.

C. Requirements

1. Application letter indicating the department of choice addressed to the Chairman, IRH Residency Training Board.
2. Complete bio-data
3. Transcript of record
4. Certificate of graduation and eligibility with rating indicated.
5. Letter of recommendation from school where the application comes from with ranking indicated.
6. Letter of recommendation from previous employers if applicable.
7. Certificate of rural practice and/or volunteer practice if applicable.

D. All requirements shall be due by the last Thursday

of August of every year. This year August 28.

E. Examination Date: The examination shall be held only once - during the second Thursday of September of every year. However, when applicants are found to be not deserving, then another examination date will be scheduled to accomodate the new applicants.

F. Interview Date: The interview shall be held during the first Thursday of October of every year after the applicant shall have passed the written examination.

G. Volunteer Phase
All qualified applicants shall be requested to start volunteer training starting the 15th of October.

H. Re-evaluation Date: Re-evaluation of applicants shall be done during the 3rd Thursday of November after which the accepted applicants shall then be recommended to the Credentials Committee of the hospital for final screening.

I. Acceptance of residents will be done only once a year - January. However, in cases where the resident drop out for any reason and that the need to accept another is imperative for the exigency of the service and on the maintenance of accreditation, then a midyear acceptance of residents will be allowed.

J. Applicants for fellow positions will undergo the same process. Only 2 fellows per department per year will be accepted. Acceptance of fellows will have to coincide with the acceptance of residents so as not to disrupt the residency training program.

Criteria for Screening:

I. Scholastic Record		
Average (rank)	10%	25%
School rate	5%	
Board rate	5%	
Special awards	5%	
II. Written Examination		
Basic	15%	30%
Specialty	15%	
III. Interview		
Academics	10%	35%
Attitude, Personality, Personal Encounter	10%	
Commitment	10%	
Place of Eventual Practice	5%	

Interview will be conducted by the members of the Ilocos Regional Hospital Training Board who will be assigned to panels.

IV. Volunteer Training 10%

THE GENERAL SURGERY RESIDENCY TRAINING PROGRAM OF THE ILOCOS REGIONAL HOSPITAL REVISED, 1994

I. GENERAL OBJECTIVE

The residency program in General Surgery of the Ilocos Regional Hospital aims to evolve and develop competent General Surgeons with knowledge and skills in complying with the definition of General Surgery as adopted by the Philippine Board of Surgery. As a basis for training and certification examinations as Specialists in Surgery, the Philippine Board of Surgery defines General Surgery as:

1. Definition of General Surgery
(Modified from ABS).

1.1 A basic knowledge of surgical anatomy, physiology, pathology, ecology, metabolism, wound healing, shock and resuscitation, immunology and organ transplantation, fluid and electolytes, nutrition, trauma, burns and surgical infections.

1.2 A sound understanding of the principles of radiology, ultrasonography, CT scan and other sophisticated diagnostic aids including the use of radioactive isotopes.

1.3 An adequate practical experience in the use of the rigid proctosigmoidoscopy and indirect laryngoscopy. The general surgeon must be familiar with or must have participated in a variety of endoscopic examinations such as direct laryngoscopy, bronchoscopy, esophagoscopy, gastroscopy, choledochoscopy and colonoscopy.

1.4 A comprehensive skill in diagnosis, pre-operative, operative and post-operative care of pa-

tients with diseases of the:

1.4.1 alimentary tract
1.4.2 abdomen and its contents
1.4.3 the breast
1.4.4 the head and neck
1.4.5 the vascular system
1.4.6 the endocrine system
1.4.7 skin and soft tissues

1.5 A working knowledge and skill in all phases of care of the injured patient, including those provided in the emergency room and intensive care unit. The general surgeon must at least show competence in the emergency management of trauma, involving the chest, musculoskeletal hand and head.

1.6 An appropriate clinical experience to include operative care of common problem in the special discipline of thoracic, cardiac, gynecologic, neurologic, orthopedics, plastic, pediatric, urologic, surgery and anesthesiology acquired by exposure in these discipline. The general surgeon must have been the operating surgeon of first assistant in an acceptance number and variety of cases.

II. ADMISSION POLICIES

A. ABSOLUTE REQUIREMENTS:

1. The applicant must be a licensed physician
2. The applicant must be a Filipino citizen

B. ADMISSION CRITERIA

1. ACADEMIC PERFORMANCE

a. The transcript of records should be evaluated by a Screening Committee. Preferably, the applicant must have a general weighted average of 2.5 and above (or its equivalent) without any failing marks.
b. The applicant must have graduated from a medical school of standards acceptable to the screening committee. However, there is no absolute criteria to define an "acceptable standard" for medical schools. Such, shall depend on the prevailing concensus of the screening committee at that time.
c. The applicant must have satisfactorily passed the entrance examinations given by the Ilocos Regional Hospital. The Board Examination performance of the applicant must also be evaluated by the screening committee.

2. SKILLS

a. The applicant should have performed satisfactorily in clerkship and internship.
b. A previous surgical experience/training shall be considered favorably.
c. In special cases, upon recommendation of the screening committee, an applicant may be required to undergo a period of externship (adjunct residency) for a period of not more than 6 months wherein the applicant can be more fully evaluated.
d. The department may accept lateral entries from PCS accredited institutions.

3. HEALTH STATUS

a. Preferably less than 30 years old of any sex.
b. Should not be carriers of a serious communicable disease w/c could be transmitted to co-workers and patients in the course of his duties (e.g., AIDS, Chronic hepatitis, etc.)
c. Should have normal CBC, FBS, BUN, CREAT, and Chest x-rays.

4. OTHER FACTORS/REQUIREMENTS

a. Preference shall be given to applicants from, or who plan to practice in, areas in need of general surgeons.
b. Honors and awards related to medicine shall be considered plus factors.
c. A physiological test, or a structured interview shall be devised by the screening committee to evaluate the applicants personality, attitudes and related aspects. The committee may recommend a probationary period of not more than 6 months if necessary. Communication skills shall also be considered.

B. RESIDENCY PROPER

1. The length of the residency training period is at least 5 years. It shall consist of the following rotations:

General Surgery	-	48	months
Orthopedics	-	3	months
Pathology	-	3	months
Radiology	-	3	months

2. The first year of residency is a rotation in General Surgery. It aims to develop knowledge and skills pertaining to:

a. The diagnosis of surgical conditions, associated

medical problems in surgical patients and complications of surgery.

b. The pre-operative evaluation, work-up and management of surgical patients.
c. The principle of OR decorum, asepsis and antisepsis.
d. The technique of assisting in operations, familiarity with the basic surgical techniques and maneuvers, instruments and minor procedures.
e. The general practical knowledge of anatomy and physiology in normal and disease states.
f. The basic concepts in surgery such as fluid and electrolytes, wound healing, shock and resuscitation, emergency care, surgical nutrition and common surgical diseases of the different organs.
g. The post-operative care of surgical patients especially with recognition and management of operative complications.
h. The basic concepts of radiology, ultrasound, endoscopy, radioisotope studies.

3. The second year residency involve rotations in non-GS specialties (OB-Gyne, Orthopedics, Pathology, and Radiology). This phase of training aims to:

a. Develop awareness of non-GS condition to be considered in the differential diagnosis of common surgical problems.
b. To provide basic knowledge and skills regarding the emergency management of non-GS surgicial specialty cases.
c. Familiarize the resident with the gross and microscopic characteristics of common surgical conditions.
d. Demonstrate refinements and differences in techniques and in concepts between GS and these surgical specialties.
e. Incalcate awareness of one's limitations and boundaries in these fields of surgical practice.

4. The third year of residency initiates the residents to the science of decision making as well as to the technical aspects of the operation. Here, the residents seek knowledge, draws from his knowledge and skills compiled in the past and finds their fitting application on the patient infront of him. The third year resident is now given the privileges and responsibility to operate on surgical emergencies (trauma and non-trauma) as well as some simple elective cases (e.g. cholecystectomy, thryroidectomy, inguinal hernia). The objectives of this year of training are:

a. To provide and develop knowledge and skills in the operative management of emergency surgical cases.
b. To provide practical mastery of the details of the body anatomy that come into the surgical field.
c. To refine the residents abilities in the pre-op and post-op management of surgical patients.
d. To introduce the residents to the duties and responsibilities of a senior resident by assisting the latter in his duties.

5. The fourth year resident assumes the greatest responsibilities and privileges in patient care. He is allowed to operate in all major elective cases as well as complicated emergency cases. He yields a magnitude of command and responsibility over the service under him. This year of training aims to:

a. Develop further skills and refinementss in techniques in operative procedures.
b. Provides a comprehensive knowledge in the total care of surgical patients.
c. Develops a sound surgical judgement pre-op and intra-op.
d. Develop confidence in his abilities as well as awareness of his limitations, thus a balanced sense of responsibility to patients and to peers.
e. Encourage teaching and communication skills.
f. Inculcate professional integrity, honesty and respect for professional ethics and standards.

6. The fifth year revolves around administrative functions and communication skills. In addition this year should provide an exposure and training in the management of difficult, critical or uncommon surgical problems. Specifically, the fifth year residency:

a. Provides training and background in the administration of a surgical unit as well as a hospital.
b. Provide experience and skills in the management of rare and/or difficult cases and therefore widen once's breath and confidence.
c. Provide sufficient and knowledge and experience in critical surgical care.
d. Allow ultimate refinements in total surgical care.
e. Prepares the senior resident for the Diplomate examinations.
f. Focuses the special interest of the resident.

DUTIES AND RESPONSIBILITIES OF SURGICAL RESIDENTS

The above is based on the premise that the Department strives to maintain a happy balance between service to patients and

training of residents, interns and undergraduates. Although the welfare of the patient is of utmost importance, the academic aspects of the case should not be overlooked unless circumstances demand so. The following chain of command responsibility is designed hopefully to achieve this aim.

5th year Resident

1. The fifth year resident function as a junior consultant. He may not go on 24 hours duty but is to stand on call. He is assigned a specific service where he is responsible with the care and management of critical patients, rare and/or difficult cases. He must see to it that interesting cases seen in his service are adequately evaluated and documented, complete with slide photos.
2. He helps the consultant staff, specially the Chairman and the Training Officer, in the preparation of examinationns, conferences, lectures, and seminars.
3. He checks reports from his juniors before they are submitted to the chairman.
4. He is encouraged to preserve his special interests and do good researches.
5. He may request to be rotated outside the hospital, for subspecialty exposure for not more than 3 months.
6. He is responsible for all the departments training equipment and materials (e.g. computer, slide and book library, journals)
7. He makes an inventory of all the surgical supplies and equipments and reports/recommend to the Chairman regarding their status, adequacy and procurement.

4th year Resident

1. He is responsible solely to the chief of the section for the efficiency of the service and reports daily to him. He will be guided by the consultants and assisted by his junior residents, interns and clinical clerks.
2. He should know everything that pertains to the patients, from the time of admission up to the time of discharge, to this end, he should make at least daily rounds with his junior residents, interns and clinical clerks.
3. He is partly responsible for the training of the junior residents, interns and clinical clerks in conjunction with the consultant staff.
4. He is responsible for the schedule of operations and assignment of surgeons for each case with approval of the chief of the section. He makes arrangements with the OR and Anesthesia for the operation.
5. All patients for admission whether elective or emergency must be seen by him.
6. He will decide which patients to admit and which patient to treat.

3rd year Resident (Junior Resident)

1. He will see to it that all orders of the senior residents are carried out by the first year residents, interns and clinical clerks.
2. He will assist the senior resident in all major operations and will himself do major cases assigned to him.
3. He will take over the functions of the senior resident in the latter's absence.

2nd year Resident

1. He will rotate in Orthopedics, Radiology and Pathology for 3 months each.
2. He has to continue attending the conference at the Department of Surgery.
3. He is to go on 24 hours duty inn Surgery when assigned.
4. His status in the departments where he is rotating is an observer and shall be extended duties and responsibilities for policies of the department concerned.
5. He shall submit a report of his rotation at the end of his term.

1st year Resident

1. He is responsible for the pre-operative and post-operative care of the patients. He will be assigned surgical procedures commensurate with his capabilities.
2. Assists operations.
3. To attend to all autopsies.
4. To present cases assigned to him during rounds
5. He rotates with other first year residents of the service on the use and maintenance of special instruments of the particular service concerned (proctosigmoidoscope, gastroscope, etc.)
6. He is expected to make teaching rounds with the clinical clerks and interns.
7. He is supposed to know all cases including cases assigned to his other fellow service residents.
8. He is to report in the Journal Club discussions.
9. The residents are supposed to make rounds every morning before reporting to the OR and gives progress reports on his patients especially serious ones to the senior residents of the service.

POLICIES ON EVALUATION OF RESIDENT'S PERFORMANCE

The evaluation process is defined as a balanced interplay among the residents, the evaluator and the evaluation tools with the process attempting to objectively measure skills, knowledge and attitudes.

A. THE EVALUATORS

1. The Training Officer
2. The Active Consultants
3. The Senior Residents
4. PEERS, Residents
5. Adjunct/supportive stafff (e.g. nurses, IW, and other A

personnel)

B. EVALUATION REQUIREMENTS

Cognitive Skills

1. The PBS in-service training examination (25%)
2. A written departmental examination every other week at least.
3. A scientific paper for each resident per year level (case study, retrospective, prospective, experimental or as substitute for the latter a retro or prospective study).
4. Oral and/or practical examination every 3 months.
5. Participation in conferences, rounds teaching of interns, and exposure to current literature.

Psychomotor Skills

1. Mortality and Morbidity record.
2. Pre and Post-op care of patients
3. Practical examinations every 3 months.
4. Number of cases performed and assisted
5. Operative Skills
   a. duration
   b. technique
   c. handling
   d. decicion making pre-op and intre-op
   e. applied anatomy

Attitudes

1. Honesty and integrity
2. Initiative and perseverance - creativity
3. Dependability and reliability
4. Peer relationships
5. Personal appearance

RESIDENCY TRAINING PROGRAM OBSTETRICS AND GYNECOLOGY

The Department of Obstetrics and Gynecology of the Ilocos Regional Hospital after having been accredited for Service by the Committee on Accreditation for Service of the Philippine Obstetrical and Gynecological Society continues its developmental plan to full accreditation for a graduated Residency Training Program.

The Ilocos Regional Hospital has a 200-bed capacity with 30 service or charity beds alloted to the Department of Obstetrics and Gynecology. However, due to the increasing occupancy rate which presently averages between 100 to 120% the need for expansion is definitely inevitable.

GRADUATED TRAINING PROGRAM IN OBSTETRICS AND GYNECOLOGY OF THE ILOCOS REGIONAL HOSPITAL

I. General Objectives:

These Residency Training Program in Obstetrics and Gynecology aims to develop competent and moral Obstetrician - Gynecologists with knowledge and skills commensurate with the ideals and requirements emancipated by the Philippine Obstetrical and Gynecological Society and shall serve as basis for the training and certification for specialty examinations by the Specialty Board.

This program will also serve to stimulate and develop aptitudes for investigation and research as each resident is required to submit at least one research paper per year level.

Lastly, this program shall develop desirable attitudes of professionalism in a liberal but moral way as social awareness and civic mindedness shall be an integral part of their training.

II. Definition of Terms

1. OBSTETRICS

1.1 A basic knowledge of the Anatomy of the female reproductive tract; Physiology of the ovarian and menstrual cycle; Reproductive genetics; Placenta and its hormones; Maternal and Fetal medicine to include diagnostic modalities during pregnancy; Evaluation of fetal health; Maternal and Fetal Pathophysiology during pregnancy and the puerperium; Operative Obstetrics; Family Planning.

1.2 A basic working knowledge and understanding of the Diagnostic Modalities in Maternal and Fetal Medicine to include application of Radiologic and Ultrasonographic Principles in Obstetrics and Gynecology.

1.3 An appropriate clinical exposure in Maternal Care from the Diagnosis, management and care of pregnancy and the puerperium and its complications.

1.4 An appropriate clinical skill and experience in monitoring parturients.

1.5 An appropriate surgical skill and experience in the manner of delivery of parturients. This shall include breech and forceps deliveries and cesarian section and/or hysterectomies.

1.6 An appropriate clinical skill and experience in the different modalities of Family Planning. Surgical skill in laparoscopic interval sterilization is an integral part of this aspect of training.

2. GYNECOLOGY

2.1 A basic knowledge of the: Anatomy of the female

reproductive tract; Physiology of the ovarian, menstrual and endometrial cycle; Cyclical cytology and histology; Approach to patient as to history, physical examination and diagnostic procedures; General Gynecology to include Congenital Abnormalities, Pediatric Gynecology, Contraception, Sterilization, Benign Gynecologic lesions, Infections of the Genital Tract, Preoperative and Postoperative Management; Gynecology Oncology to include principles of Radiation theraphy and chemotheraphy; Endocrinology and Infertility to include aberrations in the menstrual cycle from Amenorrhea and the Menopause, Abnormal Uterine Bleeding, Dysmenorrhea and Premenstrual Syndrome.

2.2 An appropriate clinical exposure in "Office Gynecology"

2.3 An appropriate working knowledge and skill in the different preoperative work-ups of gynecologic patients

2.4 An appropriate working knowledge and skills in the diagnosis of gynecologic diseases based on history and physical examination.

2.5 An appropriate surgical skill and experience in the operative and post-operative management of gynecologic diseases.

2.6 An appropriate working knowledge on the application of the different forms of adjuvant therapy of malignant gynecologic diseases like radiotherapy and chemotherapy.

2.7 An appropriate working knowledge and skill as applied in Innfertility work-ups and management. Surgical skill shall be an integral part of this aspect of training.

2.8 An appropriate working knowledge and clinical experience in the follow-up of gynecologic diseases.

III. ADMISSION POLICIES AND REQUIREMENTS

A. REQUIREMENTS

1. Must be a Filipino citizen
2. Must be a graduate of a recognized Medical School
3. Must be licensed to practice medicine in the Philippines.

B. ADMISSION CRITERIA

1. Academic performance as evaluated by the Training Officer of the department.
2. The applicant must have passed the entrance examination given by the department.
3. The applicant, after having been endorsed favorably by the department head, shall pass thru the Committee on Admission satisfactorily.
4. The applicant, after having been satisfactorily endorsed by the Admission Committee, shall be endorsed to the Chief of Hospital for Final Approval and Appointment.
5. In the event that there are more selected applicants than there are number of positions then they (applicants) shall be required to 'volunteer' for duty for at least 30 days during which time they shall be evaluated accordingly. This evaluation process shall be the main criteria for the ultimate choosing of the applicant who will be recommended for appointment. This "Volunteer Evaluation" shall therefore not be an assurance for acceptance to first year level of residency training. Volunteers shall not receive any form of compensation during this evaluation period.
6. All applicants who have been favorably endorsed for appointment by Hospital Authorities shall pass a Psychological and Medical Examination to be conducted by the appropriate hospital personnel.

IV. THE TRAINING PROGRAM

This shall be a four (4) Year Graduated Training Program in Obstetrics and Gynecology and shall consists of the following rotation:

OBSTETRICS	-	24	months
GYNECOLOGY	-	12	months
PATHOLOGY	-	3	months
PERINATOLOGY & PELVIC ULTRASONOLOGY	-	2	months
ANESTHESIA	-	1	month
DISPERSAL	-	6	months

This rotation in the Obstetrical and Gynecological Ward will commence from first year to the first six (6) months of fourth year level of residency. Each resident will rotate for a month for each year from first to third year level at the Department of Pathology of the Ilocos Regional Hospital. They shall also rotate for a month at the Perinatology Section of the Department of Obstetrics and Gynecology of the University of Santo Tomas including a month of Gynecologic Ultrasonography. Senior Residents will rotate for a month at the Anesthesia Department of IRH. The last six (6) months shall be alloted for Rural Dispersal.

A. FIRST YEAR LEVEL RESIDENCY

The first year residency shall be a rotation in the Obstetrical and Gynecological Ward in order to develop knowledge and skills pertaining to:

1. A general knowledge of the Anatomy and Physiology of the Female Reproductive System as applied to Maternal and Fetal Health and to Infectious, Neoplastic and Endocrinologic conditions of the female reproductive tract.
2. The application of this knowledge to the diagnosis of Obstetrical and Gynecologic conditions based primarily on History and Physical Examination. This includes the proper approaches in history taking and performing complete physical examination with emphasis on doing a good pelvic examination.
3. The application of his knowledge in the diagnosis, evaluation and management of uncomplicated pregnancies. Skill in doing internal exams, monitoring labor and assisting vaginal deliveries shall form the bulk of this aspect of his obstetrical training.
4. Under the guidance of the service consultant and/or senior resident, a first year resident may be allowed to do assisted deliveries like elective low forceps and partial breech extraction.
5. He shall assist senior residents in the performance of cesarian deliveries and during the second half of this year level or even earlier he may be allowed to do cesarian sections (primary) depending on his performance.
6. The application of his knowledge in the diagnosis, evaluation and treatment of complications of early pregnancy like abortion. Skill in doing dilatation and curettage shall be part of the treatment process of conditions necessitating evacuation due to retained products of conception of uteri not bigger than 12 weeks in size. He may be allowed to do this procedure on bigger uteri depending on his performance.
7. He shall be the work horse in the work-up of pre-operative cases under direct supervision of the senior resident in charge.
8. He shall be part of a team in the performance of major gynecologic operations but shall be the surgeon in the performance of minor gynecologic operations. He may, however, perform medium gynecologic operations during the second half of this year level under the direct guidance of the chief resident and/or service consultant.
9. He shall be first on call on all cases for admission during his tour of duty and shall appply his basic knowledge in the diagnosis, evaluation and initial care of all obstetrical and gynecologic emergencies. This shall be under the guidance and direct supervision of the senior resident on duty.
10. During the last quarter of this year level, he may be allowed to do simple hysterectomies under the direct supervision and guidance of the chief resident and/or service consultant depending on his performance.
11. He is required to submit at least a case report or a retrospective study prior to his reappointment.
12. He shall also be required to join at least two (2) medical and/or surgical mission to a remote area of Region I.

B. SECOND YEAR LEVEL

Second Year Level residency shall be a rotation in the obstetrical and gynecological ward to further strengthen the knowledge and skills that he has acquired in the previous year.

1. His basic knowledge and skills of the anatomy and physiology of the female reproductive system as applied to Maternal and Fetal Health shall be fullly complimented and developed with a month of rotation in the Perinatology Section of the Department of Obstetrics and Gynecology of the University of Santo Tomas under Doctor Virgilio Castro.
2. Diagnostic acumen should have been bolstered by a year's rotation in the OB-GYNE ward and should be able to use it to the hilt and be able to supervise Medical Interns rotating at the Department. First year residents should look up to her as their immediate mentor with pride.
3. His obsterical knowledge shall be geared towards the diagnosis, evaluation and management of Complicated Pregnancies as he shall be performing forceps and partial breech extraction more frequently.
4. He shall be performing more abdominal deliveries with emphasis on repeat cesarean sections. Hysterectomies following section

may be started at this year level.

5. Dilatation and Curettage as a surgical procedure shall be done on cases where the uterine size exceeds 12 weeks size. This shall primarily be on postpartum uteri, hydatidiform moles and septic abortions where there is much more risks in the performance of this procedure.
6. He shall be performing exploratory laparotomies on emergency basis on conditions like ectopic pregnancies and twisted ovarin cyst under the direct guidance of a senior resident or service consultant.
7. He shall start doing abdominal hysterectomies on benign gynecologic conditions.
8. He shall be part of a team, as a first assistant, in the performance of more complicated operative procedures like exploratory laparotomies for pelvic abscesses, endometriosis and other gynecologic conditions.
9. His technical skill should be sharpened to its maximum as he does more complicated and difficult OB-GYNE cases.
9. He should be able to submit a prospective research paper prior to his reappointment as a fourth year resident.
10. He shall have joined at least two (2) medical and/or surgical mission to remote areas of Region I prior to his appointment to fourth year level.

C. THIRD YEAR LEVEL

1. After two years of residency in OB-GYNE, a third year resident should be able to lecture on the basic tenets of this speciality with ease and must be able to dwell on the latest reports of current researches regarding the subject being discussed. His reading should now be geared towards the refinement of the techniques that he has acquired in the previous years.
2. His diagnostic acumen should have been honed by his constant exposure to all types of OB-GYN cases. Pelvic examination should now be a second nature after a thoroughly done history, enough to arrive at a diagnosis with sufficient scientific basis.
3. His working knowledge and skill at emergency cases should be beyond reproach and should now be supervisory in nature to junior residents.
4. Complicated Pregnancy conditions and the more uncommon and difficult gynecologic conditions should be discerned with more ease in terms of diagnosis, evaluation and management.
5. He should be able to supervise the delivery of complicated pregnancies well enough and be able to teach and supervise his junior residents in the performance of forceps, breech and cesarean deliveries.
6. He should be able to diagnose, evaluate and do emergency surgery on his own and should be responsible in referring all complicated cases to the consultant on call unless he is engaged in the performance of another case.
7. He should be able to aid in the dagnosis, evaluation and treatment of referred cases from another departments and refer accordingly to the service consultant.
8. His technical skill should be sharpened to its maximum as he does more complicated and difficult OB-GYN cases.
9. He should be able to submit a prospective research paper prior to his reappointment as a fourth year resident.
10. He shall have joined at least two (2) medical and or surgical mission to remote areas of Region I prior to his appointment to fourth year level.

D. FOURTH YEAR LEVEL RESIDENCY

A fourth year resident has the most responsibilities including administrative work. His knowledge in OB-GYNE should encompass textbook readings and should be geared on research or journal reports.

He should be well versed in all the cases in the ward and should be able to discuss quite effectively any and all problems regarding any case. His concern now would be on the complicated obstetrical cases like the delivery of a second twin by internal podalic version, partial and occassionally total breech extraction, etc. In gynecology, he should be more selective and discerning and has the priority to do more difficult cases.

He should be able to do Cesarian Section with or without hysterectomy with fitness and be able to impart his knowledge and skill in this aspect of operative obstetrics.

He shall be doing more complicated operations in gynecology not only for benign diseases but also for malignant diseases under the direct supervision of the service consultant.

He should be able to do vaginal hysterectomies

with ease and cancer surgeries under the direct supervision of the service consultant.

The chief resident assumes the greatest responsibilities and priveleges as he shall be responsible in the scheduling of duties, lecture and all other hospital related activities of his fellow residents. He should know all the cases in the ward by heart and shall be privileged to operate any case of his choice. In short, he should be able to develop further his surgical skills by refining his techniques in operative OB-GYN.

Prior to his dispersal, a fourth year resident should have the following qualities:

1. Comprehensive knowledge in OB-GYN.
2. Sound surgical judgement - pre, intra-and post-op.
3. Confidence in his capabilities as well as awareness of his limitations.
4. Balance sense of responsibility to all patients.
5. Teaching and communication skills beyond doubt.
6. Professionally respected with honesty and integrity and respect for medical ethics and standard.
7. Professionally and individually moralistic and most of all, God fearing.

All OB-GYN residents shall abide by the rules and regulations, not only of the department, but to the hospital as a whole. These rules and regulations are included in the Standard Operational Procedures (SOP) of IRH.

PEDIATRIC RESIDENCY TRAINING PROGRAM ILOCOS REGIONAL HOSPITAL

INTRODUCTION

The Department of Pediatrics of the Ilocos Regional Hospital is a Philippine Pediatric Society Phase II-B accredited hospital. Being such, it aims to train residents at par with the standards and goals of the PPS and to produce future certified pediatricians as Diplomates or Fellows.

As part of the residency training program, significant researches from the residents in training are encouraged. This is a vision of the IRH residency training program.

And in upholding the adopted motto of the IRH - Service, Training and Research, the pediatric resident while on training is also able to serve patients from birth to 18 months not only at the Ilocos Regional Hospital but also to the community.

For the year 1993, a total of 18,159 patients were attended to at the OPD. There were 4916 admissions to the Pediatric Ward and Nursery making a bed occupancy rate of 154.74%.

OBJECTIVES

The Department of Pediatrics of the Ilocos Regional Hospital, being a PPS Phase II-B accredited hospital, follows and is guided by the objectives of the residency training program set by the Ilocos Regional Hospital and the Philippine Pediatric Society.

GENERAL OBJECTIVES OF THE RESIDENCY TRAINING PROGRAM:

1. To acquire the necessary knowledge, skills and desirable attitudes in the practice of Pediatrics.
2. To be able to appreciate the health needs of children, familiarize and maximize all available health and diagnostic facilities.
3. To be able to utilize all avaialable health resources of the family, community and the country.
4. To consider biocthical and psychosocial issues in the practice of the specialty.

SPECIFIC OBJECTIVES:

1. To develop and demonstrate proper attitude in dealing with patients, family and colleagues.
2. To be able to recognize and anage abnormal conditions frequently seen in the newborn, e.g., RDS, sepsis, hemolytic diseases of the newborn, etc.
3. To be proficient in diagnosis and management of Pediatric emergencies.
4. To be proficient in supervising junior residents in primary pediatric care.
5. To be able to recognize and establish priorities in the management of the acute and/or critically ill patients.
6. To be able to do more procedures like subdural tap, bone marrow puncture, cutdown, exchange transfusion, etc.
7. To be more actively involved in teaching medical students, interns, and first year pediatric residents.
8. To be able to write a research paper.

TRAINING PROGRAM

The duration of the training program is 4 years.

The Department can boast of having one of the best training programs at the Ilocos Regional Hospital. Morning endorsement conferences are conducted daily. Regular rounds of the Ward, Nursery and OPD are done. In the afternoons, there are scheduled activities including Nursery hour, Intern's Hour, Mortality and Morbidity Conferences and Perinatology conference, Journal Club and Pediatric Updates. Residents are required to attend hospital activities and encouraged to attend activities of the local Medical Society and local and national activities of the Philippine Pediatric Society. Residents are regularly sent for postgraduate courses on rotation basis. Starting 1993, residents have gone to the UP-PGH for subspecialty rotation for 2 months.

The residents are also required to go on OPD duty which is composed of the Under Five Clinic, Lactation Clinic and Well-

Bably Clinic.

Each resident is assigned a Specialty Clinic to handle. There is a Specialty Clinic in Nephrology, Hematology, Neurology, Cardiology and the Asthma Clinic.

Besides their training in the hospital, the residents also actively participate in community outreach programs. The Department is actively involved in the Adopt a Barangay Project of the hospital.

The FIRST YEAR Residency Training Program requires the resident to:

1. Make daily rounds of all admitted patients with the attending Pediatricians
2. Obtain clinical histories and perform physical examination within specified time.
3. Outline plan of management and do daily follow ups and progress notes of patients.
4. Go on 24 hours duty alternately with the other residents as required, under the direct supervision of a more senior member of the staff.
5. Refer any problem during his observation of the patients to a more senior member of the staff.
6. Each resident should complete one case report at the end of the first year residency training.
7. Submit a research proposal.
8. Attend at least 1 PPS accredited Postgraduate Course in General Pediatrics before the end of first year residency training.
9. Present all admissions for the day to the consultant in-charge. Sign admission notes and regular progress written in the chart of in-patients.
10. Evaluate and treat patients in the Emergency Room in the presence of a more Senior Member of the staff.
11. Perform immediate newborn appraisal, have complete Maternal and Obstetrical Data in the newborn chart;
12. Evaluate the growth and development of all patients; give anticipatory guidance and administer immunization
13. Attend and participate in all conferences required by the Department.
14. Supervise interns and medical students.
15. Total duration of rotation in the different sections should be as follows:
    a. Ward - at least 4 months
    b. OPD/ER (General Pediatrics) - at least 4 months
    c. Nursery - at least 2 months

The Second and Third Year Residency Training Program requires the residents to:

1. Make daily rounds with consultants, interns and other residents.
2. Go on 24 hours duty under the supervision of a senior staff.
3. Rotate with other residents on 24 hours duty.
4. Supervise and teach junior residents, interns and other trainees.
5. Be present at the delivery of abnormal pregnancies and manage perinatal problems arising therefrom.
6. Do/supervise the discharge physical examinations and give instructions to mother according to hospital policies.
7. Supervise the monitoring of critically ill patients as the case warrants, indicating pertinent positive and negative findings and providing optimum hospital care.
8. Answer referrals within the department as well as pediatric consultations from other departments and refer them to a more senior member of the staff.
9. Perform the following procedures: resuscitation, umbilical cannulation, exchange transfusion, bone marrow puncture, lumbar puncture, jugular tap, thoracentesis and abdominal paracentesis under the direct supervision of a more senior member of the staff.
10. Rotate through at least 3 of the different subspecialties. At the Ilocos Regional Hospital, the residents can rotate through Neonatology and Infectious Diseases. For two other subspecialties, they are sent to the UP-PGH for 2 months.
11. There should be exposure to other specialties
    a. Pathology
    b. Radiology
12. Total duration of rotation to the different sections should go as follows:
    a. Ward - at least 3 months
    b. Nursery - at least 2 months
    c. OPD/ER/Community Outreach (General Pediatrics) - at least 3 months
    d. Subspecialties - 4 months.
13. There should be provision for performing autopsies and for holding of mortality conferences at least once a month and CPC at least quarterly. In the absence of actual autopsies done, CPC may be conducted on borrowed cases.
14. Each resident should complete a retrospective and a prospective research and another research prior to the issuance of the certificate of completion of the residency program. They are required to present their researches as scheduled by the Residency Training Board of the hospital.

EVALUATION

Quarterly evaluation of the residents are conducted and submitted to the Residency Training Board of the hospital. Certain requirements per year level are needed prior to promo-

tion to the next year level.

For PPS requirements, an annual evaluation of the residents are conducted by the Department.

RESIDENCY TRAINING PROGRAM FOR INTERNAL MEDICINE ILOCOS REGIONAL HOSPITAL

INTRODUCTION

The department of Medicine of the Ilocos Regional Hospital is duly accredited by the Philippine College of Physicians from 1991 until 1995. As such, it aims to train residents along the standards and goals set forth by the Philippine College of Physicians, and produce certified Internists as fellows and diplomates of the PCP.

In line with the Ilocos Regional Hospital's motto of "Service, Training and Research", improved services is attained by recruitment of certified specialists with subspecialty training; standardization of training as part with the PCP standards, and active participation in research contests locally and nationally with publication of research paper on a national basis.

In the year 1993, a total of 12,166 patients were attended to at the Out-Patient Department. There were 2,143 admissions to the Medical Wards and ICU, including some private patients, with a bed occupancy rate of 137%.

Objectives

Ilocos Regional Hospital being under the umbrella of the Department of Health is likewise subject to its requirements, among which is a four (4) year residency training program. It also abides by the standards and requirements of the Philippine College of Physicians.

General Objectives

1. To develop professional and skilled Internists and prepare them for specialization in Internal Medicine.
2. To stimulate and develop aptitudes for investigation and research.
3. To develop desirable attitudes of professional, social consciousness and civic mindedness.

Specific Objectives

1. To develop and demonstrate proper attitudes in dealing with patients, family and colleagues.
2. To be able to recognize and manage abnormal conditions frequently seen in adults e.g. Pneumonia, MI, PTB, COPD, etc.
3. To be proficient in diagnosis and management of Medical Emergencies.
4. To be proficient in supervising junior residents in primary medical care.
5. To be able to recognize and establish priorities in the management of the acute and/or critically ill patients.
6. To be able to do procedures like ECG, Thoracentesis, Paracentesis, Lumbar Tap, etc.
7. To be more actively involved in teaching medical students, interns, and first year medical residents.
8. To be able to write research papers.

Traning Program

The department of Medicine has the following consultant staff with the corresponding subspecialties:

Chairman : Dr. Brenda M. Espinosa, F.P.C.P. (Cardiology)
Training Officer : Dr. Solomon Saprid, F.P.C.P. (Diabetes)
Consultants : Dr. Francisco Valdez, F.P.C.P.
Dr. Raymond Espinosa F.P.N.A. (Neurologist)
Dr. Baltazar Rivera, F.P.C.C.P. (Pulmonary)
Dr. Rommel Palaganas, F.P.C.P. (Gastroenterologist)

Presently, Dr. Roderico Ramos (Psychiatry) is affiliated with the Department of Medicine pending the creation of an independent Psychiatry Department.

There are at present 7 residents, one of whom is designated as a Fellow as only two (2) items are allocated per year level. The only distinction of a fellow is the source of funding, from a pool of drug companies, but requirements for training is exactly the same as a regular resident. He is however exempted from rural service/dispersal.

The duration of the training program is four (4) years.

The Department of Medicine can boast of being one of the few PCP accredited training program in the North. Morning/ Endorsement Conferences are conducted daily. Regular rounds in the Medical ard, Communicable Disease Ward and Intensive Care Unit are done daily. In the afternoons, conferences are decked as follows: Subspecialty conferences in Pulmonary, Diabetes, Cardiology, Neurology, Gastroenterology and Psychiatry, alternated with Mortality/Morbidity conferences, Journal Reports, Research Conferences, Problematic/Interesting Case Conference and occasionally product presentation.

Residents are mandated to attend post-graduate courses.

They are required to go to the OPD and conduct screening and management of special cases like Diabetes, Rheumatic Heart Disease, Hypertension, Pulmonary Tuberculosis, Neurologic, and Psychiatric cases scheduled in the mornings:

Monday	Pulmonary/Asthma
Tuesday	Diabetes

Wednesday	Cardiology
Thursday	Neurology
Friday	Psychiatry

Research paper is required per year level and is a basis for promotion.

First year	Case Report
Second year	Retrospective/Prospective study
Third year	Prospective study
Fourth year	Prospective study

The 1st 3 papers should be presented in research contest held annually and the fourth may just be submitted.

Exposure to echocardiology, CT scan, and EEG is made possible by conducting patients to the Dagupan Doctor's Villaflor Medical Center with consultant's guidance. Exposure to bronchoscopy and gastroscopy is accomplished by observing these procedures when done in Baguio General Hospital and St. Louis University Hospital with their consultants' guidance, rotation in Nephrology at National Kidney Center will start this year for our residents. Hopefully, we can operate our own Hemodialysis Unit - the first in the North.

Duties of Residents and Assistant Residents:

Residents should abide by the rules and regulations of their hospital as well as the general policies of the Residency Training Program promulgated by the hospital. Part of their duties must include:

1. They must be responsible for the history and physical Examination of patients assigned to them including their clinical impressions.
2. They must make daily rounds and make progress reports.
3. They must see serious patients as often as their condition warrant.
4. They are expected to know their cases when members of the attending staff make their rounds.
5. They should perform ward procedures assigned to them by the Consultant Staff.
6. They must answer all referrals for other services and departments and personally refer the case to the consultant in charge as soon as possible.
7. They are responsible for making discharge summaries of patients assigned to them.
8. They are responsible for preparation of protocols for conferences.
9. They should supervise the interns assigned to the Department.

Skills to be Learned and Acquired:

First Year:

1. Proper approaches in interviewing patients and in history taking.
2. Performing complete physical examination, including a good neurological evaluation.
3. Performing fundus examination.
4. Performing paracentesis, lumbar tap, thoracentesis, cutdown, etc.
5. Skills in insertion of venoclysis, blood transfusions, cutdown, etc.
6. Diagnosis and treatment of common medical disorders.
7. Basic knowledge in interpreting radiological examination of the chest.
8. Interpreting ECG tracing.

Second year:

1. Medical and Cardiopulmonary evaluations for surgical patients.
2. Increasing skills in the various diagnostic procedures commonly employed in medicine as enumerated above. More sophisticated procedures may be allowed to them such as peritoneal dialysis, monitoring cardiac patients during surgery, intubation during resuscitation, etc.
3. Increasing knowledge in the diagnosis and treatment of common medical disorders.
4. Introduction of principles of Nuclear Medicine and its clinical applications.

Third Year and Fourth Year:

More advanced knowledge in pathophysiology, biochemistry and special diagnostic procedures and therapeutic skills in the different specialties. He should be able to do at least the following:

a. Cardiology - able to read EKG, stress test, cardiac series and do cardiac clearance.
b. Gastroenterology - read GB series, upper GI series, and barium enema and know how to do proctosigmoidoscopy.
c. Nephrology - read IVP's, interpret urinalysis and blood chemistries and know the technique of peritoneal dialysis.
d. Pulmonary Disease - read chest x-ray and interpret blood gas results and pulmonary function tests.
e. Infectious Disease - handle common infectious and tropical diseases.
f. Neurology - handle routine CVA cases and when to refer cases for further evaluation.
g. Endocrinology - diagnose and treat diabetes mellitus including ketoacidosis and the common thyroid disorders.

Evaluation

Bi-annual written examinations, clinical performances, research output, attendance are the basis for promotion. Residents are also required to take the PCP annual residency evaluation.

ILOCOS REGIONAL HOSPITAL RESIDENCY TRAINING PROGRAM FOR OPHTHALMOLOGY 1994

I. OBJECTIVES

The Residency Training Program in Ophthalmology has for its main objective the provision of an educational

experience of such quality and excellence as to assure that its graduates will possess the qualifications and competency to enter an independent practice of Ophthalmology as a clinician, teacher, administrator or a researcher.

The Residency Program consists of three (3) years of training. This program will evolve around activities related to the (1) Development of his knowledge, skills and attitudes; (2) Development of the art of patient care, and (3) Role of a teacher to other residents, students and other health professionals.

II. GENERAL PROGRAM

The first year residency program should be devoted primarily to the learning of the fundamentals and basic principles of Ophthalmology. This will include activities like history taking, objective as well as functional ocular examinations, instrumentation, communication and attending lectures in the basic subjects.

The second year residency program should be devoted primarily in activities with exposure to the more common ocular diseases and disorders. It will also include the performance of minor surgical procedures in Ophthalmology.

The third year residency programs will be spent in the greater part performing major surgical procedures. It is in this level where clinico-pathologic correlations enhances the ability to give value judgements to the contemplated surgical procedures.

All three (3) levels of training in Ophthalmology will include responsibilities toward the supervision and training of clinical clerks and interns. The potentials of research and teaching in any given Ophthalmologic case should also be emphasized.

III. SELECTION OF RESIDENTS

A. Qualifications: To qualify for a residency position in the Department one should be a:
   1. Filipino citizen
   2. Graduate of a recognized medical school
   3. Graduate of a recognized internship program
   4. Licensed Doctor of Medicine

B. Policies: Acceptance to the residency program will be based on the following criteria:

   1. Applicants will fill up forms for residency positions from the Office of the Training Officer.
   2. The following documents should accompany the application form:
      a. Transcript of record from the medical school he graduated from.
      b. Academic ranking in class.
      c. Certificate of Internship.
      d. Medical Board Certificate.
   3. The application form and the necessary documents will be submitted to the Credential Committee of the Organized Medical Staff for deliberation and recommendation.
   4. The Department Admission Committee will evaluate the applicants on the following basis:
      a. Academic Performance: 40%
         a. Academic rank in class: 20%
         b. Grades in Ophthalmology for third year and clinical clerkship - 20%
      b. Interest in Ophthalmology: 40%
         a. Reason for taking up Ophthalmology
         b. Relationship with an Ophthalmologist
         c. Plans during residency
         d. Plans of location of practive after training
      c. Personality: 20%
         a. Fluency in English and other dialects
         b. Physical appearance
         c. Marital plans if single
         d. Economic status of parents
         e. Moral and psychological overlay
   5. The list of accepted applicants will be forwarded to the Office of the Training Officer for formal appointment.

      All forms and documents will accompany the list approved by the Department Admission Committee.

IV. DUTIES AND ACTIVITIES

A. First Year:
   1. Rotate in the in-patient and the out-patient units.
      a. Extract detailed medical and ophthalmological histories pertinent to the ocular problems of patients.
      b. Perform thorough physical and ocular evaluations of patients.
      c. Perform special ocular examinations like visual fields, muscle function tests, glaucoma work-up, exophthalmometry, indirect opthalmoscopy and split-lamp biomicroscopy.
      d. Correlate findings and laboratory procedures to establish a logical diagnosis.
      e. Perform cycloplegic refraction
      f. Assist senior residents in major surgical procedures and clinical clerks on the proper evaluation of patients.
      h. Correct the histories and physical examinations done by the interns and clinical clerks so as to produce a well organized ocular history.
      i. Write admission orders and therapy prescriptions as well as accomplish all necessary papers for hospital admissions.

j. Formulate a comprehensive treatment regimen.
k. Record progress notes as often as necessary.
l. Conduct daily ward rounds with the interns and clinical clerks.
m. Discuss the medical and ophthalmologic problems of the patients with the consultant staff, senior residents, interns, clinical clerks and other health professional called for referrals.
n. Share views during the conference and the rounds with the consultant staff.
o. Identify other non-ophthalmologic problems in his patients requiring consultation with other specialties.
p. Accomplish monthly ward reports.
q. Accomplish performance evaluation ratings for the interns and clinical clerks.
r. Manage all ward referrals during his 24-hour duty.
s. Rotate in the emergency room duty.
t. Adhere to the ethical and moral practices of the medical profession.
u. Adhere to all existing hospital rules and regulations pertaining to residents in particular and to all personnel in general.

B. Second Year
1. Rotate in the out-patient and in-patient units as well as in the operating room.
a. Extract detailed medical and ophthalmological histories pertinent to the ocular problems of patients of the out-patient unit.
b. Perform thorough physical and ocular evaluations of the patients.
c. Perform special ocular examinations necessary to arrive at a definite diagnosis.
d. Perform manifest refractions.
e. Answer referrals from other Departments.
f. Perform minor surgical procedures at the out-patient unit.
g. Study eyeballs and specimen at the surgical pathology laboratory under the supervision of the consultants or pathologists.
h. Supervise first year residents in the diagnosis and management of ocular problems in the out-patient as well as in the in-patient units.
i. Conduct daily ward rounds with the junior residents, interns, and clinical clerks.
j. Discuss the medical and ophthalmologic problems of the patients with the consultant staff especially those who have been referred to other departments.
k. Share views during the conferences and the rounds with the consultant staff.
l. Assignment of cases consultations and case presentation.
m. Attend to patients in the out-patient and the in-patient units with subspecialty problems for appropriate work-ups and referral to consultant staff.
n. Assignment of clinico-pathologic cases for presentation in conference.
o. Rotate in emergency room duty.
p. Adhere to the ethical and moral practices of the medical profession.
q. Adhere to all existing hospital rules and regulations pertaining to residents in particular and to all personnel in gereral.

C. Third Year Year
1. Rotate in the out-patient and in-patient units and the operating room.
a. Review and re-evaluate the clinical ocular findings of all patients assigned to him for surgery.
b. Perform other anciliary laboratory and special ocular procedures that he may need prior to the decision to operate on his patient.
c. Perform all major surgical procedures under the supervision of the consultant staff.
d. Follow-up daily all his post-operative patients and record in the charts pertinent findings.
e. Supervise all clinical works of his junior residents, interns and clinical clerks.
f. Perform manifest and aphakic refraction.
g. Evaluate and suggest management of all interdepartment referrals.
h. Accomplish all statistical records and annual report of the department.
i. Coordinate, schedule, participate and implement the following:
a. Department Conferences
b. Topics for weekly schedule of activities
c. Related teaching activities
d. Conferences with other departments
e. Patient assignment in the ward and schedules for surgical procedures.
j. Conduct weekly ward rounds and chart rounds.
k. Rotate in emergency room duty on a second-call assignment.
l. Assist consultant staff in administrative matters relating to the hospital or the College of Medicine.
m. Conduct specialty clinics and screen as well as evaluate all referrals prior to consultation with the consultant staff.

n. Adhere to the ethical and moral practices of the medical profession.
o. Adhere to all the existing hospital rules and regulations pertaining to residents in particular and personnel in general.

V. MEASUREMENT OF PERFORMANCE

Performance in training in the specified activities must be evaluated in measurable terms. There is, however, no absolute value present to objectively measure the rating of a resident. It is important, nonetheless, that a record of their activities be always on hand. The follwoing are figures that may be reasonable within the present set-up of the department.

A. Attendance of 30% of all scheduled formal conferences or lectures.
B. Refraction of any category amounting to 300 cases.
C. Presentation of 10 cases in conference for either consultation, presentation, or clinico-pathologic correlation.
D. Assistance to 30 major operations.
E. Performance of 50 major operations.
F. Presentation of a scientific paper of either a case report or a research thesis.
G. Attendance to at least 5 scientific meetings preferably related to Ophthalmology outside of hospital.

TRAINING PROGRAM OF THE DEPARTMENT OF RADIOLOGY ILOCOS REGIONAL HOSPITAL 1994

NAMES OF RADIOLOGY MEDICAL STAFF AND RESIDENTS:

JEROME A. GAERLAN, M.D., FPCR, FUSP,
Full time consultant
MAHDELYN U. TIMMALOG, M.D., *Resident Physician*
NATIVIDAD R. ESLAO, *X-Ray Technologist*
RODOLFO S. DUCUSIN, *X-Ray Technologist*

RESIDENCY TRAINING PROGRAM:

The program shall encompass a period of three (3) years. Two and a half (2½) years shall be spent within the hospital and six (6) months on outside rotation. In addition to that, the resident shall undergo six (6) months of rural dispersal as fulfillment of a requirement of the Department of Health.

I. Two and a half (2½) years within I.R.H.
  A. One and a half (1½) years - Conventional Radiology
    1. Two (2) months - Radiation Technology, Radiation, Physics, and Radiation Biology
    2. One (1) month - Routine Radiographic Positioning
    3. Two (2) months - Special Procedures, Use of Fluoroscopic unit, and Use of Spot-Filming Device
    4. Three (3) months - Basic Radiologic Interpretation
    5. One (1) month - Special study of Chest Radiology
    6. One (1) month - Special study of Cardiovascular Radiology
    7. One (1) month - Special study of Gastro-Intestinal Radiology
    8. One (1) month - Special study of Genito-Urinary and Obstetric Radiology
    9. Two (2) months - Special study of Bone and Joint Radiology
    10. One (1) month - Special study of Neurologic Radiology
    11. One (1) month - Special study of Radiology of the Face, Mouth, and Jaws
    12. Two (2) months - Special study of Pediatric Radiology

  B. One (1) year - Diagnostic Ultrasound
    1. One (1) month - Physics and Biology of Diagnostic Ultrasound
    2. Two (2) months - Ultrasound of Hepato-Biliary Tree and Pancreas
    3. One (1) month - Ultrasound of Aorta, Spleen, Intestines, Mesentry, and Abdominal organs
    4. One (1) month - Ultrasound of Kidneys, Adrenals, and Retroperitoneum
    5. Two (2) months - Ultrasound of the Pelvis and Scrotum
    6. One (1) month - Ultrasound of the Thyroid, Parathyroid, Neck Masses, Breast, and Pericardial Sac.
    7. Two (2) months - Obstetrical Ultrasound
    8. Two (2) months - Pediatric Ultraso

II. Six (6) months - Outside Rotation
  1. Philippine Heart Center - Angiography, Cases of Congenital Heart Diseases
  2. National Kidney Institute - Cases of Congenital Anomalies of the Genito-Urinary Tract, Renal Transplant Cases
  3. Lung Center of the Philippines - Bronchography, Introduction to Radiotherapy
  4. Philippine Children's Medical Center - Detailed Study of Pediatric Radiology; Normal Radiologic and Sonologic Values for Pediatric Age range
  5. Philippine Orthopedic Center - Arthrography, Detailed Study of Bone Radiology, Introduction to Computed Tomography
  6. Philippine General Hospital - Neonatal Head Ultrasound; Additional Study of Computerized Tomography

ILOCOS REGIONAL HOSPITAL COMBINED RESIDENCY TRAINING PROGRAM IN ANATOMIC AND CLINICAL PATHOLOGY Revised 1994

I. Objectives

1. To give Physician sufficient skill and experience to practice the science and art of Anatomic and Clinical Pathology sufficiently and independently.
2. To support the spirit of keeping abreast with current trends of concepts and practice by reading, experience and research.
3. To inculcate the ethical practice of Anatomic and Clinical Pathology

II. Requirements for Admission

1. Graduate physician with one year internship.
2. Must have passed the Medical Board Examination.
3. Physically and mentally sound.
4. Good moral character.
5. Has genuine interest in pathology and determined to finish the residency course.

III. Procedural Approach

1. Duration and Rotation of Training.

The program covers 4 - year period, divided as follows:

Anatomic Pathology - 2 years and 3 months
Clinical Pathology - 1 year and 9 months

A residency may start in either branch of Pathology and finish it continuously for the whole period or he may rotate alternately after a year in one branch to the other branch. This program is designated to be flexible, but every trainee should observe the following time duration for each branch and specific sections, which are as follows:

A. Anatomic Pathology
   1. Autopsy - 18 months
   2. Surgical Pathology - 10 months
   3. Cytology - 2 months

B. Clinical Pathology
   1. Clinical Parasitology - 5 months
   2. Hematology and Serology - 5 months
   3. Microbiology - 4 months
   4. Clinical Microscopy - 2 months
   5 Blood Banking 2 months

2. Policies and standard operating procedures
3. Actual performance of laboratory procedures
4. Tutorial supervision by senior members of the staff
5. Intra and Interdepartmental conferences
6. Participation in:
   a. Teaching medical and paramedical students in Anatomic Pathology
   b. Training Medical Technologists both undergraduates and post-graduates, including technicians and aides in Clinical Pathology
7. Research projects

IV. EVALUATION: (Oral, written, and Practical examination)

1. Internal - To be conducted by the training institution after end of each section training and after each year of training.
2. External - To be conducted by the Philippine Board of Pathology after the residency program is completed.

I. Anatomic Pathology

A. Autopsy work (18 months)

A resident must perform at least 75 autopsies during this period. He must be able to:

1. Perform a thorough dissection of the cadaver. Recognize gross lesions and take tissue sections for routine H & E stain or for special stain if needed.
2. Write complete and concise gross description.
3. Read and diagnose the stained sections.
4. Interpret the case with a good clinico-pathology correlation.
5. Finish an autopsy case within 2 weeks.

B. Surgical Pathology (10 months)

A resident must perform at least 1,000 surgical cases during this period. He must be able to:

1. Describe and take sections of small specimen.
2. Describe, dissect, and take appropriate sections from "Radical Operation" specimen.
3. Study completed slides and give diagnosis with help of senior pathologists. Must give report within 48 hours.
4. Assist in Frozen Section:
   a. Must require proficiency of techniques of preparing, cutting, and staining frozen sections.
   b. Gradually learn to make independent diagnosis.

C. Cytology (2 months)

A. Resident must read at least 500 cytology during this period. Training will be done in conjunction with cytology research Laboratory of the Department of OB-Gyn. He must be able to:

   a. Perform technical preparation of fluids, exudates, sections for PAP smear and Cell Blocks.
   b. Render Independent diagnosis of cytology slides in most cases.

D. Attendance and participationns in various intradepartmental and interdepartmental conferences (Gross and Microscopic Conference, Brain Cutting, Surgical Pathology, Journal Hours, Medical Audit, Ground Round, Clinico-Pathologic Conference with different clinical departments, Mortality-Morbidity Conference).

E. Assistance in teaching medical and paramedical students during free time.

F. Depending upon the interests and proficiency of the resident, special study or research is encouraged.

Ilocos Regional Hospital
RESIDENCY TRAINING BOARD
San Fernando, La Union

TABULATION SHEET FOR SEMI-ANNUAL PERFORMANCE RATING

NUMBER OF TRAINEE	CLINICAL PERFORMANCE			EXAM	RESEARCH	ATTNDCE	PRESENTATION	TOTAL
	YEAR LEVEL	CMPS 30%	SR 10%	30%	10%	10%	10%	100%
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

Date Submitted: _____
Department of _____

Prepared by:

_____
CHAIRMAN/DEPT. TRAINING OFFICER

Date Received: _____
Received by: _____
HAZEL A. BALBIDO, MD, DPPS
Co-Chairman, RTB

Approved by: _____
FERNANDO A. ASTOM, MD, FPCS
Chairman, RTB

1. *Please accomplish this form in triplicate - 1 copy for Chairman of RTB, 1 copy for Chairman of Department, 1 copy for CMPS.*
2. *To be accomplished every last Tuesday of June and 1st Tuesday of December.*
3. *Please attach recognition and/or recommendations for strong and weak areas of each trained concerned.*

EVALUATION SHEET FOR CLINICAL PERFORMANCE OF TRAINEES

NAME OF TRAINEE	YEAR LEVEL	ACADEMIC PREPAREDNESS			CLINICAL PARAMETERS				MISCELLANEOUS			Total Score
		Application of knowledge	Ability to Reason	Subject Matter	Patient Relationship	Professional Judgement	Professional Relationship	Team Participation	Performance of Skills	Assigned Work	Initiative Attitude	
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

DEPARTMENT OF: _____
ACCOMPLISHED BY:

_____ CHIEF RESIDENT

_____ CHAIRMAN

_____ CONSULTANTS

1. *40% of total score shall be incorporated in the trainees' semi-annual rating. 30% shall come from the averaged score of the Consultants and 10% shall come from the Chief of Resident.*
2. *Also accomplished in triplicate and submitted together in the tabulated semi-annual rating to the Residency Training Board.*

NAME OF RESIDENT	I. Scholastic Record (25%)				II. Examination (30%)			III. Interview (35%)			IV. Volunteer training (10%)		
	School Average (10)	School Rate (5)	Board Rate (5)	Special Awards (5)	Basic (15%)	Specialty (15)	Academics (10)	Attitude Personality, P.E. (10)	Commitment (10)	Place of eventual Practice (5)	Academic Preparedness (5)	Clinical (3)	Misc. (2)

ILOCOS REGIONAL HOSPITAL TRAINING PROGRAM

MANPOWER COMPLEMENT

MEDICAL STAFF AND RESIDENTS

(1994)

DEPARTMENT OF SURGERY

1. Ruben D. Aleta, FPCS ---------- Chief of Medical Prof'l. Staff
2. Nathaniel V. Rimando, FPCS ---------- Med. Specialist III (Dept. Head)
3. Fernando Astom, FPCS, FICS ---------- Med. Specialist II (Trng. Offr.-Part-time)
4. Cesar S. Bernabe, DPBS ---------- Med. Specialist II (Full-time)
5. Albert Galut, FPCS ---------- Visiting Consultant
6. Raymond Abaya, FPCS ---------- Visiting Consultant
7. Rolando Mallari ---------- Junior Visiting Consultant
8. Alfredo Gutoman ---------- Junior Visiting Consultant
9. Manuel Ong, Jr. ---------- Junior Visiting Consultant
10. Ferdinand Hernaez ---------- Junior Visiting Consultant
11. Magno Jose Valdez ---------- Med. Officer IV
12. Edgar Biteng ---------- Med. Offr. III (First Year)
13. Melanie Sandoval ---------- Med. Offr. III (Second Year)
14. Cipriano Fernandez ---------- Med. Offr. III (Second Year)
15. Ruel Amor Navalta ---------- Med. Offr. III (Second Year)
16. Alfredo Bernal ---------- Med. Offr. III (Third Year)
17. Sixto Ordoño ---------- Med. Offr. III (Third Year)
18. Gene Estandian ---------- Med. Offr. III (Fourth Year)
19. Joseph Bautista ---------- Med. Offr III (Fourth Year)
20. Herminigildo Velasco ---------- Fellow, First Year

DEPARTMENT OF MEDICINE

1. Brenda Espinosa, FPCP ---------- Med. Specialist II (Dept. Head)
2. Francisco Valdez, FPCP ---------- Med. Specialist III (Full-time)
3. Raymond L. Espinosa, FPNA ---------- Med. Specialist II (Full-time)
4. Baltazar Rivera, FPCP ---------- Med. Specialist II (Full-time)
5. Jose Solomon Saprid, FPCP ---------- Med. Specialist II (Full-time)
6. Roderico Ramos ---------- Med. Specialist II (Full-time)
7. Rommel Palaganas, FPSG, FPGP ---------- Visiting Consultant
8. Mercy Bañez ---------- Med. Offr. III (First Year)
9. Rowena Petrola ---------- Med. Offr. III (First Year)
10. Macario Corpuz ---------- Med. Offr III (Second Year)
11. Carolina Dadat ---------- Med. Offr. III (Second Year)
12. Silverio Retuta ---------- Med. Offr. III (Second Year)
13. Genoveva Sibayan ---------- Med. Offr. III (Third Year)
14. Geoffrey Castillo ---------- Fellow, 1st Year

DEPARTMENT OF PEDIATRICS

1. Hazel A. Balbido, DPPS ---------- Med. Specialist III (Department Head)
2. Maryann Castillo, DPPS ---------- Med. Specialist II (Full-time)
3. Jeisela Balderas-Gaerlan, DPPS ---------- Med. Specialist II (Full-time)
4. Eliseo Laron, DPPS ---------- Visiting Consultant
5. Ma. Luisa Corpus ---------- Med. Offr III (First Year)
6. Donatela Duque ---------- Med. Offr. III (Second Year)
7. Brendalene Si ---------- Med. Offr. III (Second Year)
8. Lilian Pascua ---------- Med. Offr III (Third Year)
9. Ma. Jasmin Gonzales-Ruiz ---------- Med. Offr. III (Third Year)
10. Ma. Joycelyn Tangco ---------- Med. Offr. III (Fourth Year)
11. Crisanto Montemayor ---------- Med. Offr. III (Fourth Year)
12. Marilou Castro ---------- Med. Offr. III (Fourth Year)
13. Janeth Ruth Frigillana ---------- Fellow, 3rd Year
14. Ma. Luisa Taverner ---------- Fellow, 1st Year & PPS Scholar

DEPARTMENT OF OB-GYNE

1. Reynaldo R. Macusi, DPOGS, FPOGS ---------- Med. Specialist II (Dept. Head)
2. Alexander F. Alviar, FPOGS ---------- Med. Specialist II (Full-time)
3. Gerardo P. Garcia, DPOGS, FPOGS ---------- Consultant (On Study Leave)
4. Aurora Lopez Valdez, M.D. ---------- Med. Specialist II (Full-time)
4. Milagros Ragasa, FPOGS, FPCS ---------- Visiting Consultant
5. Rosalinda Rosal ---------- Med. Offr. III (First Year)
6. Elizabeth Batino ---------- Med. Offr. III (First Year)
7. Juliet Ellasus ---------- Med. Offr. III (Second Year)
8. Ma. Rosario Bernal ---------- Med. Offr. III (Second Year)
9. Benelyn Paraon ---------- Med. Offr. III (Third Year)
10. Ma. Cielo Mallari ---------- Med. Offr. III (Third Year)
11. Felomina Juloya ---------- Med. Offr. III (Fourth Year)
12. Editha Lapitan ---------- Med. Offr. III (Fourth Year)
13. Evalisa Dyquiangco ---------- Fellow

DEPARTMENT OF ANESTHESIA

1. Rommel G. Fangonil, DPBA ---------- Med. Specialist II (Dept. Head)
2. Sammy B. Reyes ---------- Med. Specialist II (Full-time)
3. Godfrey Agcon ---------- Visiting Consultant
4. Eleanor Cruz, DPBA ---------- Visiting Consultant
5. Mary Wevelyn Dy ---------- Med. Offr. IV
6. Letecia de Vera ---------- Med. Offr. III (First Year))
7. Susan Seguban ---------- Med. Offr. III (First Year)
8. Luz Gandia ---------- Med. Offr. III (Second Year)

DEPARTMENT OF OPHTHALMOLOGY

1. Ralph A. Asuncion, DPBO, FPCS ---------- Med. Specialist III (Dept. Head)
2. Camilo Garganta, FPAOO, FPCS ---------- Visiting Consultant
3. Vivian Butac ---------- Med. Offr. III (First Year)
4. Christie Marie Querubin ---------- Med. Offr. III (Second Year)
5. Carlos Ong ---------- Med. Offr. III (Third Year)

DEPARTMENT OF ENT

1. Edwin Cosalan, DPBO-HNS ---------- Med. Specialist II (Part-time)
2. Zenaides Wi, DPBO-HNS ---------- Med. Specialist II (Part-time) (M.P.)
3. Merlie Floresca ---------- Fellow, 2nd Year

DEPARTMENT OF ORTHOPEDICS

1. Edward Chiu, FPOA ---------- Med. Specialist II (Full-time) (M.P.)
2. Rolando Agustin, FPOA ---------- Med. Specialist II (Full-time)
3 Gualberto Basco, FPCS, FPOA ---------- Med. Specialist II (Part-time) M.P.)

DEPARTMENT OF RADIOLOGY

1. Jerome Gaerlan, FPCR, FUSP ---------- Med. Specialist II (Dept. Head)
2. Mahdelyn Timmalog ---------- Med. Offr. III (First Year)
3 Jessica Tadena ---------- Fellow, Third Year

DEPARTMENT OF LABORATORY

1. Gilbert S de Leon, DPSP, FPSP ---------- Med. Specialist III (Dept. Head)
2. Madeline Retuta ---------- Med. Offr. III (First Year))

OUT-PATIENT DEPARTMENT

1. Mildred B. Pocsidio ---------- Med. Specialist II (Full-time)

INTERNS

1. Villaseran, Portia
2. Yabes, Alexander
3. Lansi, Holly Anne
4. Maglaya, Cherry
5. Banaña, Esgracio Edgar
6. Velasco, Misael

PERFORMANCE REPORT ILOCOS REGIONAL HOSPITAL FOR 1993

SURGICAL DEPARTMENT

	Pedia	Adullt
% of Occupancy	100%	
Number of Admissions	1362	
Number of Discharges	227	1125
Recovered/Improved	179	920
Unimproved	14	64
Transferred TOD/TOH	21	25
Absconded/HAMA	6	44
Death	7	72

OPD Consultations	6864
ER Consultants	
Non-Admissions	4093
Surgical Operations:	
Major	771
Minor	4160

10 Leading Causes of Morbidity

1.	Trauma (all forms)	271
2.	Acute Appendicitis	184
3.	CCI	99
4.	Intestinal Obstruction	81
5.	Hernia	71
6.	Urolithiasis	47
7.	Abscess	37
8.	Cholecystitis	34
9.	BPH	18
10.	Burns	16

10 Leading Causes of Operations

1.	Appendectomy	168
2.	Exploratory Laparotomy	157
3.	Herniotomy/Herniorrhapy	52
4.	Debridement (all forms)	43
5.	Cystoscopy	26
6.	Cholecystectomy	23
7.	Proctosigmoidoscopy	16
8.	Hemorrhoidectomy	13
9.	CTT Insertion	13
10.	Excision of Breast mass	7

10 Leading Causes of OPD Consultations And OPD Surgical Procedures

1.	Cyst (all forms))	1845
2.	Dressing of Wound	1356
3.	Abscess I & D	940
4.	Circumcision	550
5.	Foreign Body Remova	480
6.	Dogbites	340
7.	Debridement	180
8.	Ingrown Toe Nail	160
9.	Abrasions	120
10.	Trauma (all forms)	112

Rates & Ratios:

Post OP Death Rate 2.74%

OPHTHALMOLOGY/ENT

	OPHTHA	ENT
% of Occupancy	116.69%	
Number of Admissions	321	315
Number of Discharges	319	313
Recovered/Improved	235	257
Unimproved	44	37
Transferred TOD/TOH	17	8
Absconded/HAMA	10	9
Died	13	2

	OPHTHA	ENT
OPD Consultations	3185	3836
ER Consultants		
Non-Admissions	151	529
Operations:		
Major	125	19
Minor	97	61

10 Leading Causes of Morbidity

1.	Multiple Lacerated Wd	370
2.	Cataract senile mature	76
3.	Contusion Hematoma	19
4.	Glaucoma	18
5.	Pertonsillar abscess	16
6.	Cellulitis (face)	12
7.	Endopthalmitis	17
8.	Mandibular Fracture	12
9.	Tonsillitis	12
10.	Chronic Otitis Media	10
	Mandibular Abscess	10

10 Leading Operations

1.	E C C E	46
2.	Enucleation	11
3.	Exploration and repair of LW face	10
4.	Nasal Polypectomy	8
5.	I C C E	7
6.	Mastoidectomy	7
7.	Aspiration of peritonsillar abscess	6
8.	Repair of Corneal Laceration	6
9.	I & C	5
10.	Evacuation of Hypema	3

OPD Consultations - 3,185 - 5%

OPD Consultations - 3,836 - 6% (ENT)

Leading Causes of Consultations (OPHTHA)

1.	Cataract	387
2.	Conjunctivitis	337
3.	Error of Refraction	285
4.	Hordeolum	240

1.	Otitis Media	550
2.	Pharyngitis	311
3.	Impacted Cerumen	202
4.	Otitis Externa	185
5.	Allergic Rhinitis	172

5.	Pterygium	201	6.	Tonsillitis	160
6.	Corneal Ulcer	150	7.	Thyroid Nodules	148
7.	Foreign Body Removal	148	8.	Cleft Lip Palate	102
8.	Error of Refraction	120	9.	Sinusitis	85
9.	Chalazion	105	10.	Otomycosis	63

PEDIATRICS/NURSERY

	PEDIA	NURSERY (W.B.)	S.B.
% of Occupancy		154.74%	
Number of Admissions	2615	(1365)	936
Number of Discharges	2598	(1365)	931
Recovered/Improved	2392	(1365)	846
Unimproved	5	-	0
Transferred TOD/TOH	9	-	11
Absconded/HAMA	50	-	3
Died	142	-	71

	PEDIA
OPD Consultations	19,198
ER Consultations	
Non-Admissions	3219

10 Leading Causes of Morbidity

1.	Pneumonia	1266
2.	Meconium Stained Amniotic Fluid	379
3.	Malnutrition	341
4.	Sepsis	337
5.	Acute Gastroenteritis	218
6.	Benign Febrile Convulsion	166
7.	Dengue Fever	148
8.	Status Astmaticus	147
9.	Small for Gestational Age	125
10.	Bronchial Asthma	110

Rates & Ratios:

Infant Death Rate	- 2.73
Neonatal Death Rate	- 2.71

10 Leading Causes of Mortality

1.	Sepsis	51	25.12%
2.	Sepsis neonatorum	45	22.10%
3.	Pneumonia, very severe	22	10.83%
4.	Hyaline Membrane Disease	19	9.36%
5.	Severe Asphyxia Neonatorum	12	6.0%
6.	Immaturity	7	3.45%
7.	Bacterial Meningitis	5	2.5%
	Pneumothorax, massive	5	
8.	Dengue Shock Syndrome	4	1.97%
	Mealses pneumonia	4	
9.	Status Asthmaticus	3	1.5%
	Rabies	3	
	Blood Dyscrasia	3	
	Aspiration pneumonia	3	
10.	Persistent Fetal Circulation (PFC)	2	
	Acquired Prothrombin Complex Deficiency	2	
	Tetanus neonatorum	2	
	Fulminant Hepatitis B Infection	2	

OPD Consultations:		19,198
Average Daily Consultation		61 patients / day
Number of Consultations accdg. to Age Groups:		
0 - 6 years old	16, 043	(83.6%)
6 - 14 years old	3,155	(16.4%)

10 Leading Consultations

1.	Acute Respiratory Infections	4750
2.	Acute Gastroenteritis	2081
3.	Bronchial Asthma	1785
4.	PTB 1^0 (Primary Complex)	1499
5.	Intestinal Parasitism	1280
6.	Malnutrition	1140
7.	Bronchitis	985
8.	Acute Tonsilllopharyngitis	880
9.	Dermatitis	750
10.	Seizure Disorder	689

OB/GYNECOLOGY

	OB	GYNECOLOGY
% of Occupancy	111.57%	
Number of Admissions	3470	
Number of Discharges	2752	706
Unimproved	11	4
Transferred TOd/TOH	8	2
Absconded/HAMA	13	11
Died	19	4

OPD Consultations		7925 - 13%
ER Consultations		
Non-Admission		656
Operations:		
Major	1052	
Minor	1855	

10 Leading Causes of Morbidity

1.	Pregnancy Uterine Full Term	1492
2.	Incomplete Abortion	380
3.	PU - Pre-term	200
4.	PUFT Pre-Eclampsia	197
5.	PUFT PROM	67
6.	Post-Term Pregnancy	64
7.	Ectopic Pregnancy	63
8.	Abnormal Uterine Bleeding	59
9.	Threatened Abortion	32
10.	Ovarian Cyst	29

Rates & Ratios:
Maternal Death Rate - .54
Caesarean Section Rate - 15.25

10 Leading Causes of Operations

1.	NSD	1357
2.	Completion Curettage	421
3.	CS	365
4.	LFE	175
5.	PBE	84
6.	Diagnostic Curettage	66
7.	TAH	65
8.	BTL	33
9.	Adnexectomy	29
10.	Placenta H-mole Evaluation Cutterage	8

10 Leading Causes of OPD Consultations

1.	Pregnancy Uterine Check-up	4057
2.	Post-Partum Follow-up	757
3.	Threatened Abort.	550
4.	UTI	488
5.	S/P Caesarean Section Follow-up	365
6.	Routine Pap's mear	120
7.	S/P Completion Curettage	100
8.	Cervicitis	85
9.	Ovarian Cyst	66
10.	No palpable gynecological findings - Early Pregnancy	50

ORTHOPEDICS DEPARTMENT

% of Occupancy	134.97%
Number of Admissions	420
Number of Discharges	417
Recovered/Improved	368
Unimproved	17
Transferred	21
Abs/HAMA	7
Died	4

Common Operations:

Debridement of Wounds	62
Closed Reduction	46
Skeletal Traction	22
Debridement & Tendon repair	11
Orthoplasty	7
Removal of plate	7
Plating of femur	6
Amputation	5
Removal of external fixation	5
Section biopsy	5

OPD Consultations	1462
ER Consultations	
Non-Admissions	420
Operations:	
Major	290
Minor	54

Leading Causes of Morbidity

Infection

ORTHOPEDICS

OPD Consultations - 4,462 - 2%

10 Leading Causes of Consultations

1.	Infection	850
2.	Fracture (all forms)	320
3.	Trauma (all forms)	185
4.	Pott's Disease	76
5.	Cellulitis	64
6.	Osteomyelitis	48

MEDICAL DEPARTMENT

% of Occupancy	81.50%
Number of Admissions	2642
Number of Discharges	2627
Recovered/Improved	1824
Unimproved	25
Transferred	111
Absconded/HAMA	64
Died	212

OPD Consultations	12166
ER Consultations	
Non-Admissions	5435

10 Leading Causes of Morbidity

1.	PTB	461
2.	Pneumonia	320
3.	CVD	181
4.	COPD	157
5.	Typhoid Fever	107
6.	PUD	104
7.	Ishemic Heart Disease	88
8.	Bronchial Asthma	95
9.	HPN	77
10.	Acute Gastroenteritis	67

OPD Consultations - 12,166 - 20%

10 Leading Causes of OPD Consultations

1.	PTB	3543
2.	Pneumonia	2023
3.	HPN	1250
4.	APD (Acid Peptic Disease)	1112
5.	Bronchitis	1010
6.	Bronchial Asthma	950
7.	UTI	625
8.	Arthritis	400
9.	CVD	325
10.	Anemia	180

10 Causes of Mortality

1.	CVD	38
2.	PTB	31
3.	Pneumonia	21
4.	AMI	14
5.	UGIB 2° PUD	9
6.	Liver Cirrhosis	7
7.	IHD in CHF	7
8.	TB Meningitis	6
9.	Cor Pulmonale	3
10.	VHD in CHF	3

ILOCOS REGIONAL HOSPITAL

DEPARTMENT OF ANESTHESIA

ANNUAL PERFORMANCE REPORT
1993

MONTH	GETA	GAIM	SAB	LAWS	EPIDURAL	GIVA	L A	REGIONAL	SEDN	TOTAL
JAN	75	8	96	2	4	23	-	2	24	234
FEB	82	10	92	5	-	22	1	-	26	238
MARCH	56	5	79	6	1	21	-	1	45	214
APRIL	71	8	75	4	1	8	-	-	44	211
MAY	71	26	90	-	2	17	-	-	36	242
JUNE	69	6	82	-	1	29	-	-	34	221
JULY	64	8	103	3	8	20	-	1	33	240
AUG	70	7	124	1	6	33	-	1	20	262
SEPT	63	8	120	-	1	38	1	-	23	254
OCT	59	10	88	2	1	36	-	1	7	204
NOV	61	24	87	-	6	24	1	1	20	224
DEC	67	18	59	2	2	20	-	-	35	203
TOTAL	808	138	1095	25	33	291	3	7	347	2747

STATISTICAL REPORT
January - December 1993

	No. of Beds	Adm.	Disch.	Total No. H/days	% of Occup.	Char.	Med.	Pay	Rec./ Imp.	Un- Imp.	TOH TOD	HAMA Abs	Died	OPERATIONS		CONSULTATION	
														Major	Minor	OPD	ER
Medical	40	2642	2627	11736	81.50%	2181	165	281	2215	25	111	64	212	-	-	12166	5435
Surgical Pedia		232	227	9002	100.02%	217	5	5	179	14	21	6	7	-	-	-	-
Surgical Adult	25	1130	1125			1050	34	41	920	64	25	44	72	771	4160	6064	4093
Obstetrics	30	2762	2752	9078		2568	106	78	2701	11	8	13	19			5382	656
Gynecology		708	706	2972	111.57%	653	40	13	685	4	2	11	4	1052	1855	2544	
Pediatrics	35	2615	2598	14915	154.74%	2404	124	70	2392	5	9	50	142	18159		19198	3219
Nursery (WB)		(1365)	(1365)	(3299(	-	(1329)	(3)	(33)	(1365)	-	-	-	-	-	-	-	-
SB		936	931	4580	-	921	2	8	846	0	11	3	71	-	-	-	-
Opthalmology		321	319	1892		286	21	12	235	44	17	10	13	125	19	3185	151
ENT	10	315	313	2309	116.69%	294	14	5	257	37	8	9	2	97	61	3836	529
Orthopedics	10	420	417	4859	134.97%	337	36	44	368	17	21	7	4	290	54	1462	110
Total	150	12075	12015	61343	112.00%	10911	547	557	10798	221	233	217	546	2335	6149	54646	14193

10 Leading Causes of Morbidity

1.	Pneumonia	1586
2.	Pregnancy Uterine FT	1492
3.	PTB	461
4.	MSAF (Meconium Stained Amniotic Fluid)	385
5.	Incomplete Abortion	380
6.	Multiple Lacerated Wd	370
7.	Bronchial Asthma	352
8.	Malnutrition	341
9.	Sepsis	337
10.	Trauma (all forms)	271

10 Leading Causes of Operations

1.	Appendectomy	168
2.	Exploratory Laparotomy	157
3.	TAH	65
4.	Debridement of Wounds	62
5.	Hemiotomy/Hemiorrhapy	52
6.	ECCE	46
7.	Closed Reduction	46
8.	Debridement (all forms)	43
9.	Salpingectomy	33
10.	Adnexectomy	29

(Not included is CS - 365)

10 Leading Causes of Mortality

1.	Sepsis	69
2.	Pneumonia	46
3.	CVD	38
4.	PTB	31
5.	Hypovolemic Shock	30
6.	Acute Myocardial Infrac.	16
7.	UCIB sec. to PUD	11
8.	Liver Cirrhosis	8
9.	IHD in CHF	8
10.	Massive Pneumothorax	8

ILOCOS REGIONAL HOSPITAL

STATISTICAL REPORT
COMPARATIVE DATA
(1988 - 1992) - (1993)

	1988	1989	1990	1991	1992	AVE	1993	Inc. (Dec.)
Ave. Occupancy Rate	93.30	99.54	101.58	102.00	106.97	100.68	112.00	11%
Ave. In-Patient Days/Yr.	51223	54483	55659	55720	58368	55145	61343	11%
Ave. OPD Visits/Yr.	48521	49108	47168	44569	48188	78851	60024	26%
Ave. Discharges/Yr.	8144	9538	9705	10130	10851	9874	12015	22%
Ave. Length of Stay/Pt	5.60	5.71	7.73	5.5	5.42	5.99	5.10	(15%)
Ave. No. of IP/day/yr	139.95	149.26	152.49	152.66	159.37	150.75	167.50	11%
Ave. Surgeries/Yr								
Major	1410	1590	1829	1786	2065	1736	2335	34%
Minor	10118	7048	7352	6562	6978	7312	6149	(10%)
Ave. Prescriptions Filled per Year	43539	65346	64550	46238	38522	51639	47597	(8%)
Ave. Radiology Exams/Yr	8419	9235	9818	10718	11889	10016	8789	(12.2%)
Ave. Lab. Exams/Yr	81574	117416	115242	105130	102348	104342	113956	9.2%

THE ILOCOS REGIONAL HOSPITAL

is now accepting applications for

RESIDENCIES AND FELLOWSHIPS

for Academic Year 1995 in

- **INTERNAL MEDICINE**
- **GENERAL SURGERY**
- **PEDIATRICS**
- **OBSTETRICS AND GYNECOLOGY**
- **RADIOLOGY**
- **ANESTHESIOLOGY**
- **PATHOLOGY**

Deadline for application - **AUGUST 27, 1994**
Written Examination - **SEPTEMBER 10, 1994**

at 9:00 A.M.

Part I - **GENERAL COVERAGE**
Part II - **SPECIALTY COVERAGE**

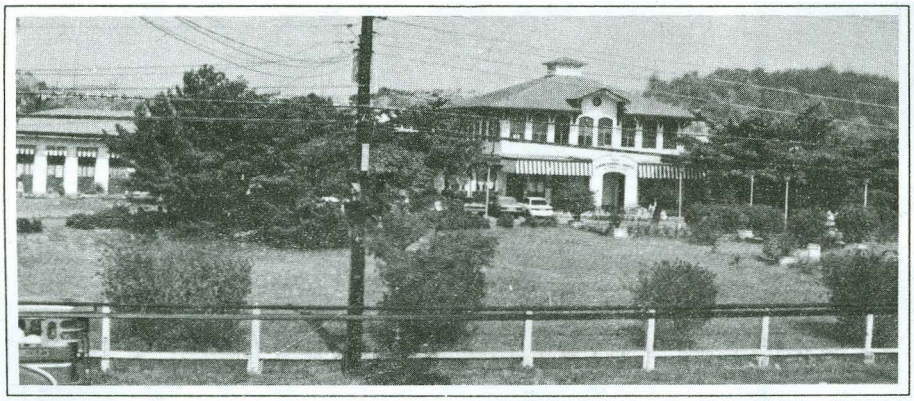
Place : **ILOCOS REGIONAL HOSPITAL CONFERENCE ROOM**
Oral Examination and Interview - **OCTOBER 1, 1993**

REQUIREMENTS CHECKLIST:

1. (1) Long brown envelope
2. (2) 2x2 passport size pictures
3. (1) Complete personal data, biodata or curriculum vitae
4. (1) Xeroxed copy of Medical School Diploma
5. (1) Xeroxed copy of PRC Certificate of Licensure to practice Medicine
6. (1) Xeroxed copy of Board rating or R.A. 1080
7. (1) Xeroxed copy of Transcript of records
8. (1) Xeroxed copy of class ranking from the Medical school
9. (1) Letter of recommendation from a former school Professor, if graduated recently.
10. (1) Letter of recommendation from a former employer, if currently or previously employed.
11. (1) Xeroxed copy of Certificate of Rural practice and/or volunteer if applicable.
12. (1) Xeroxed copy of Certificate of post graduate internship program.
13. (1) Xeroxed copy of Special awards, merits, distinctions, recognitions or the like if any.

All inquiries should be addressed to:

OFFICE OF TRAINING OFFICER
Ilocos Regional Hospital
San Fernando, La Union
Tel. No.: 41 - 2691 Local 02
41 - 2611 Local 02



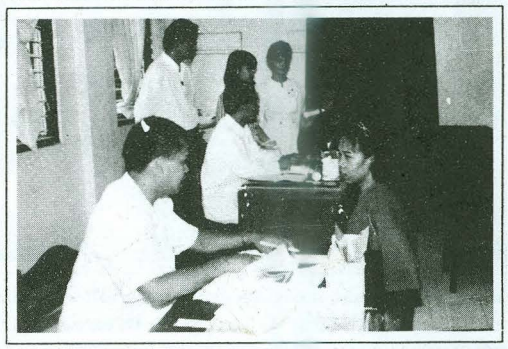
ILOCOS REGIONAL HOSPITAL

**Ospital...Sentro ng Kalusugan.
Pinoy Style. Atin Ito**

The Ilocos Regional Hospital Medical Team headed by the Chief of Hospital, Dr. Juanito Rubio seated at the center flanked by Dr. R. Aleta (Chief of Clinics), Dr. F. Astom (Training Officer), Consultants and residents.

The Dept. of Medicine Consultants and Residents. 1st Row (From L-R): Drs. S. Retuta, C. Dadat, G. Sibayan, R. Espinosa (Head), M. Bañez, R. Petrola, G. Castillo. 2nd Row (From L-R): Drs. M. Corpuz, Jr., R. Espinosa (Neurologist), B. Rivera (Pulmonologist), and S. Saprid (Diabetologist). Not in picture are Drs. R. Ramos (Psychiatrist) and Dr. Francisco Valdez (I.M.)

The Dept. of Surgery was recently re-accredited for residency training by the PCS Accreditation Board for another 4 years. Of course with the "Mighty Team" of Drs. N. Rimando (Head), Dr. R. Aleta (Consultant), and Dr. F. Astom (Training Officer). Behind them are the Surgical Residents. Standing first row from L-R: Drs. R. Navalta, C. Fernandez, M. Sandoval, G. Estandian. Second row from L-R: Drs. J. Bautista, H. Velasco, A. Bernal, S. Ordoño, and E. Biteng (not in picture).



Aside from daily conferences and bedside subspecialty rounds, subspecialty clinics at the Medical-OPD satisfies our goal to provide better quality health service to the people.

The Dept. of Pediatrics Consultants and Residents see to it that the latest trends in Pediatrics medicine are incorporated in every chart they discuss.

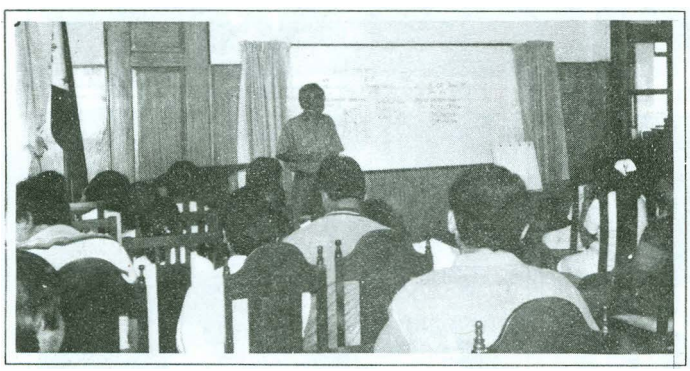
The Dept. of Pediatrics headed by the dynamic Dr. Hazel Balbido. Seated from L - R: Drs. C. Montemayor, J. Balderas-Gaerlan (Consultant), H. Balbido, M. Guzon-Castillo (Consultant) and J. Tangco. Standing from L - R: M. Corpus, M. J. Ruiz, L. Pascua, B. Si, D. Duque.

Inside the Operating Room, the doctors, nurses and IW's rely on each other for the ultimate goal - to save the patient.

After pre-operative assessment, the Dept. of Anesthesia has to work intra-operatively along with the surgical staff, in this case the Dept. of Ophthalmology.

The consultants and residents of the Dept. of Ophthalmology and Dept. of Otorhinolaryngology. From L-R: Drs. V. Butac, C. Ong, R. Asuncion (Ophthalmologist), E. Cosalan (ENT), Intern E. Banaña, A. Asoy, M. Floresca.

The man behind the lovely M.D.'s, Dr. Rey Macusi (Head of the Dept. of Obstetrics), flanked by the OB-Gyne Residents. From L - R: Drs. R. Rosal, J. Ellasus, B. Paraoan, A. Valdez (Consultant), Dr. Macusi, E. Lapitan, C. Montemayor, F. Juloya. Not in picture is Dr. Alexander Alviar, the Departments' training officer.



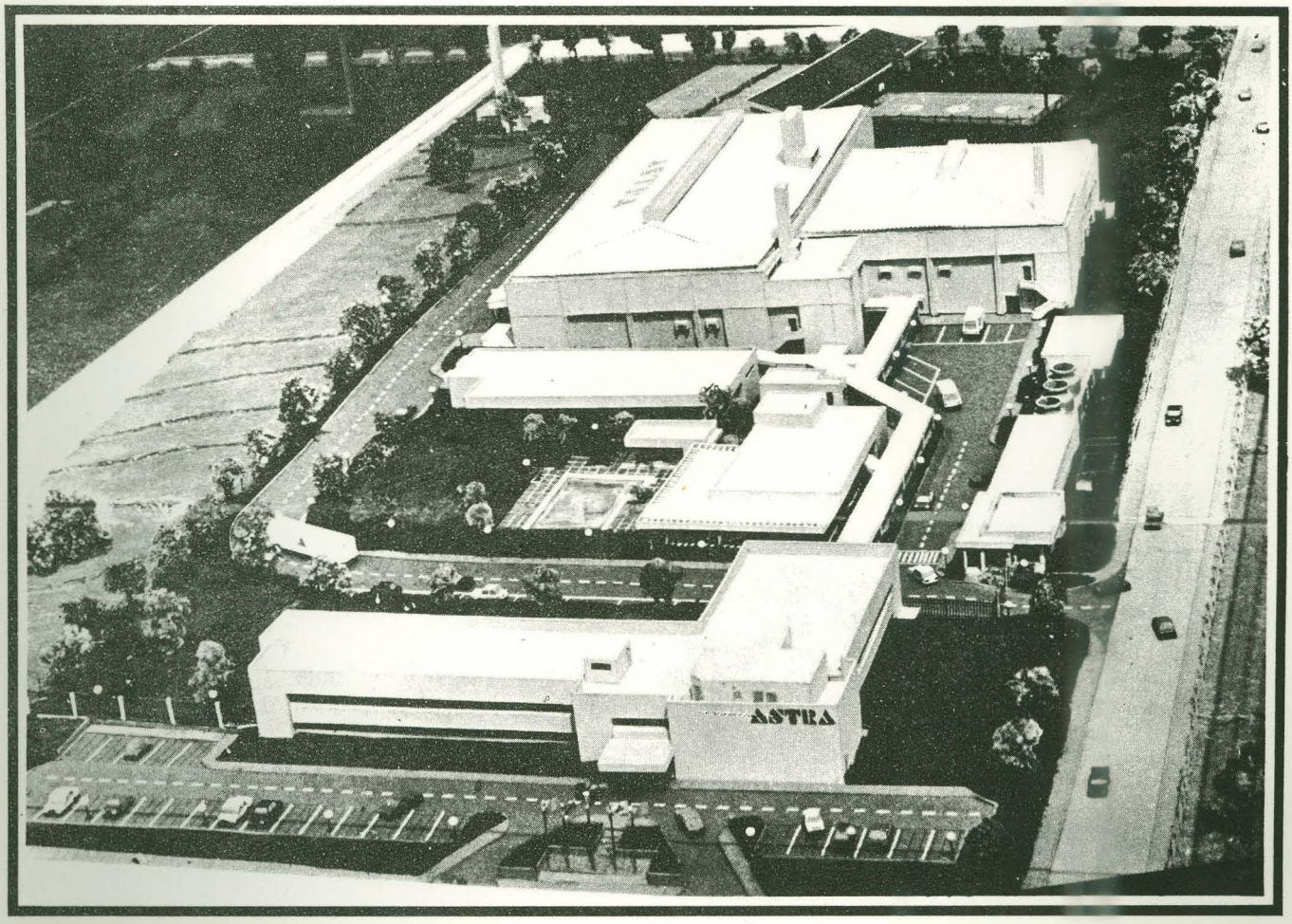
Dr. Fernando Astom, the energetic training officer of the IRH Residents, presides over the weekly Wednesday conferences seeing to it that every resident will gain knowledge after every conference.

Dr. Jerome Gaerlan (Head) and Dr. M. Timmalog (Resident) of the Dept. of Radiology performing ultrasound examination on a patient.

After the day's energy-draining laboratory work, the Dept. of Laboratory still manages to balance it with sports, headed of course by the sportsminded Dr. Gilbert de Leon, assisted by Dr. M. Retuta (Resident) and Mrs. M. del Rosario.

With a sweet smile on their faces, the Medical Staff of the Dept. of Anesthesia. Seated from L-R: Drs. W. Dy, R. Fangonil (head), L. Gandia. Standing from L-R: Drs. G. Agcon (Consultant), S. Seguhan, L. de Vera, S. Reyes (Consultant).

SHARING SWEDISH QUALITY IN RESEARCH AND TECHNOLOGY



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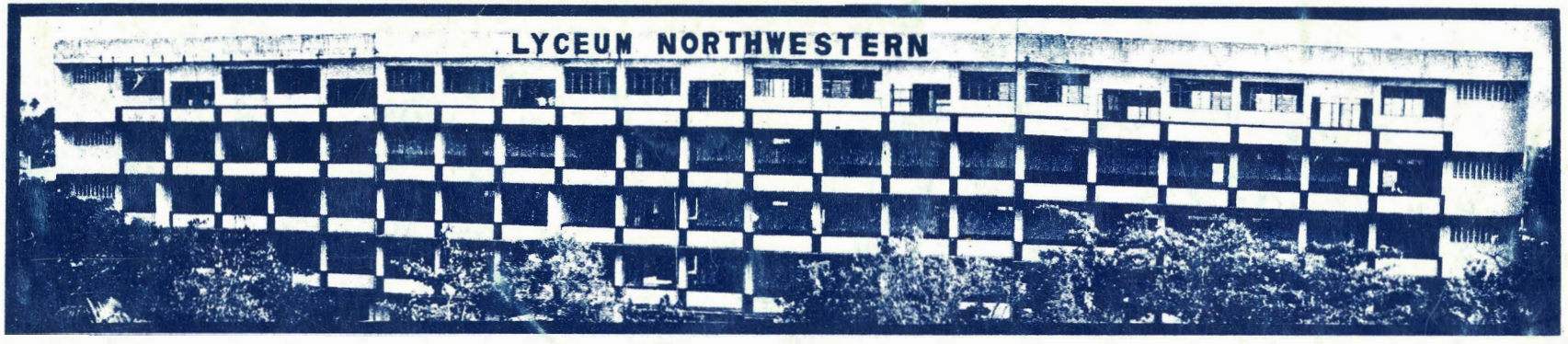
Secretary of Health, 1961 - 64
Governor of Pangasinan, 1963 - 67
President, Philippine Medical Association

MRS. FLORENCIA T. DUQUE, M.A.
President & Co-Founder
Lyceum - Northwestern, 1969
President, Univ. of Pangasinan, 1989



COURSES OFFERED:

Doctor of Medicine * Doctor of Dental Medicine * Doctor of Optometry * Master of Arts in Education * Master in Business Administration * BS Physical Therapy * BS Civil Engineering * BS Electrical Engineering * BS Electronics Communication Engineering * BS Medical Technology * BS Chemistry * BS Biology * BS Nursing * BS Pharmacy * BS Radiologic Technology * BS Computer Science * Bachelor of Arts (Major in: Political Science, English, History) * BS in Accountacy * BS Commerce * BS Elementary Education * BS Criminology * BS Psychology * Three-Year Associate in Radiologic Technology * Two-Year Course in Pre-Dental * Two-Year in Midwifery * Two-Year in Junior Secretarial * Two-Year Certificate in Electrical Technology * Two-Year Electronics Technology * Two-Year Nursing and Health Aide * Two-Year GRCO * Two-Year Pharmacy Aide * Two-Year Medical Secretarial * One-Year Refrigeration and Air-Conditioning * One-Year Automotive Diesel Mechanics * One-Year Health Aide * Computer * Special Science High School * FQD. Special Science High School * General High School * Montessori

NEW COURSES OFFERED FOR 1993-1994

Doctor of Education * Master of Arts in Public Administration * Master of Arts in Public Health * Master of Science in Nursing * BS in Computer Engineering * BS in Geodetic Engineering * BS in Mechanical Engineering * BS Marine Transportation * BS Marine Engineering * Associate in Marine Transportation (2 yrs) * Associate in Marine Engineering (2 yrs.) * One-Year Basic Seaman Course * BS Tourism Major in Hotel Restaurant and Resort Management * BS Tourism Major in Travel Management * Three-Years Associate in Pulmonary Therapy

Tapuac District, Dagupan City o Tel Nos. 48-56, 41-36, 28-25, 42-04