Vol. XXIX No. 4 June, 1975

The Medical Journal of Malaysia

CONTENTS Page

Editorial

To serve all the People

By Paul C.Y. Chen

A FEW DECADES AGO, it seemed natural in developing countries to accept the fact that medical technological capability was limited to the provision of health care for relatively small numbers of people. To-day the challenge is to provide effective health care for all the people. We have arrived at a time in history when the people are finding a voice with which to demand their share of what the modern world has to offer. But there are many obstacles to providing effective health care for all the people. Limitations of resources must top any list of obstacles. The interlocking scarcities of money, personnel, and materials make it impossible to reach some areas of need and reduce other efforts to very thinly stretched frameworks. Inspite of the great strides we have made, about half of our rural people remain outside our present system of health care.

Scarcity of money

Scarcity of money is the major constraint on the provision of health care. It determines the design of our health services, the effectiveness of our delivery systems and the roles of our health manpower. In 1971 the Federal Government spent $ 231,674,692 on the health services, but this amounted to only $ 22 per capita of the population. It is obvious that in such a situation there is a great need to obtain the maximum for each dollar spent on health.

Intuition versus professional managerial capability

The decision to try to improve the health of all the people within the constraints posed by limited resources raises enourmous organizational and technical questions. In the past, when the aim was merely to provide health care for a few, intuitive management sufficed. Today the same is no longer true. Intuition is no substitute for professional managerial and planning capability. Recent developments in the field of management and health planning in such areas as, systems analysis, operations research, health economics, the demand-need problem, and hospital systems planning, have begun to have increasing impact on all levels of decision-making in the health field. To develop systems of health care that are effective and geared to serve all the people will require, research, innovations and considerable managerial skills. Long-term studies with careful evaluation of alternative systems are needed.

Paramedicals and auxiliaries

Few would dispute the fact that paramedicals (e.g. nurses, hospital assistants, radiographers etc.) as well as auxiliaries (e.g. midwives, assistant nurses, public health overseers, junior laboratory assistants etc) play a crucial role in the provision of health care. Doctors are expensive to produce as well as to employ. In Malaysia, doctors cost two to five times more than paramedicals and four to nine times more than auxiliaries per working day. Not only must doctors be paid high salaries, but the requisite professional and social environment has also to be supplied. This can be provided in the major towns but not in rural areas. Further, it is uneconomical to employ highly trained professionals in work which paramedicals and auxiliaries are capable of performing. In addition, there is a need for paramedicals and auxiliaries to carry out simple technical procedures that do not necessarily require the attention of qualified doctors. In 1971, personal emoluments

accounted for 73.9% of the operating expenses of the Ministry of Health (Fig.). Thus a heavy dependance upon fully trained professional personnel will severely handicap the implementation of programmes designed to provide total coverage. Attempts to emulate western standards of high quality must necessarily adversely affect the extent of coverage and will only result in a return to the old efforts of health care for a relatively small number of people. Will we be able to meet the the present challenge by discarding old ways or will we do what we have done before.

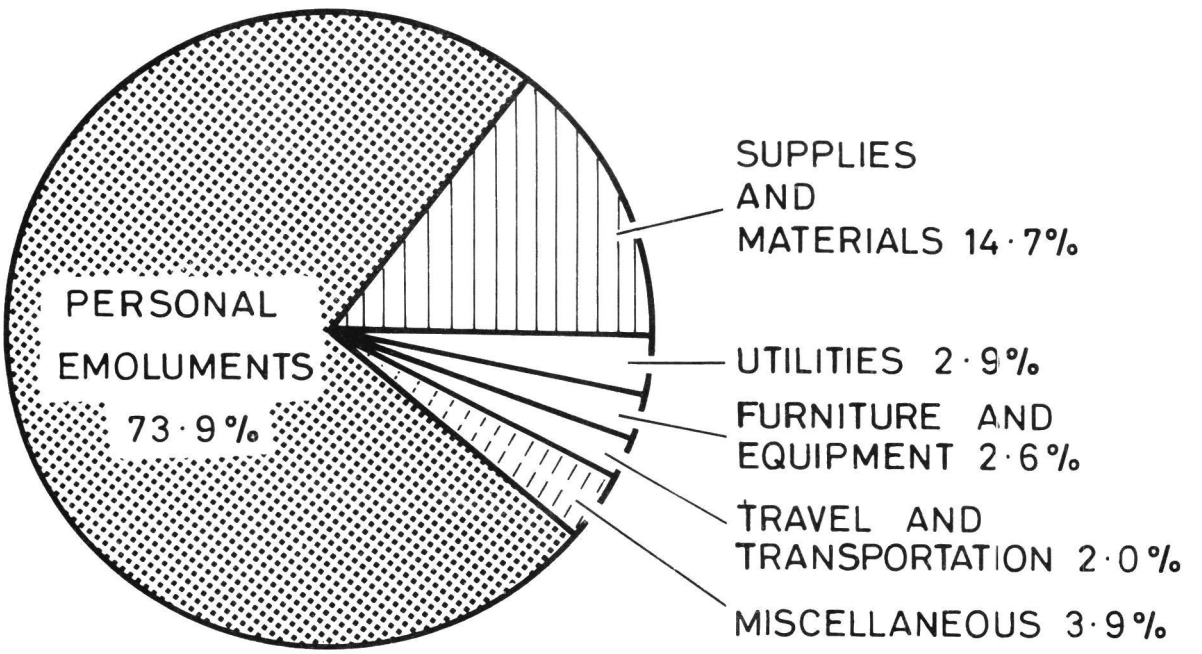

Fig. Break-down of operating costs of the Federal Health Service, 1971, according to six major headings.

Professional resistance

In some countries where professional groups welcome paramedicals and auxiliaries in some roles, they vigorously oppose the delegation of certain of their traditional responsibilities. The most sensitive of these is the responsibility for the diagnosis and management of illness. Only if the doctor can delegate the responsibility for seeing large numbers of people with simple illness will he have the time and energy to take care of the few with serious illness and to lead his workers in providing comprehensive health care.

Inability to apply technical know-how

There is little doubt that there is an abundance of drugs, vaccines, instruments and techniques at the command of modern medicine. Yet, what is striking is not so much a lack of these as our inability to apply them on traditional societies to produce the desired effect. Thus, inspite of our considerable knowledge about diphtheria, dengue, filariasis, malnutrition, and venereal disease, these disease have continued to burden us. Our capability to bring technical knowledge to bear on people who need them most is seriously limited. Dazzling contributions

have been made to our technical knowledge but comparativley little has been contributed to the field of knowledge concerned with human behaviour, customs and culture and the ways in which people live their lives. Yet the success or failure of so much of our costly efforts will depend on our ability to influence the behaviour of people.

The challenges that face us, if we are to serve all the people rather than a few are basically attitudinal and call for new forms of professional capabilities, new standards of what is meant by quality, new roles, and new approaches in our efforts to deliver health care.

Media selection for education in the allied health sciences

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INTRODUCTION

Communicating information and ideas is an important function of personnel in the field of the allied health sciences. Communications take place between these personnel and their patients, their patients' family, and society at large. If they are the staff of educational or training institutions, they also have to communicate with their trainees, be they public health inspectors, nurses, medical students, or doctors engaged in postgraduate studies. Traditionally, the medium for communication has been the unassisted human voice: the doctor or nurse talks to the patient; the public health inspector discusses a problem with a group of villagers; the medical teacher lectures to his students.

With advancing technology, various supplementary or alternative media and media systems (Teoh, 1973) are now available. Most of these are particularly useful in institutions where education and training in the allied health sciences are carried out. However, with the availability of these media, the question of selection arises. How does one select the most effective media or combination of media for a particular learning or teaching situation?

Currently, 35 mm slides and 16 mm films are being used in medical and nursing education courses. Increasingly, the overhead projector is being used as a replacement for the chalkboard or as a means of projecting a hastily-prepared transparency containing a mass of data to be presented. Slides and films are shown because they contain illustrations (usually obtained from text-books) which happen to emphasize certain ideas or concepts within the prescribed syllabus. There seems to be little active consideration as to whether these media systems are suitable or not for the particular learning situation.

As the trend moves towards the using of learning packages as a supplement to or a replacement for the traditional lecture or for revision by individual students, the proper selection of appropriate media systems for these purposes becomes more important in the attempt to create the most effective learning situation.

Several schemes for media selection have been proposed (Briggs, 1970; Goodman, 1971; Merrill and Goodman, 1972) which have been available to educationists for some time now. However, these schemes do not seem to have been disseminated to any great extent to teachers in the allied health sciences. Most of these schemes are fairly complicated and there is an apparent need to simplify and present them in a summarised form so that teachers in the allied health sciences (who are not primarily specialists in instructional media) may utilise them to enhance the effectiveness of their instruction.

The objective of this paper, then, is to consider the procedures involved in media selection and to present a simplified scheme for the selection of media

systems which can be easily used by teachers in the allied health science field.

PROCEDURAL CONSIDERATIONS IN MEDIA SELECTION

Except for the occasions when real or models of real objects or subjects are used with the accompaniment of the live voice (as in a lecture), media systems usually require mechanical, electrical or electronic presentation devices which serve to amplify sound or make visible pictures. In order to allow a system to work, a program or software package must be available. Hence the components of a media system are the medium itself, the program and the presentation device.

PROCEDURAL MODEL OF MEDIA SELECTION

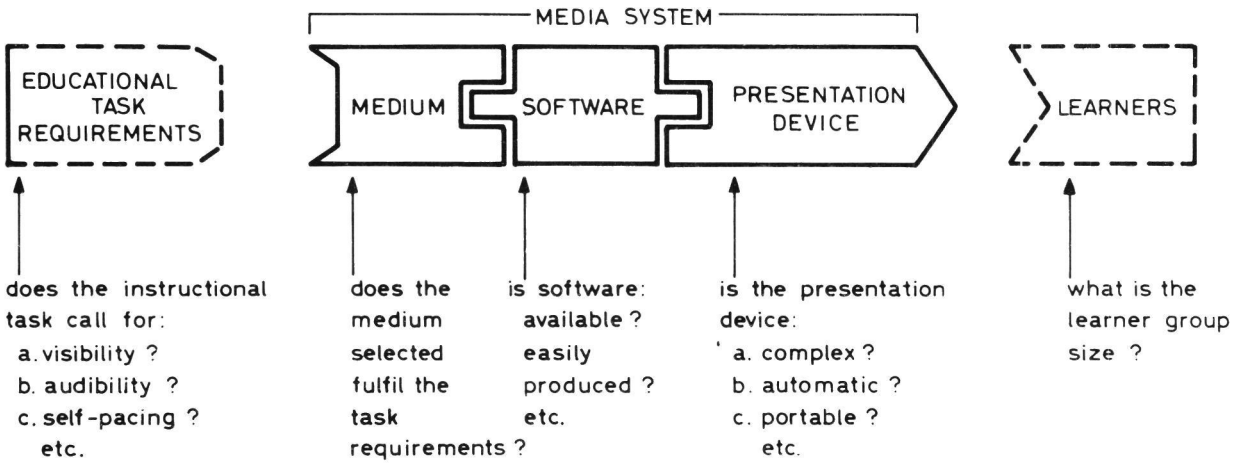

Fig. 1

In order to consider which media system would be appropriate for a particular teaching-learning session, the educational task or content requirements will have to be considered first. This step starts the procedural model of media selection (Fig. 1) in progress. For each component of the model, questions regarding facilitating and constraining factors or requirements are asked. These may be listed as follows:

1. Educational task: this component comprises the instructional requirements that are determined by the content material to be transmitted. These requirements will dictate the appropriateness of each media system considered. Some of the common instructional requirements may be listed as follows:
   a. Visibility – whether the material to be presented requires that it be seen by the students.
   b. Audibility – whether the material is to be heard by the students.
   c. Self-pacing – can the medium selected permit the student to pace himself when progressing through the content material.
   d. Response – whether the medium selected can incorporate a demand for a response from the student.
   e. Motion – is motion required in the presentation of the content material?
   f. Time expansion and contraction – certain units of instruction may require a procedure to be shown in expended time i.e. in "slow motion" whilst others may require time contraction as in time-lapse photography where an event that takes a long time to occur can be speeded up in order to allow the students to see it in its entirety in a few seconds. Only certain media systems are capable of this procedure.

g. Fixed presentation – whether the media systems allow the content material to be presented in stages that follow one after another.
h. Flexible presentation – denotes whether the teacher can rearrange the sequence of presentation at any time during the teaching session.
i. Sequential disclosure – at times it is necessary that the subject material be presented in sequential bits so that a principle or concept can be built up. All media systems should be capable of allowing this procedure.
j. Repeatability – it may be necessary to repeat the unit of instruction for multiple classes after varing periods of time. Can the medium selected for presentation allow this?

2. Learner group size: this is important as certain media are not suitable for large audiences unless they are coupled with other media systems. For example a demonstration in any anatomy dissection session cannot be seen by a hundred students in a class unless it is televised or filmed and then presented.
3. Software: this component carries the stage of media selection one stage further. After the consideration of educational task requirements and audience size, it is possible that a small number of alternative media systems are deemed suitable for a particular presentation. In order to present the subject material, software or programs must be available. Careful considerations concerning software includes:
   a. availability – whether prepared programs are available easily or can be adapted for use?
   b. ease of local production – should prepared software be unavailable, can these be prepared locally?
   c. reusability – once prepared, can these software by used over again?
4. Operational characteristics: these are important because presentation devices associated with the selected media system have to be operated. Certain constraining factors prevent the use of these presentation devices thus making the whole system inoperable. For example, if the darkening of the lecture hall is required and this is not possible, the system cannot be selected. The equipment may be complex in its operation and trained staff are not available; this prevents the use of the system. The unit of instruction may have to be presented away from the school or institution and the equipment is not portable and none exists locally. These operation characteristics are listed in Fig. 2.

SCHEME FOR MEDIA SELECTION

The proposed scheme for media selection is presented in the form of a table of criteria (Fig. 2).

The medium under consideration is presented on the lefthand marginal column of the table whilst the associated presentation device (s) is (are) listed on the right-hand marginal column. For each medium there may be more than one type of presentation device utilising a different format. The frame work (situational) and instructional factors are the column headings. These are grouped into four categories which in turn contain the various factors or requirements considered earlier. The body of the table describes the applicability or suitability of each medium (with the attendant presentation device) to these factors and requirements.

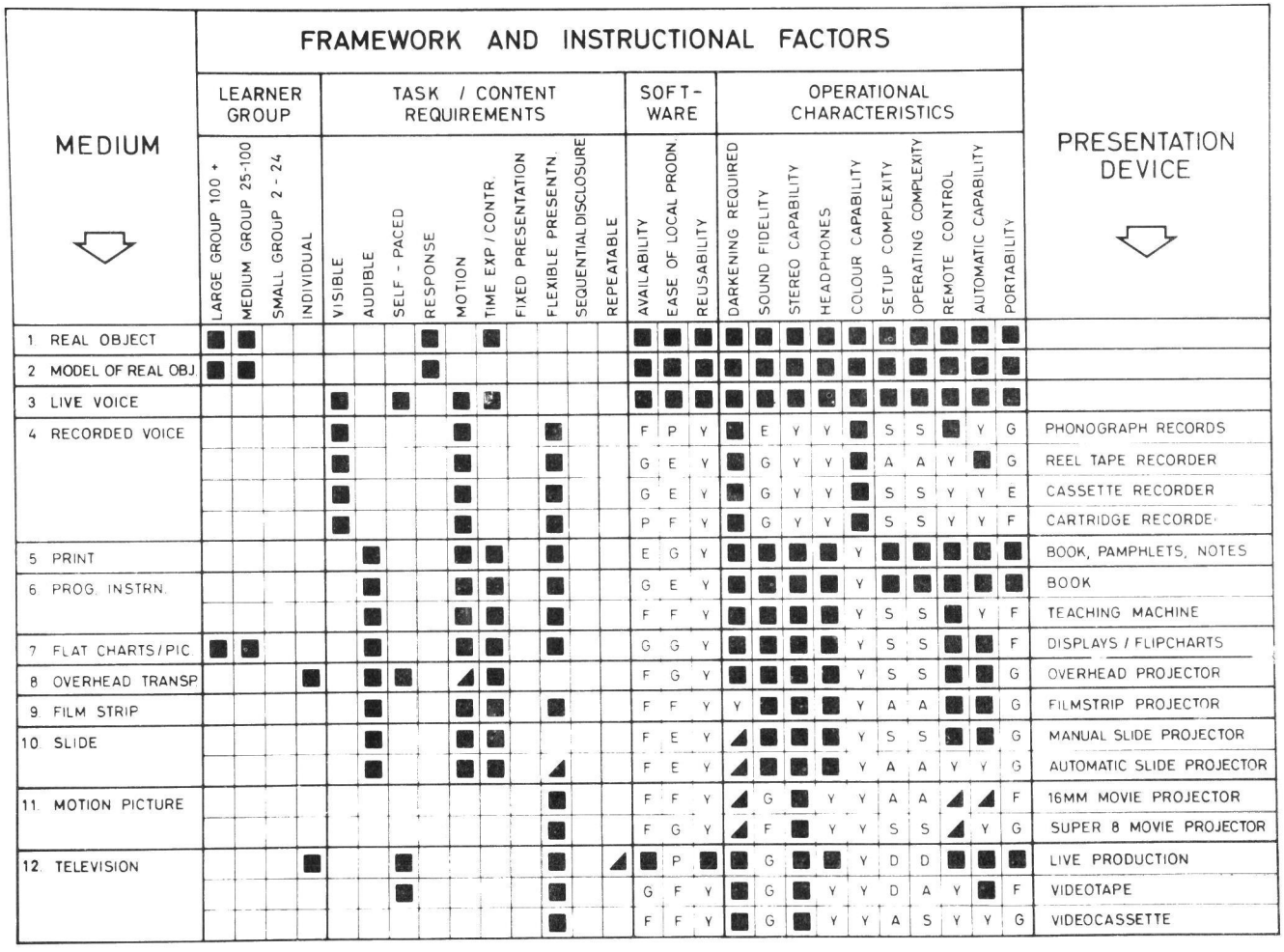

Fig. 2 Table of criteria for media system selection

To use the table, consider first the learner group size at which the unit of instruction is aimed. This may eliminate certain media as unsuitable. Then consider what the educational task requirements are. This would indicate which media systems are more suitable than others. From this shortened list of suitable media systems, consider the software factors for each. This procedure should eliminate some of the systems under consideration as software may not be available nor can they be produced. With the remaining suitable systems, then determine the operational characteristics of each. This last step should indicate what media system is most suitable and practical for the particular learning or teaching situation.

As an example, let it be assumed that a learning package is planned to allow medical students in the clinical years, either individually or in small groups to view the technique of performing a lumbar puncture and to listen to a commentary on the various steps at the same time. It is also assured that this package will be freely available to the students who can make use of it at their own time with suitable presentation devices located in a library. The steps taken in trying to select the appropriate media system for presenting this package may take the following course (utilising the table of criteria in Fig. 2). Initially, the learner group size and educational task requirements are considered. This may be represented in a tabular form thus:

Factor Considered	Requirement Yes	No	Preferable		Media System Applicable
1. Small group or individual	+				
2. Visibility	+			)	all if combined
3. Audibility	+			)	
4. Self-pacing	+				
5. Response		+			
6. Motion	+			)	restricted to movie and TV with sound
7. Time expansion			+	)	
8. Fixed presentation	+				
9. Flexible presentation		+			
10. Seq. Disclosure	+				
11. Repeatability	+				

After a consideration of the above factors, it is seen that the only media systems that are appropriate are sound motion pictures and television. Software factors for these two media systems are now considered. It is probable that already prepared programs are not locally available at this point in time. Thus it is possible that this program has to be prepared locally. The easiest production methods are those associated with the Super 8 mm film although other formats in the two appropriate media systems can also be utilised.

The Super 8 mm format can be wound into a film loop and stored in a cassette which can be easily played back by the student repeatedly. The sound track for the commentary can also be easily striped on the film or film with an incorporated blank sound track can be used and the commentary added directly. From Fig. 2 it is seen that the Super 8 mm projector can be fitted with head-phones for individual use or connected to a speaker for small groups. It is fairly good in sound fidelity, simple to set up and to operate. It is also portable.

Therefore, the most suitable media system for the presentation of this particular learning package on the technique of the lumbar puncture in the Super 8 mm movie film is the film-loop cassette format.

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Current views on the management of pregnancy toxaemia and eclampsia *

A Clinico-Pathological Review

By
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Toxaemia of Pregnancy and Eclampsia are still major problems in clinical obstetric practice in most countries of the world, and the pattern in the Asian region is no exception. Toxaemia of Pregnancy with its many pathological sequelae is still a major cause of maternal mortality and fetal wastage in Asia. But the problems of obstetric morbidity, (both apparent and hidden), seen in association with toxaemia of pregnancy, is considerably more extensive than the overtly apparent maternal and fetal mortality states. Therefore, it is not only pertinent, but also desirable, to briefly review the fetal and maternal hazards of pregnancy toxaemias including eclampsia, from a clinico-pathological viewpoint, before embarking on the current views concerning the management of this broad group of conditions.

FETAL HAZARDS

TABLE 1

FETAL HAZARDS

1. LOW BIRTH-WEIGHT BABY – Due to:
   - (a) Premature
   - (b) Dysmature
2. STILLBIRTH – Can Be:
   - (a) Macerated
   - (b) Fresh
3. ASPHYXIATED NEWBORN – Due to:
   - (a) Placental Insufficiency
     - (i) chronic (ii) acute
   - (b) Accidental Haemorrhage
   - (c) Narcotic Neonatal Depression
4. NEONATAL MORTALITY – Due to:
   - (a) Asphyxia Neonatorum
   - (b) Low Birth-Weight
   - (c) Neonatal Infection
   - (d) Metabolic Derangement

In Table I is summarised the possible clinico-pathological hazards that can be encountered by the fetus in pregnancy toxaemia, any one or more of which can contribute to perinatal mortality or to increasing neonatal morbidity.

* Paper read at the Seminar on "Hypertensive Disorders and Pregnancy Toxaemias including Eclampsia", sponsored jointly by Roche Far East Research Foundation and VI Asian Congress of Obstetrics & Gynaecology Organising Committee, and held in Kuala Lumpur on 20th July 1974.

MATERNAL HAZARDS

TABLE II

MATERNAL HAZARDS

MATERNAL MORBIDITY
1. Eclampsia
2. Hypertensive Encephalopathy
3. Accidental Haemorrhage can result in:
(a) Haemorrhage
(b) Shock
(c) Acute Renal Failure
(d) Post-Partum Haemorrhage
(e) Hypo-Coagulopathy Problems
MATERNAL MORTALITY:
Can arise from any one or more of the above-mentioned morbidity states

In Table II is summarised, the possible clinico-pathological hazards that can be encountered by the mother in pregnancy toxaemias; any one or more of which can contribute to maternal mortality or to increasing maternal morbidity.

GENERAL FACTORS CONTRIBUTING TOWARDS REDUCTION IN MATERNAL AND FETAL HAZARDS IN TOXAEMIA OF PREGNANCY.

TABLE III

FACTORS CONTRIBUTING TOWARDS REDUCTION IN MATERNAL AND FETAL HAZARDS IN TOXAEMIA OF PREGNANCY

1.	Socio-Economic Enhancement	
2.	Health Education:	
	(a) Medical Staff	
	(b) Patients	
3.	Adequate Obstetric Services:	
	(a) Antenatal Outpatient	(Preventive Medicine)
	Inpatient	
	(b) Intra-Partum Care	
	(c) Flying Squad Service	
4.	Supportive Medical Social Services	
5.	Family Planning Services	
6.	Supportive Paediatric Neonatal Services	
7.	Supportive Maternal Intensive Care	

In Table III is summarised the possible factors that can contribute towards the reduction in not only the more apparent maternal and fetal mortality causes but also the less apparent (but more extensive) maternal and fetal morbidity states, seen in association with pregnancy toxaemias. The contents of Table III are self - explanatory.

With this brief review and understanding of the clinico-pathological problems of pregnancy toxaemias, the pronciples governing the management of pregnancy toxaemias can now be more readily rationalised and appreciated.

RECENT ADVANCES IN THE MANAGEMENT OF PRE-ECLAMPTIC TOXAEMIA OF PREGNANCY

TABLE IV

RECENT ADVANCES IN THE MANAGEMENT OF PRE-ECLAMPTIC TOXAEMIA OF PREGNANCY

1.	Liberal Use of Ante-Natal Care – Preventive Medicine
2.	Serial Assessemnt of Endocrinal State of Foeto-Placental Unit
3.	Amniotic Fluid Biochemistry
4.	Serial Amnioscopy/Amniocentesis Assessment
5.	Continuous Electronic Monitoring of FH/Uterine Contractions in Labour
6.	Foetal Blood Sampling in Labour
7.	Liberal Philosophy of Planned Premature Delivery by:–
	(a) Induction of Labour
	(b) Elective LSCS and
	(c) Emergency LSCS/Forceps Delivery
8.	Intensive Neonatal Paediatric Care:–
	(a) At Delivery
	(b) In Special Care Nursery
9.	Use of Hypotensive Drugs

In Table IV is summarised the principles concerned with the "Recent Advances in the Management of Pre-Eclamptic Toxaemia of Pregnancy." It will be noted that these principles are concerned with the careful monitoring of the mother and the unborn fetus, for the early detection of the hazards of pregnancy toxaemias, both in the antepartum and in the intra-partum phases of pregnancy. The liberal philosophy of planned premature delivery of the fetus-at-risk, at the opportune moment, by premature induction of labour, caesarean section or assisted vaginal delivery, together with the intensive paediatric neonatal care of the high-risk neonate, have contributed towards the significantly improved fetal salvage is pregnnacy toxaemias in recent years.

The judicious use of hypotensive and tranquilli - sing therapeutic agents has helped to considerably reduce maternal morbidity in pregnancy toxaemias, and hence, indirectly prevent maternal deaths. But their contribution towards fetal salvage in pregnancy toxaemias is both debatable and doubtful.

RECENT ADVANCES IN THE MANAGEMENT OF ECLAMPSIA

TABLE V

RECENT ADVANCES IN THE MANAGEMENT OF ECLAMPSIA

1.	"PREVENTION IS BETTER THAN CURE"
2.	Flying Squad Service
3.	Intensive Care of the Eclamptic Patient
4.	"Lytic" Cocktails – multiple varieties with a common objective
5.	Hypotensive Agents
6.	Planned Termination of Pregnancy
	(a) At Opportune Moment
	(b) Method of Termination
7.	Advances in Anaesthesiology
8.	Intensive Neonatal Paediatric Care

In Table V is summarised the principles concerned with the "Recent Advances in the Management of Eclampsia". The importance of "preventing" the onset of "eclampsia" by the proper management of preeclampsia and chronic hypertension in pregnant women is quite obvious and requires little re-emphasis. The other principles, as detailed in Table V, are concerned primarily with the intensive monitoring of the "high-risk" mother to prevent maternal death, as well as the intensive paediatric care of the devitalised neonate.

FETAL INTENSIVE CARE

TABLE VI

FOETAL INTENSIVE CARE

1.	In the Antepartum Period
2.	In the Intrapartum Period
3.	Immediately at Birth
4.	In the Special Care Nursery

The role of "Fetal Intensive Care" in the management of pregnancy toxaemias for the attainment of maximal fetal salvage is well recognised. "Fetal Intensive Care," in its broadest sense, includes the comprehensive monitoring of the fetus in the antepartum and intrapartum phases of the pregnancy; in addition it includes the resuscitation of the asphyxiated fetus at birth and the continued care of "high-risk" newborn in the Special Care Nursery (Table VI). Such a programme of "Fetal Intensive Care" calls for collaborative teamwork between obstetrician, paediatrician, clinical biochemist, anaesthetist, and special care nursing staff, if maximal fetal salvage is to be attained.

SUMMARY

1. The fetal hazards of pregnancy toxaemias are listed and discussed.
2. The maternal hazards of pregnancy toxaemias are listed and discussed.
3. The general factors contributing towards the reduction in maternal and fetal hazards in toxaemias of pregnancy are reviewed.
4. Recent advances in the management of pre-eclamptic toxaemia of pregnancy are reviewed.
5. Recent advances in the management of eclampsia are reviewed.
6. The concept of "Fetal Intensive Care" and its role in improving fetal salvage in pregnancy toxaemias are high-lighted.

Schizophrenia and academic performance

by
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SYNOPSIS

Over a period of eighteen academic sessions from 1956 through 1973, 14,652 full-time freshmen gained admission to various courses available in this University. Longitudinal follow-up of the total intake till August 1974 revealed that 75 or 0.51 per cent developed overt schizophrenia. Their family and social background and other contributory factors leading to the precipitation of the disease are described in brief. Post-treatment prognosis of those with acute onset was more favourable than that of chronic hebephrenic types.

The attrition or dropout rate including 5 cases who committed suicide was as high as 66.67. They were either superannuated because of repeated failures or were obliged to withdraw because of inability to cope with stresses and strains of the university life which resulted in relapses. The dropout rates could not be regarded as final, because 9 known schizophrenics are still on the enrolment list and a certain per cent of those who joined the University after 1969 and currently attending various courses are at morbidity risk.

INTRODUCTION

Among the major psychotic illnesses which are the most academically crippling to the students, the greatest number are those which fall in the broad category of schizophrenia. Schizophrenia has been known to start in childhood and is found at any age onwards; but its maximum rate is noted in adolescence and early adulthood, the age group to which university students belong. The object of this prospective study was to determine the pattern of schizophrenic syndrome in this university's students and to ascertain the extent to which it produced adverse effects on their academic performance.

REVIEW OF LITERATURE

In a university setting schizophrenia is the most prevalent of the major psychoses. In a recent examination of the existing material on prevalence and incidence, Mishler and Scotch as quoted by Noyes (1968) conclude that at any moment 0.3 per cent of the general population are suffering from the distur-

bance, 0.15 per cent of the population are likely to experience its development and 0.02 per cent are admitted to hospitals with schizophrenia for the first time. Calculations made from various epidemiological surveys give the morbidity risk for the syndrome as 1.0 per cent. Morbidity risk is defined as the total risk of becoming manifestly ill for all persons surviving the age period of 15 to 45 years, when the disease is customarily recognised (Kolb, 1968). The condition is found almost universally and its incidence in any one country is considered to be not very far from this fugure. In a survey of their English general practice, Hewetson et al (1963) reported its incidence to be as high as 1.7 per cent. In the absence of any controlled survey of mental diseases the exact incidence of the disease in the general populations of Singapore and Malaysia are not known. According to Farnsworth (1966) no reliable data exist as to the incidence of psychotic illness among American university students, but estimates made by those who are familiar with the problem indicate that for every 1,000 students about two or three will develop such an illness each year. Carmen (1965) carried out a study of 35 psychotic Harvard undergraduates from 1955 to 1959; of these two-thirds suffered from schizophrenia and the remainder were severely depressed. The incidence of diagnosed psychosis at Cornell University for 1958-59 was 0.24 per cent of the student population (Braaten, 1961). Its rate of prevalence at the University of Leeds in England was reported by Still (1959) to be 0.32 per cent. In a prospective inquiry carried out on a total cohort of 1,555 first year students at the University of Edinburgh by Cecil B. Kidd (1965) 0.45 per cent were reported to have been diagnosed as schizophrenics.

PROCEDURE

The study concerned all the freshmen who entered the University during the eighteen academic sessions between October 1956 to July 1973. Their ages ranged from 18 to 20 years. The period of longitudinal follow-up of the entire intake spanned from October 1956 to August 1974. The psychiatric evaluation of all the victims was undertaken by a University Health Service physician experienced in the field of mental health, and at least one psychiatrist attached to a hospital or in private practice. The sample consisted of only established schizophrenics, while all borderline cases who many a time constitute difficult diagnostic problem even for experienced psychiatrists were eliminated from the project. Because it has been acknowledged that non-psychotic emotional disorders of adolescence such as crises of ego identification, emotional turmoil and instability are not easy to differentiate from early schizophrenia (Kolb, 1968).

RESULTS

Over the eighteen academic sessions from 1956 to 1973, 14,652 (male 8,861 and female 5,791) freshmen entered various courses of study available here. Of this group longitudinally followed up till August 1974, 75 students or 0.51 per cent manifested frank schizophrenia. The figure of 75 cases could not be considered as final, because the freshmen who gained entry to the first year of their respective courses within past four to five sessions are still in the University, and therefore, have not been under surveillance for the entire duration of their academic careers. Moreover, it would be premature to draw conclusions with regard to the academic prognosis and ability to acquire qualifications by those students whose studies were interrupted because of the disease, but are still on the University's enrolment list. The number could have been slightly higher, because some patients might have preferred to seek treatment from outside psychiatric sources without going through the University Health Service, and then might have withdrawn from studies giving non-psychiatric reasons. Among the women students who during the course of survey contributed two-fifths of the university population, there were 19 cases; whereas of the males who formed three-fifths of the student body 56 cases developed the illness. Table I reveals that 29 cases were initially detected by a University Health Physician. The remaining 46 were referred to the Health Centre by their teachers or guardians, or their own classmates and friends, or family doctors.

Family and Social Background

Kallmann as quoted by Kolb (1968) is of the opinion that development of schizophrenia takes place as a result of a complex interplay of constitutional and environmental factors. It is significant that in almost all cases the medical reports which they were obliged to submit prior to matriculation, previous histories of personal nervous breakdowns and family history of psychosis were withheld, even though the prescribed forms included these two relevant questions. The omissions could be attributed

either to genuine lack of knowledge of mental illness in the family, or to fear on their part that they might be barred from admission to the University. Nevertheless, as depicted in Table II 29 or 38.67 per cent of cases family history of psychotic illness was elicited. Ten (13.33%) had their parents divorced before joining the University; whereas 16 students had lost father or mother prior to entry so that 21.33 per cent were reared by one parent. In most cases both parents were overly strict towards them during their childhood and early adolescence days; but that was to be expected in the authoritarian eastern cultures. In 8 cases adverse economic factors contributed to the development of disease. Unhappy love relationships are at times considered to be precipitating factors especially in young boys and girls, 7 or 9.33 per cent prior to their breakdowns had experienced stresses in the form of uneven romantic relationships. As in three-quarters of our patients the disease became overt at the approach of sessional examinations, it could be assumed that academic work load was the obvious major situational stress that precipitated the breakdowns.

Previous Personality

Among the personality traits and characteristics common to most of them, were over-sensitiveness, over-conscientiousness, suspiciousness, reticence, shyness, tendency to day dreaming and preoccupation with bodily symptoms. Thus most of them could be considered to harbour schizoid traits. It is noteworthy that only a few in this group had actively participated, during schooldays, in sports, athletics or social activities. In pre-university days they had mostly concentrated on books and studies.

CLINICAL FEATURES

Clinical features of schizophrenia are so numerous and varied that a full descriptive study of the syndrome will be out of place here. Nevertheless, it would not be inappropriate to recapitulate a few main presenting symptoms with some illustrative cases encountered in this study. A glance at Table III would reveal that irrespective of cultural determinants the important features of schizophrenia are as those found in western cultures. Contents of delusions, hallucinations and patterns of bizarre behaviour would of course differ depending on the social background of the person.

Thought Disorder

Thinking disturbance is one of the outstanding features in this mental disease. Normally, the association of ideas follow one another with a definite logical connection progressing to an ultimate completeness of thought. But in this disorder they may be shortened, fragmented and otherwise so disturbed as to lack logical relationship. Out of a total of 75 patients, 32 or 42.67 per cent exhibited varying degress of thought disorder. An instance of this feature is conveyed by a first year female arts student in a letter she wrote to the author, "The elasticity of a demand curve is not due to the joining up of the elasticities of the various points of a particular commodity. Then the change in the elasticity of the points must be due to the change in the parameters which cannot remain constant."

Bizarre Ideas and Actions

Since to a lay person strange ideas and queer actions are the most striking features, majority of cases were referred by lecturers, fellows or other students for strange or inappropriate behaviours. One boy who harboured bizarre ideas that his blood was changing used to quarrel with roommates without rhyme or reason. He used to carry a big knife wherever he went ostensibly to protect himself from other students whom he considered hostile to him. He was reported to be in the habit of riding a motor cycle round the hostels aimlessly at odd hours. Another boy complained that there was something foul in his head. One female patient while waiting in the clinic for consultation, handed ten cents to another student who was a stranger to her, in the presence of several others, and asked him to buy sweets for her. Her unreasonable emotional behaviour was also manifested in the form of asking absolutely irrelevant questions at public meetings. In another case, a woman lecturer noted something unusual in a boy's behaviour when during a tutorial he interrupted her with a request that she should ask the chairman of the Students' Union to see him. One student was reported by his classmate to be behaving strangely by standing on a chair in a library rambling away irrelevant speech. This form of behaviour was seen in 29 or 38.67 per cent of the cohort.

Paranoid Tendencies

Among paranoid tendencies ideas of reference are common. They spring from the patient's sensitive and suspicious attitude. Consequently he misinterprets ordinary happenings as having some reference to himself.

Ideas of reference and advanced forms of delusions were found in 60 or 80.00 per cent. One student was suspicious of his father, thinking the latter was about to bring court action against him. And whenever his father was near the telephone he would demand to know whether he was calling police to apprehend him. Another student felt that his seniors from the Chinese stream were purposely troubling him by preventing him from borrowing the "red spot" books from the library. According to him they were also heard saying that political science students were very frightening. He was also convinced that some senior students were trying to brain wash his mind. He got ideas that somebody was going to kill him, and at times he was reluctant to take drinks or pills prescribed by a private practitioner, because he felt that the mother had added some poison to them.

One female arts student in a letter addressed to the author complained that her father loved another woman to such an extent that he would one day cheat her own mother of her money and elope with that woman. She voluntarily admitted that she was so involved with her suspicions that she could not get rid of them, and felt that she was making trouble for everbody. A final year male accountancy student harboured a delusion that his brother and uncle who knew a lot of psychology were trying to influence his mind.

An elder brother of one second year science student when interviewed by the author narrated, "In the past she was a pleasant and cheerful person, but for past two weeks or so she has been feeling every now and then that people in the University are eyeing at her in a suspicious manner. About a week ago when the family wanted to visit the grandmother, she strangely asked her father. What was he trying to prove? Am I mentally unsound?" She also told the father that she was going to stop university education because she could not cope with the work load. She admitted that her brain was going haywire. After treatment for four months in the form of intensive drug and electroconvulsive therapy by a private psychiatrist she was certified fit by him to resume studies: but the condition relapsed a year later, and she failed the sessional examination again and was advised by her father to withdraw from the University. This young lady was obsessed by the idea that she was not trusted by her father. Obsessive thoughts are occasionally seen in schizophrenia and can be regarded as a disorder of control of thought.

Depression and Suicidal Tendencies

Schizophrenic patients are generally ridden by feelings of guilt and shame, and they tend to feel extremely depressed.. They are also known to exhibit tendencies towards selfdestruction. Schizophrenic depression, however, differs from true endogenous depression in that the former shows a split between ideas and feelings and is accompanied by strange behaviour, whereas the latter lacks these features. In contrast to endogenous depressive illness schizophrenic depression is insidious in onset and is more constant in symptomatology.

Out of 75 patients 65.33 per cent revealed varying degrees of depressive feelings. One student was noticed by a lecturer to be sitting and crying at the back of a class during the lecture. Some others were reported to be tearful without cause after admission to the hospital. Five cases were so depressed that they committed suicide during the period of study.

Emotional Blunting and Incongruity

In a normal individual there are links which maintain a satisfacory balance between thought, feeling and action. But, in schizophrenia all the links are either weakened or broken producing inappropriateness of thought, emotion and behaviour in relation to the external world. Failure to express appropriate feelings in usually seen in forms of apathy and indifference. It is because of emotional blunting that a student gradually ceases to take interest in academic work, and his mind starts wandering. Forty per cent of our sample during the course of interviews conveyed the impression of varying degrees of emotional incongruity. For instance, one boy living in a hall of residence telephoned the author one night asking to see him urgently. On arrival, he was found sitting comfortably in a chair and looking physically fit. His only complaint was fatigue during past few days. Though his emergency call was unnecessary he appeared very indifferent and failed to express any concern let

aside an apology for calling a doctor for a minor symptom.

Hallucinations

Hallucinations are disorders of perception produced in the absence of external stimuli and can occur in any of the sensory fields, auditory hallucinations being the most common. In all 26 or 34.67 per cent manifested the disorder. One student volunteered a statement that she used to hear birds singing off and on or William Wordsworth reciting poetry. A few gave history of the disorder in the form of ringing sounds or people talking to them. One student during the course of a hostel visit was found muttering and smiling to himself in respones to auditory hallucinations.

ADVERSE EFFECTS ON ACADEMIC ACHIEVEMENT

Out of 75 only 9 are still on the University's enrolment list, 4 graduated without delay. Five obtained degrees one year behind their class. whereas 7, two years later. Five students committed suicide and the remaining 45 dropped out. In other words. 66.67 per cent have so far failed to graduate (Table IV). This figure could not be considered as final since the freshmen who gained entry to first year of respective courses in 1969 session are still in the University, and therefore, they have not been under surveillance for the entire span of their academic careers. Out of 75 cases reported 32 became overtly schizophrenic during the first year of study, 16 during the second year, 13 while in their third year, 9 during the fourth year and 5 students in the fifth or sixth year (Table V). Thirty-seven were hospitalized for observation and treatment for periods ranging from one week to three months, and 38 were managed as outpatients with anti-psychotic drugs, and with or without electroconvulsive therapy.

COMMENTS

What happens to schizophrenics is of great significance if they fail to recover. In Farnsworth's (1966) opinion and this is the view of many who are involved in student health work, their mental ill-health in terms of society and their own happiness is a financial and intellectual drain. In view of the decisions that must be made of psychotic students it is surprising that so little is known about their course, prognosis and about their chances of continuing their professional activities if they manage to recover.

Prior to the advent of phenothiazine group of drugs and electroconvulsive therapy, and their application in psychiatry, even if the patient recovered from schizophrenia he was prone to relapses. Moreover, he exhibited a certain degree of emotional and intellectual defect. As a consequence, his academic performance on resumption of studies was very seldom restored to what would have been expected normally from him. Although now, because of anti-psychotic drugs the outlook in this disease has improved, the prognosis in regard to suitability for university studies remains guarded. Our modest experience leaves us with an impression that modern psychiatric treatment, even though it may assist in retrieving schizophrenics socially, has not fulfilled the dream of restoring their personalities completley nor in re-equipping their academic capabilities, to enable them to deal with the strenuous university life. This is because the heavy curricula and the qualities required for academic success, such as single mindedness and compulsive habits of learning intensify introverted or schizoid tendencies and are conducive to mental breakdowns.

Majority of schizophrencis in this University setting tended to pursue downhill course despite the administration of modern physical and drug therapy. According to Farnsworth (1966), a few studies have been made, small in scope to be sure, which suggest that a modest optimism in this regard is warranted. Coon (1961) on the other hand pronounced a far more optimistic note in regard to the ultimate prognostication of schizophrencis seen by him and his colleagues at the Harvard University. His cases almost invariably recovered completely.

In the author's opinion simple and hebephrenic schizophrenics which are subject to cyclic relapses showed poor prognosis and constituted major cause of academic attrition based on grounds other than scholastic disability. In the interest of the society as a whole such cases with strong premorbid schizoid personality and family history of psychosis should not be granted at the most more than one additional chance to continue their education. Although in rare instances complete recovery has been known to occur; in general it may be said that such cases should abandon academic careers entirely for psychologically less traumatic occupations. This is because university graduates by virtue of their educational background are expected to hold responsible positions and are the future leaders in various spheres of human

activity. If they somehow manage to graduate and occupy professional or executive positions, in the long run when the condition relapses, are likely to pose a hazard to their subordinates, colleagues and even superiors. The very organisation in which they work would thereby be disturbed. For the same reasons, known victims of schizophrenia ought to be rejected from entry to the university.

Failures to acquire degrees on academic grounds is expected to a certain extent in most institutions of higher learning. But, if the inability to fulfil the goals because of medico-psychiatric reasons can be reduced by proper preventive and curative measures no efforts should be spared. In this University the annual cost to educate an individual student varies from about $ 7,000 to $ 12,000 depending on the course he is pursuing, an arts student costs the least while an engineering or medical student the most. Therefore, the reason for rejecting a student with previous history of schizophrenia from gaining entrance to the University has added valid financial reasons. Instead of permitting a known schizophrenic, however good his pre-university career might have been, it is desirable to let in a second best student if his previous mental health was sound.

ACKNOWLEDGEMENTS

I would like to take this opportunity ot thank Miss Tan Guek Liang and Mr. Foo Choo Keng for their assistance in procesisng the data and preparing the manuscript.

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Table I
SOURCES OF REFERRAL

Referrals	Number of Cases	Percentage
Self-referral (detected by University Physician)	29	38.67
Classmates or friends	8	10.67
Parents or guardians	10	13.33
Members of taching staff	20	26.66
General practitioners	8	10.67
Total	75	100.00

TABLE II
CONTRIBUTORY FACTORS IN FAMILY
AND SOCIAL BACKGROUND

Factors	Number of Cases	Percentage
Family history of Psychotic illness	29	38.67
Parents divorced/separated	10	13.33
Parents deceased	16	21.33
Adverse economic factors	8	10.67
Uneven romantic relationships	7	9.33

TABLE III
DISTRIBUTION OF SYMPTOMS

Symptoms	Numbers of Cases	Percentage
Paranoid tendencies	60	80.00
Depression	49	65.33
Thought disorder	32	42.67
Emotional incongruity	30	40.00
Bizarre behaviour	29	38.67
Hallucinations	26	34.67

TABLE IV
RATE OF ATTRITION

Mode	Number of Cases	Percentage
Dropped out without obtaining a degree (including 5 cases of suicide)	50	66.67
Graduated with one year's delay	5	6.67
Graduated with two years' delay	7	9.33
Graduated with no delay	4	5.33
Still in the University	9	12.00
Total	75	100.00

TABLE V

DISTRIBUTION OF BREAKDOWNS IN RELATION OF STAGE OF ACADEMIC CAREERS

Yera of Breakdown	Number of cases	Percentage
1st year	32	42.67
2nd year	16	21.33
3rd year	13	17.33
4th year	9	12.00
5th year	2	2.67
6th year	3	4.00
Total	75	100.00

Abortions-government hospitals Peninsular Malaysia 1960-1972

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This paper presents a study of the admissions and deaths of all cases of abortions admitted to the Government Hospitals of Peninsular Malaysia from the years 1960 – 1972. Peninsular Malaysia has eleven states and in each state there is one large metropolitan type General Hospital, a number of small Hospitals General or District type, main health centers, Sub-health centers and Midwives centers. With this excellent intra structure of health services, the problem cases are easily referred to a District or General Hospital for treatment. Surgical procedures like evacuation of the uterus in spontaneous incomplete abortions, inevitable abortions, missed abortions or septic incomplete abortions were only carried out at the District or General Hospitals.

* Paper presented at the 6th Asian Congress of Obstetrics and Gynaecology on 23rd July 1974 at Kuala Lumpur.

TABLE I. YEAR/SPONTANEOUS ABORTION ADMISSIONS/STATES

YEAR	PERLIS	KEDAH	PENANG	PERAK	SELANGOR	NEGERI SEMBILAN	MALACCA	JOHORE	PAHANG	TRENGGANU	KELANTAN	TOTAL
1960	63	790	1162	1910	1216	738	485	1051	376	130	197	8118
1961	61	800	1296	1688	1470	745	489	1089	384	187	253	8389
1962	146	971	927	1982	1496	1053	476	1090	440	129	221	8931
1963	197	1044	1055	2112	1089	1092	576	1268	523	199	230	9393
1964	156	1075	977	2263	N.A.	1150	616	1369	592	201	186	8591
1965	73	1004	1062	2361	N.A.	1022	663	1812	573	182	3115	6067
1966	59	856	937	2128	N.A.	757	675	1770	514	232	363	8291
1967	140	804	934	2099	2091	887	700	1853	555	229	350	10672
1968	193	990	1144	2028	2200	905	657	1779	681	227	287	11111
1969	197	981	1141	2062	2063	890	672	2076	657	167	374	11280
1970	198	942	1176	2198	2346	991	686	2114	740	177	489	11977
1971	187	997	1269	2468	2462	971	631	2188	728	230	459	12489
1972	200	1296	1245	2541	2565	1090	531	2533	892	271	501	13665

Table I showed that although there was an increase in the number of spontaneous abortions from 8118 in 1960 to 13665 in 1972, the states with the highest abortions were Selangor, Perak and Johore, and the states with lowest abortion admission were Malacca, Trengganu, Kelantan and Perlis. The table also showed that all the states registered an increase in Hospital admissions for spontaneous abortions.

TABLE II. YEAR/HOSPITAL ABORTION DEATHS/STATES.

YEAR	PERLIS	KEDAH	PENANG	PERAK	SELANGOR	NEGERI SEMBILAN	MALACCA	JOHORE	PAHANG	TRENGGANU	KELANTAN	TOTAL
1960	0	1	2	0	0	1	1	2	1	0	0	8
1961	0	2	1	1	2	0	0	0	0	1	0	7
1962	0	3	3	2	0	6	0	1	0	0	0	15
1963	0	1	2	3	0	3	1	1	1	0	1	13
1964	0	0	1	0	NA	0	0	2	0	3	0	6
1965	0	2	1	4	NA	0	0	1	2	0	1	11
1966	0	2	0	0	NA	0	1	0	0	0	1	4
1967	0	0	0	1	1	0	0	2	0	0	0	4
1968	0	0	2	1	0	1	0	0	0	1	0	5
1969	0	0	0	1	2	1	1	2	0	0	0	7
1970	0	4	0	1	0	0	4	7	1	0	0	17
1971	0	0	0	3	2	3	1	2	0	0	0	11
1972	0	1	0	0	0	0	0	0	3	0	0	4
1	0	16	12	17	7	15	9	20	8	5	3	112

Table II showed that there was a fall in the number of deaths for cases of spontaneous abortions. The states with the highest deaths were Johore, Perak and Kedah.

TABLE III.

SEPTIC ABORTIONS - HOSPITAL ADMISSIONS.
YEAR/ HOSPITAL ADMISSIONS OF SEPTIC ABORTIONS/STATES

YEAR	STATES. PERLIS	KEDAH	PENANG	PERAK	SELANGOR	NEGERI SEMBILAN	MALACCA	JOHORE	PAHANG	TRENGGANU	KELANTAN	TOTAL
1960	16	34	61	44	181	58	37	135	2	17	21	606
1961	35	44	44	97	173	64	48	349	2	15	11	882
1962	64	96	222	92	100	17	23	381	5	29	33	1062
1963	62	76	72	113	73	24	11	416	8	26	86	967
1964	109	48	111	221	N.A.	30	23	486	12	18	49	1100
1965	7	45	72	147	N.A.	52	21	323	110	35	59	774
1966	5	43	56	248	N.A.	59	17	38	8	10	55	539
1967	11	31	337	262	164	74	24	47	21	7	14	689
1968	16	51	76	330	189	24	15	53	23	13	28	818
1969	12	28	64	290	191	36	24	82	17	3	17	764
1970	11	75	94	245	157	96	24	63	16	22	11	814
1971	1	10	106	351	125	16	13	70	6	39	19	756
1972	5	89	74	278	177	39	71	251	9	58	25	1076

It is interesting to note in table III that since 1964 there has been a fall in the number of cases of septic abortions, but in 1972 the increase was due to a sudden increase in the State of Johore from 70 in 1971 to 251 in 1972.

TABLE IV.

SEPTIC ABORTION – HOSPITAL DEATHS.
YEAR/HOSPITAL DEATHS/STATE

YEAR	PERLIS	KEDAH	PENANG	PERAK	SELANGOR	NEGERI SEMBILAN	MALACCA	JOHORE	PAHANG	TRENGGANU	KELANTAN	TOTAL
1960	0	0	0	0	3	1	0	0	0	0	1	5
1961	0	2	0	7	4	2	0	1	0	1	0	17
1962	1	1	2	1	6	1	0	4	0	0	2	18
1963	1	0	3	3	2	1	0	2	1	1	0	14
1964	0	3	1	0	N.A.	1	0	2	0	0	2	9
1965	0	3	2	3	N.A.	2	0	0	0	0	2	12
1966	0	0	2	4	N.A.	0	0	1	0	0	0	7
1967	2	0	0	1	3	2	2	3	0	0	0	13
1968	0	3	2	1	6	1	1	3	2	0	0	19
1969	0	0	1	5	1	3	2	2	1	0	0	15
1970	2	1	2	1	1	0	2	1	0	0	0	10
1971	0	0	2	1	2	0	0	0	0	0	0	5
1972	0	1	1	2	3	1	0	0	0	0	0	8
	6	14	18	29	31	15	7	19	4	2	7	152

Table VI showed a remarkable fall in the deaths due to septic abortions. The states with the highest deaths for septic abortions were Selangor and Perak.

TABLE V. YEAR/ ABORTION ADMISSIONS/ ABORTION DEATHS/RATE

YEAR	ABORTION ADMISSION	ABORTION DEATHS	RATE
1960	8724	13	1.5/1000
1961	9271	24	2.6/1000
1962	9993	33	3.5/1000
1963	10360	27	2.6/1000
1964	9694	15	1.5/1000
1965	9841	23	2.3/1000
1966	8830	11	1.2/1000
1967	11331	17	1.5/1000
1968	11929	24	2.0/1000
1969	12044	22	1.8/1000
1970	12791	27	2.1/1000
1971	13245	11	0.8/1000
1972	14742	12	0.8/1000

Table V showed that although there was an increase in the number of admissions for all types of abortions from 8724 in 1960 to 14741 in 1972, during the same period the total general admissions to Government Hospital in Peninsular Malaysia doubled, thus showing an actual fall in the incidence of abortion cases. The mortality rate for abortions was highest in 1962 with 3.5 per 1000 and lowest in 1971 and 1972 with 0.8 per 1000.

TABLE VI. SEPTIC ABORTIONS/YEAR/ADMISSIONS/DEATHS/RATE

Year	Admissions	Deaths	Rate
1960	606	5	8.3/1000
1961	882	17	19.2/1000
1962	1062	18	16.9/1000
1963	967	14	14.5/1000
1964	1100	9	8.2/1000
1965	774	12	15.5/1000
1966	539	7	12.9/1000
1967	689	13	18.9/1000
1968	818	19	23.4/1000
1969	976	15	15.4/1000
1970	814	10	12.3/1000
1971	756	5	6.6/1000
1972	1076	8	7.5/1000

Table VI showed that septic abortion is still an important cause of maternal deaths but it is encouraging to note that there has been a fall in the deaths from 23.4 per 1000 in 1968 to 6.6 per 1000 in 1971 and 7.5 per 1000 in 1972.

TABLE VII YEAR/SPONTANEOUS ABORTIONS SEPTIC ABORTIONS/ DELIVERIES IN GOVERNMENT HOSPITAL WEST MALAYSIA

Year	Spontaneous Abortions.	Induced Septic Abortion.	Deliveries	Pregnancy wastage in percentage.
1964	8591	1100	83654	10.38
1965	6067	774	84292	7.50
1966	8291	539	87101	9.20
1967	10672	689	87761	11.46
1968	11111	818	89230	11.79
1969	11280	764	92583	11.51
1970	11977	814	86178	12.92
1971	12489	756	100523	11.64

Table VII showed the pregnancy wastage that abortions account for in the Government Hospital.

COMMENTS:–

1. Abortions is still a major problem in the Government Hospitals of Peninsular Malaysia.
2. Abortions accounts for 10 to 12% of pregnancy wastage in the Government Hospitals of Peninsular Malaysia.
3. The number of Hospital admissions for abortions has increased over the years.
4. The incidence of Hospital admissions for septic abortion has shown a remarkable fall.
5. The reason for the lowered incidence may be due to

   (i) With the establishment of more private hospitals, nursing homes and clinics, and inspite of the fact that pregnancy termination is illegal except where there are Medical indications, patients wanting pregnancy termination for socio-economic or personal reasons are resorting more to the services of private clinics and less to the services of the unqualified abortionists.

   (ii) Family planning services are readily available and women are spacing their pregnancies with the result that there is a fall in the incidence of unwanted pregnancies.
6. Abortions, especially septic abortions carry a high morbidity and mortality
7. It is hoped that by raising the standard of living, education on the needs to space out pregnancies and better utilisation of family planning services, that women will resort less to the services of the untrained abortionists to terminate an unwanted and unplanned pregnancy.

Causes of blindness in Singapore

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Soon after the Second World War an attempt was made to maintain a count of blind persons in Singapore by the Department of Health (now Ministry of Health) but it was not until 1953 that a register of blind persons was started by the Singapore Association for the Blind. In that year Sir Clutha MacKenzie, himself blind, was sent out by the Technical Assistance Administration of the United Nations, at the request of the Governments of Singapore and the Federation of Malaya, to advise on a programme for the rehabilitation of the blind. MacKenzie's report (1953) contained an account given by the late Dr A D Williamson, eye surgeon at the General Hospital, on the chief sight destroying conditions then prevalent: "Keratomalacia, ophthalmia neonatorum, optic atrophy, cataract, congestive glaucoma, corneal ulceration, interstitial keratitis, iridocyclitis, penetrating wounds, intraocular tumours and trachoma were the chief causes" but no actual figures were given.

Definition of Blindness

There was no official definition of blindness in Singapore at that time. In October, 1955, the Far East Conference on Work for the Blind met in Tokyo and recommended for recognition and implementation a definition that had been accepted by the World Council for the Welfare of the Blind:

"Resolution 1. Definition of Blindness

(a) Total absence of sight, or

(b) Visual acuity not exceeding 3/60 (a) or 10/200 (Smellen) in the better eye with correcting lenses, or

(c) Serious limitation in the field of vision, generally not greater than 20 degrees".

In 1956, the Government of the Federation of Malaya accepted the definition under Resolution 1 of the Far East Conference but included the wider definition under (b) above. When this was communicated to the Government of Singapore, Singapore sought the view of Professor Arnold Sorsby as follows: "At the present time we have no official definition in Singapore but, presumably in the long run it would be wise to have the same definition in the Federation and Singapore." A reply from Sorsby could not be found on our records and Singapore, in fact, continued to follow the

definition of "economic blindness" in England, viz: "A person is considered blind if he is too blind to perform work for which eyesight is essential."

Registration

In practice, children were registered "blind" who had insufficient sight to receive education in normal schools and adults who had insufficient sight to enable them to have an occupation where vision was necessary; those so registered were categorised as "totally" or "partially" blind. Certification was performed by the Government ophthalmologists for the purpose of social aid, but as certification was not required by law, blind persons who were not referred by their private practitioners were not registered.

In 1964, a register was started for partially-sighted children. Concurrently, the practice of distinguishing "total" or "partial" blindness was discountinued and a person was registered "blind" when he had:

(a) total absence of sight, or
(b) visual acuity not exceeding 6/60 or 20/200 in the better eye with correcting lenses, or
(c) visual acuity not exceeding 6/24 or 20/80 with a field defect of 10 degrees around fixation (20 degrees in diameter).

FINDINGS

Data from our registration for 1950-1964 (a 15 year period) and for 1965-1972 (a further 8 year period) are presented.

PREVALENCE

Table I shows that a total of 1,959 persons were registered and 517 deregistered for the period 1950-1972. The rate of 55 per 100,000 population in 1964 increased to 67 in 1972 based on a mid-year population of 1,841,600 and 2,147,400 respectively.

AGE AND SEX

The age and sex of the registered blind population in 1970 is shown in Table II: there was a slight preponderance of males (58%) over females (42%) with the largest numbers of both sexes in the elderly. The age at registration (not necessarily the same as age of onset) for the past 8 years, from 1965-1972, is shown in Table III: the proportion was 22.5% for children, 34.3% for adults and 43.3% in the elderly.

CAUSES OF BLINDNESS

Table IV shows the number of blind persons found by cause. This is not to be regarded as a prevalence table but refers only to blind persons for which causes of blindness were available. The data is further analysed for 1950-1952 and subsequently quadrennially to show changes in cause over the past 23 years.

DISCUSSION

PAST: CHANGING PATTERN OF BLINDNESS

Congenital causes of blindness forming less than 10% prior to 1960 increased to 15% in 1964, 15.4% in 1968 and 24% in 1972 with proportionate decrease in acquired causes of blindness for the same period (Table IV). Of those born blind, the commonest cause were malformation (40%), congenital cataract (20%), optic atrophy (8%) and congenital glaucoma (5%). Of those who acquired blindness, glaucoma (28.6%) was the commonest cause prior to 1964, followed by optic atrophy (23.7%), corneal disease (18.5%) and retinal degeneration (9.6%); during 1965-1968 the acquired causes in order of frequency were glaucoma (26.6%), optic atrophy (25.9%), retinal degeneration (17.6%) and corneal disease (5.7%), but for the past four years from 1969-1972 the acquired causes were retinal disease (22%), glaucoma (20%), optic atrophy (20%) and corneal disease (12.3%). A rising figure is thus seen of those who were born blind and of those who acquired blindness retinal disease, glaucoma, optic atrophy and corneal disease remain the chief causes.

PRESENT: GEOGRAPHIC COMPARISON

Table V shows the chief causes of blindness in Singapore compared with other countries in the Asia Pacific area. A decline is seen in blindness due to infection and malnutrition: thus, Williamson observed in 1953 that keratomalacia, ophthalmia neonatorum and optic atrophy were the chief sight destroying conditions prevailing at that time; Loh reported in 1964 a decline in the incidence of keratomalacia; Lim in 1964 predicted that local causes of blindness were moving from the "primitive" to the "modern"; by 1972, we could hardly find

a case of acute trachoma (Jones, 1972) and xerophthalmia is virtually non-existent whilst trachoma and xerophthalmia is still prevalent in vast areas of India, Pakistan, China and Indonesia (Holmes 1972).

FUTURE: PROSPECTS

Congenital causes of blindness and acquired retinal disease have assumed local prominence but our prospects for our future lie in a long term preventive programme. For such a programme to succeed two factors are essential: the first is an awareness that eye diseases can cause blindness and this includes adequate training of medical personnel in recognising the blinding diseases in the country; the second is preventive measures and treatment, based on education, developed by research and directed towards the public in terms of educational campaigns backed up if necessary with legislation. This would include a study of the incidence and causes of blindness, the training of ophthalmologists and paramedical personnel, research into local causes of blindness, development of sophistication and maturity in ophthalmic practice and, finally, the education of the public.

SUMMARY

1. The incidence and causes of blindness in Singapore are reviewed for the past 23 years dating back to 1950 when registration commenced.
2. The changing pattern and local factors affecting it are compared with other countries.

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TABLE I

BLINDNESS IN SINGAPORE
BASED ON REGISTRATION, 1950 – 1972

YEAR	NEW REGISTRATIONS	DEREGISTRATIONS
1950	15	2
1951	19	3
1952	36	9
1953	121	34
1954	119	29
1955	162	48
1956	110	24
1957	89	16
1958	87	19
1959	129	19
1960	69	13
1961	52	10
1962	84	11
1963	69	4
1964	87	2
1965	105	55
1966	91	33
1967	89	42
1968	84	42
1969	93	29
1970	88	32
1971	63	29
1972	98	22
Total: 1950 to 1972	1959	517

TABLE II

NUMBER OF REGISTERED BLIND PERSONS IN SINGAPORE, BY AGE AND SEX, 1970

Age Group	Male	Female	Total
Birth – 5	15	8	23
6 – 10	28	20	48
11 – 20	60	44	104
21 – 30	61	39	100
31 – 40	54	43	97
41 – 50	96	36	132
51 – 60	184	109	293
61 & above	289	304	593
Total:	802 (58%)	588 (42%)	1390

TABLE III

BLIND PERSONS IN SINGAPORE BY AGE AT REGISTRATION, 1965 – 1972

YEAR	BIRTH TO 15 YEARS	16 TO 55 YEARS	56 AND ABOVE	TOTAL
1965	18	39	48	105
1966	19	37	35	91
1967	20	30	39	89
1968	11	30	43	84
1969	21	30	42	93
1970	21	27	40	88
1971	20	19	24	63
1972	30	31	37	98
Total	160 (22.5%)	243 (34.2%)	308 (43.3%)	711

TABLE IV

BLINDNESS ACCORDING TO CAUSE, ANALYSED FOR 1950–72 AND SUBSEQUENTLY QUADRENNIALLY, 1953–72
(NUMBERS AND PROPORTIONS BY CAUSE)

Cause of Blindness	1950-1952	1953-1956	1957-1960	1961-1964	1965-1960	1969-1972	Total
Congenital	2	41	41	44	57	83	268
	2.8%	8%	10.9%	10.9%	15.4%	24.2%	13.7%
Acquired	68	471	333	248	312	259	1691
	97%	92%	89%	85%	85%	75.7%	.86.3%
Corneal diseases	17	117	72	46	18	32	302
	25%	24.8%	21.6%	18.5%	5.7%	12.3%	19.5%
Uveitis	1	28	22	10	11	10	82
		5.9%	6.6%	4%	3.5%	3.8%	4.1%
Other inflammation	2	26	26	10	9	3	75
		5.5%	7.8%	4%	2.8%	1.1%	3.8%
Retinal degeneration	2	19	25	24	55	57	180
		4%	7.5%	9.6%	17.6%	22%	9.1%
Cataract	1	23	13	23	17	15	88
		4.8%	3.9%	9.2%	5.4%	5.8%	4.5%
Glaucoma	6	98	71	71	83	52	380
	8.8%	20.8%	21.3%	28.6%	26.6%	20%	19.3%
Optic atrophy	10	109	81	59	81	52	389
	14.7%	23%	24.3%	23.7%	25.9%	20%	19.8%
Trauma	0	4	5	5	6	4	24
					1.9%		1.2%
Tumour	1	0	5	0	0	0	6
							0.3%
Unknown	29	49	11	0	0	0	88
	42.6%	10.4%	3.3%				4.4%
Total (congenital & acquired)	70	512	374	292	369	342	1959

TABLE V

COMPARISON OF CHIEF CAUSES OF BLINDNESS
IN THE ASIA PACIFIC COUNTRIES

Country	Chief Cause of Blindness	Source and Year
India	1. Trachoma 2. Nutritional	Gupta, 1968
Indonesia	1. Xerophthalmia	Teng et al 1968
Japan	1. Cataract 2. Retinitis pigmentosa 3. Corneal 4. Trauma 5. Albinism 6. Optic atrophy 7. Glaucoma 8. Uveitis	Nakajima, 1972
Malaya	1. Trachoma 2. Xerophthalmia	Visvalingam, 1968
New Zealand Maori	1. Cataract 2. Trauma 3. Congenital 4. Uveitis	Fenwick & Sturman, 1968
Non–Maori	1. Senile macula degeneration 2. Glaucoma 3. Strabismus	
Pakistan	1. Trachoma 2. Xerophthalmia	Kirmani, 1968
Philippines	1. Cataract 2. Trauma 3. Glaucoma 4. Corneal 5. Retinal 6. Optic Nerve	De Ocampo, 1972
Republic of China	1. Phthisis bulbi 2. Cataract 3. Glaucoma 4. Corneal	Yang, 1968
Singapore	1. Retinal 2. Glaucoma 3. Optic atrophy 4. Corneal	Lim, 1974
Thailand	1. Cataract 2. Corneal 3. Trauma 4. Glaucoma	Limpaphayom & Wangspa, 1972

Appetite stimulation and weight gain with cyproheptadine (periactin) in tuberculosis patients (double-blind clinical study)

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Appetite stimulation and weight gain properties of Cyproheptadine were first noted by Levenstein et al. (1962) in asthmatic children while this was primarily administered as an anti-allergic drug. Since then many clinical trials have been conducted on relationship of cyproheptadine with appetite stimulation and weight gain.

Cyproheptadine is an anti-histamine preparation with anti-allergic and anti-serotonin properties. Serotonin (5-Hydroxy tryptamine) is a normal constituent of grey matter of the brain, highest concentration being in the hypothelamus, mid-brain, limbic lobe and floor of the fourth ventricle. Appetite centre is in the hypothelamus and is said to be under the influence of serotonin, which is antogonized by Cyproheptadine, thus releasing the appetite centre free.

In pulmonary tuberculosis, patients underweight and lose of appetite are very important features. Anorexia is further aggravated when they are treated with P.A.S., thiacetazone, and ethionamide. In order to improve the appetite and weight gain as rapidly as possible it was thought that medical profession should have a drug for this disease with least side-effects. The past studies by other authors suggest that Cyproheptadine fulfils the above objective. One with this is view, our study was carried out on under-weight adult patients who had chronic pulmonary tuberculosis, at chest unit, Jinnah Post-Graduate Medical Centre, Karachi, Excluded from this study were patients in whom steroid, anabolics were contraindicated, e.g. impaired liver function, prostatic carcinoma, sodium retention. Also excluded were pregnant patients and those who were suffering from glaucoma or gave a history of urinary retention.

Material & Methods:

Double-blind control trial was conducted on 27 patients. Patients were given drug according to radom allocation numbers. All patients were admitted in the ward and kept for 12 to 16 weeks excepting three patients who did not complete their trials as they left hospital against advice and later did not turn up in out-patient department for follow-up. Another patient was excluded who was found to be pregnant 4 weeks after her inclusion. Thus study included 23 patients suffering from Pulmonary tuberculosis.

During their indoor stay each patient got convalescent diet which consisted of about 3000 calories per day on the average. Each patient was given 3 tablets of either active drug or placebo i.e. one tablet one hour before each meal for 12 weeks and each tablet of active drug contained 4 mgm of cyproheptadine. Total duration of

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study was 16 weeks. Each case was diagnosed on the basis of history, physical findings, X-ray chest, mantoux test, E.S.R. and sputum examination. All patients were given routine anti-tubercular treatment which consisted of:-

Inj.	Streptomycin	1 G. daily
Tabs.	PAS	10 G. daily
Tab.	INH	300 mg. daily

Few cases who gave history of previous haphazard chemotherapy for a long duration and were of clinically resistant type given thiacetazone 150 mgm daily in place of PAS. None of the patients were confined to bed rather allowed to continue their normal activities in the ward. At the start of the study patient's height, weight, pulse, respiration, temperature, built and nutrition, were noted. Alongwith this following laboratory investigations were carried out; haemoglobin estimation, RBC and WBC count, serum albumin estimation, urine for sugar and albumen, stools for ova or cysts.

In subsequent period weekly recordings during the first month, forthnightly during the second and third month and finally at the end of the fourth month were made. All investigations of initial visit were repeated at above noted order. Along with this any voluntered untoward effects were noted down. Out of 23 patients who completed the trial 11 were on active drug while 12 are on placebo.

Age and Sex Distribution of the patients, and drug allocation with sex distribution are shown in Table I and II

TABLE I

Age & Sex Distribution

1. 15–29 years	– 12 patients	Male – 5	Female – 7
2. 30–44 years	– 10 patients	Male – 9	Female – 1
3. 45 years/above	– 1 patient	Male – 1 (50 years)	

TABLE II

Drug Allocation with sex Distribution

Periactin	Male – 8		Female – 3
Placebo	Male – 7		Female – 5
(Total:	Male – 15	+	Female – 8 = 23)

TABLE III
Weight gain (in pounds) on active drug

No.	Age (years)	Sex	Initial (lbs.)	4 weeks (lbs,)	8 weeks (lbs.)	12 weeks (lbs.)	16 weeks (lbs.)	Gain(+) or loss(−) at the end of the 16 weeks (lbs.)	
1.	24	M	102	110	110	111	112	+	10
2.	24	F	75	80	92	96	98	+	25
3.	25	F	80	82	82	86	86	+	6
4.	25	F	69	73	80	84	85	+	16
5.	28	M	110	112	118	118	120	+	10
6.	30	M	76	78	79	78	78	+	2
7.	35	M	88	96	101	106	105	+	17
8.	38	M	75	75	76	76	76	+	1
9.	42	M	74	75	76	78	78	+	4
10.	42	M	97	104	110	110	112	+	15
11.	50	M	105	108	113	115	117	+	12
					Total weight gain			+	116
		mean	86.45 lbs.				97.00 lbs.	+	10.55 lbs.

TABLE IV
Weight Gain (in pounds) on Placebo

No.	Age (years)	Sex	Initial (lbs.)	4 weeks (lbs.)	8 weeks (lbs.)	12 weeks (lbs.)	16 weeks (lbs.)	Gain(+) or loss(−) at the end of 16 weeks (lbs.)	
1.	16	F	67	65	62	65	66	−	1
2.	19	F	100	102	105	105	104	+	4
3.	20	F	80	80	80	85	85	+	5
4.	22	M	74	79	86	86	86	+	12
5.	24	M	85	86	86	86	86	+	1
6.	25	F	79	76	75	75	76	+	3
7.	25	M	98	101	102	104	105	+	7
8.	30	M	85	89	92	95	95	+	10
9.	34	M	85	88	90	90	89	+	4
10.	40	F	68	70	71	70	71	+	3
11.	40	M	116	120	120	120	120	+	4
12.	43	M	107	110	110	111	112	+	5
					Total weight gain			+	51
		mean	87 lbs.				91.25 lbs.	+	4.25 lbs.

Results:

These patients with active drug showed a mean increase of weight of 10.55 lbs (Table III). While those on placebo showed a mean increase of weight of 4.25 lbs (Table IV) after 12 weeks of treatment and follow-up of upto 16 weeks. This difference is significant. It is interesting to note that the mean initial weight was almost equal in both the groups i.e. 86.45 in active group and 87 lbs. in placebo group. The mean dinal weight after 16 weeks of medication shows a significant difference i.e. 97 lbs. in active drug group and 91.25 lbs. in placebo group. This means that the active drug clearly comes out to be superior for stimulating appetite and producing weight gain in tuberculosis patients.

Side Effects:

The main side effect noted was slight drowsiness in seven active cases of whom 5 had this complaint almost throughout the treatment period. On the other hand 4 placebo cases had slight drowsiness initially for 1-2 weeks.

An interesting feature noted was that of unexplained slight restlessness initially for 1-2 weeks in 2 active and placebo cases.

Laboratory results:

No deviation in laboratory reports noted either in active cases or in placebo cases. However, response to chemotherapy was noted by diminished E.S.R. X-ray, shadows and sputum results.

Comments and discussion

All the 23 cases who completed the trial come from very poor socio-economic community and all of them had chronic pulmonary tuberculosis for a long time and received standard anti-tubercular chemotherapy outside. The same chemotherapy was continued for 16 cases and the rest, i.e. seven cases likely to be resistent to one or more of standard chemotherapy were given thiacetazone in place of PAS.

Hospitalization of these patients was necessary for infectious status of their disease, severe clinical manifastations and complications like haemoptysis. All the patients were either young, adult or early middle-aged. Children were excluded for the reason that in a clinical trial like this growth and developmental factors may influence the result if observation is continued for a long time.

It has been observed that admitted patients with effective specific chemotherapy, gain weight very rapidly due to response to the treatment and high calorie diet. Those patient with non-effective chemotherapy i.e. treatment failure cases also show weight gain but slowly due to good diet. Adequate rest also contribute in weight gain which these patients rarely get when treated on domiciliary basis. Lack of appetite is one of the commonest clinical feature of active pulmonary tuberculosis. When these patients are treated with PAS or thiacetazone (which is invariably given with INH and or Streptomycin) their appetite, is further depressed. Gastric intolerance like nausea, lack of appetite, gastralgia, fullness of stomach, vomiting and diarrohea are most important side effects of PAS and thiacetazone, and lack of appetite is the commonest of all. It is, therefore, desirable to find a drug which not only counteract the effect of the disease itself but also prevents the depressing effect of PAS and thiacetazone medicaments. Thus the drug will enhance the appetite to a degree with when they will eat more thereby gain weight speedily so that tubercular patients can return; to their job quickly. With this in view, the clinical trial of Cyphoheptadine was conducted.

The Cyproheptadine has been studied by many authors for its appetite stimulating and growth promoting properties. It was used in patients of different ages, suffering from chronic diseases. It was also studied in otherwise normal person with poor appetite and underweight.

One of the frequently quoted observations of Lavanstein et al's double-blind trial of 28 patients conducted in Pediatric Clinic of John Hopkin School of Medicine showed the effect of Cyproheptadine on weight gain and liniar growth children suffering from bronchial asthma. In this study the comparison was made with chlorpheniramine for about 6 months and a significant weight gain wiht marked improvement in appetite was reported in patients receiving Cyproheptadine.

Another investigation was carried out by Chakrbarty et al to see the effect of Cyproheptadine on the electrical activity of the hypothalmic feeding centre and medial 'Satisty Centre' in cats. Increase hungar behaviour, increased food intake and weight gain was reported in all cats and occassional paroxysm of drowsiness was also recorded in addition.

Noble in his study of 12 healthy underweight adult out-patients for 56 days observed the mean

weight in PERIACTIN group was significantly higher statistically than corresponding placebo group.

Chowdhury et al reported the benefit of PERIACTIN for promoting weight gain in double-blind trial of 20 under-weight subjects who were otherwise normal. Seven out of ten cases active drug gained weight and only two placebo. The study period in this series was rather short as the subjects were given medicament and placebo for 4 weeks only. However, they are closely observed for 6-8 weeks after stoppage of therapy.

Shah has reported another clinical double-blind trial on 56 underweight tubercular patients and his findings of weight gain and improved appetite are in agreement with our result.

It will be seen from the observations that the findings of our trial is in agreement with the above noted investigations that Cyproheptadine is a useful drug in stimulating appetite and weight gain. The patients receiving active drug showed mean weight gain of 10.55 lbs. whereas placebo group gained 4.25 obs. The differents of 6.30 lbs. in 16 weeks of Cyproheptadine therapy and follow-up is highly significant. The drug is particularly found useful for tuberculosis patients receiving PAS and Thiacetazone-the appetite depressant drug. Cyproheptadine is also recommended for patients suffering from other diseases having lack of appetite or poor weight gain. Above studies have established the efficacy of this drug but the specific mode of action is not known, further study is needed to reveal its mode of action.

The author is grateful to Messrs. Sharp & Dohme Ltd. for the supply of drugs and research grant for trial. The paper was presented in the Sabah Medical Association Clinical meeting in Duchesma of Kent Hospital, Sandakan in August, 1974.

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Pattern of toxoplasma antibodies in Malaysian Pregnant Women

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Toxoplasmosis is a disease caused by the coccidian parasite, *Toxoplasma gondii*, whose oocysts are transmitted via the faeces of felines, the common one being the domestic cat. The disease has been known to be contacted by man either:-

1) by Acquired infections orally, or
2) by Congenital transmission through the placenta.

Work on the life cycle and various aspects of transmission have been stepped up tremendously during the past 10 to 15 years, (Jacob & Lunde 1957, Frenkel 1970, Singh et al. 1972). Likewise, work on life cycle and prevalence of the infection have been in progress in Singapore and Peninsular Malaysia during the past 5-10 years. (Singh et al. 1967, 1968, Zaman et al. 1967, 1969).

One of the first cases of congenital toxoplasmosis was isolated by Pinkerton and Weinman (1940). Recent studies on congenital toxoplasmosis include those reported by Desmonts and co-workers (1965), Remington (1969), and Kimball *et al.* (1971). These projects involved a large population for study and a long period of follow-up studies. In June 1972, Singh *et al.* using the Indirect Haemagglutination Test reported an incidence of 13.0% Singapore newborns with toxoplasma antibodies.

This infection can cause congenital chorioretinitis, microcephaly, hydrocephaly and fits in infants. Up to date, the problem of congenital toxoplasmosis has not been investigated in Malaysian population.

Prompted by the above reports, we aimed at surveying an antenatal population for the incidence of Toxoplasmosis, with a follow-up of the positive cases to detect any rise in titre and subsequently to follow-up the newborns for their antibody levels and any clinical manifestations of toxoplasmosis. This paper reports the distribution of toxoplasma antibodies in pregnant women.

MATERIALS AND METHODS

Study Population

The study population consisted of 1,459 pa-

tients who booked themselves for antenatal care and delivery at the University Hospital, in Petaling Jaya from July 1972 to March 1974. The patients came from the developing town of Petaling Jaya and its neighbouring suburban villages. Some of them came from the city of Kuala Lumpur, some five to ten miles away and a few foreigners from other countries.

When first seen, the patients were in all stages of pregnancy, with gestation periods ranging from 9 to 38 weeks.

Blood Collections

Blood was routinely taken from first-booking antenatal patients for various haematological and serological investigations. 2 ml. was separated for the indirect fluorescent anti-body test for toxoplasmosis.

The positive titres were tagged on to the front of the patients' case records. Should these patients have booked earlier than 3 months before they were due to deliver, a repeat specimen of blood would be taken during a follow-up clinic. Otherwise, at the time of delivery, two other 2 ml. blood collections were taken from the mother and from the cord or baby.

Follow-up blood collections of babies with positive IgM titres were taken at the ages of 4 months to detect any rise in titre.

The Fluorescent Antibody Test for Toxoplasmosis

A strain of *Toxoplasma gondii* is maintained in infected mice at the IMR. laboratories and antigen slides were freshly prepared and frozen until required for use, usually within one month.

The indirect fluorescent antibody technique (IFAT) for toxoplasmosis was performed using Cooke's microtitre apparatus and Burrough Wellcome's Anti-Human Immunoglobulin, fluorescein labelled. The counter-stain Evans Blue was used. The fluorescein labelled Anti-Human IgM was used in the case of blood from the cord or baby. The IFAT tests were performed according to Palmer (1970) and Remington (1968). A positive reaction was one which showed at least Grade I peripheral fluorescence (Fig.1) whilst a completely negative reaction showed the organism entirely stained red.

A serum was considered positive if a dilution of 1:256 or more showed at least Grade II peripheral fluorescence. However, positive reactions at dilutions of 1:16 and 1:64 were also noted for follow-up studies.

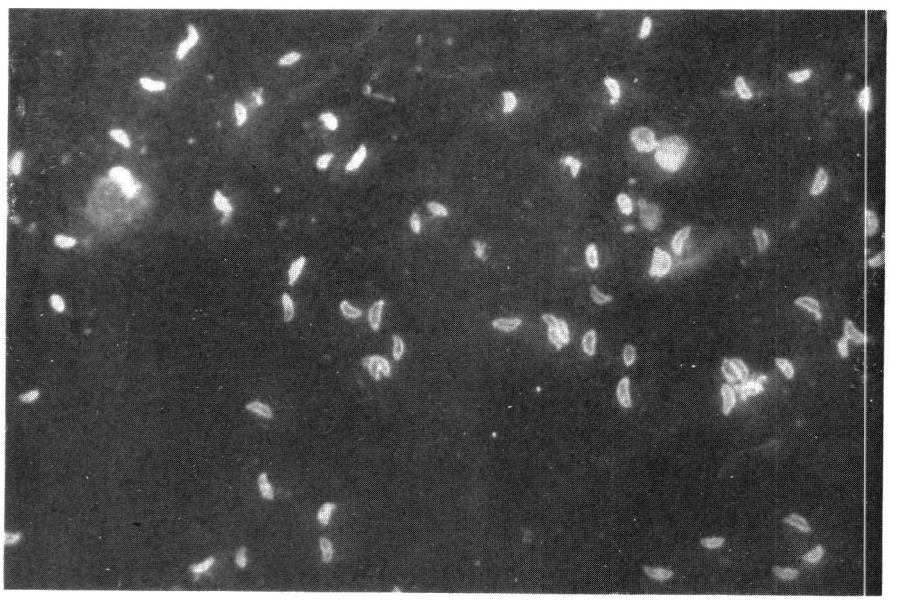


Fig. 1 - Peripheral fluorescence in toxoplasmosis.

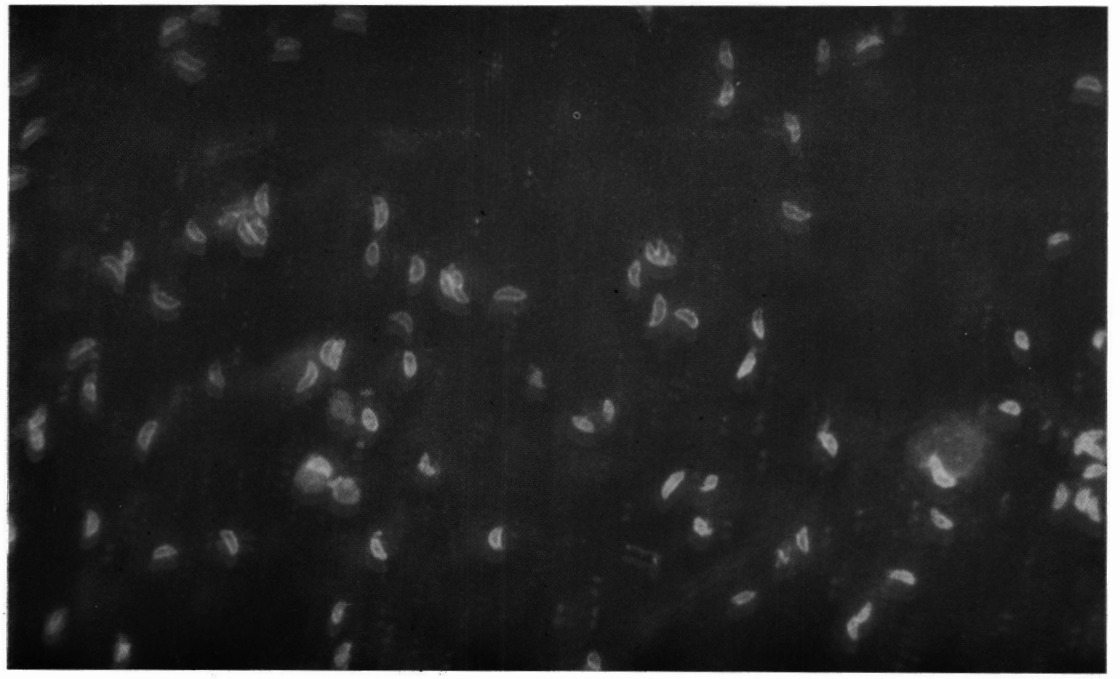


Fig. 1a. Grade IV Fluorescence.

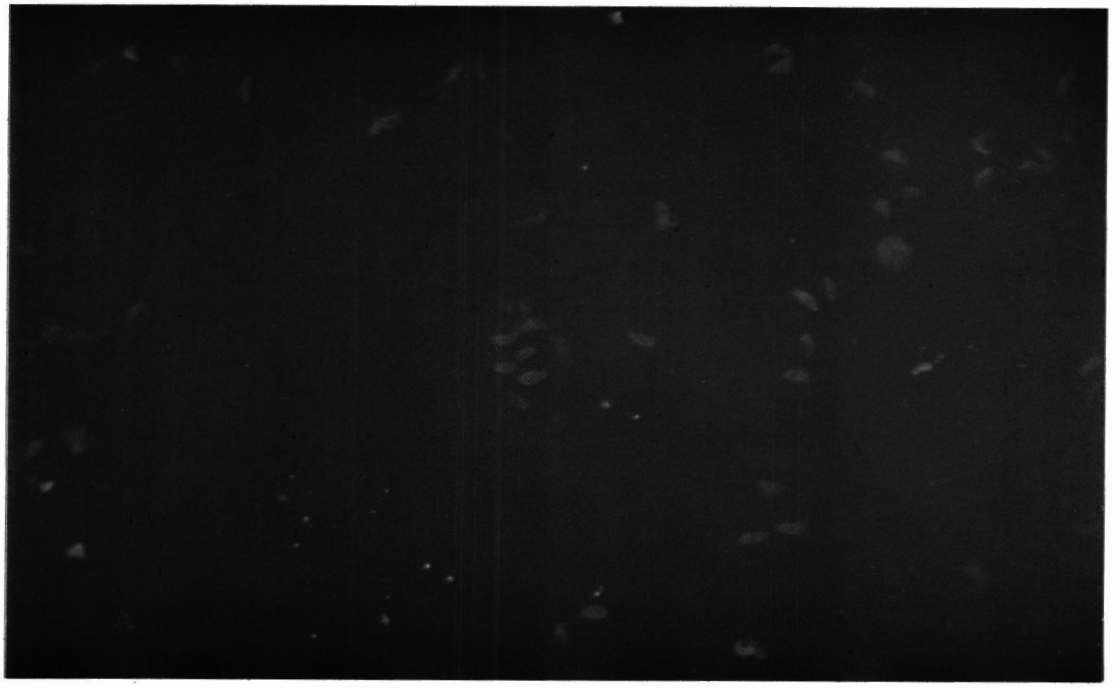


Fig. 1b. Grade I Fluorescence.

Fig.1. Fluorescence in the Indirect Fluorescent Antibody Test for Toxoplasmosis.

RESULTS

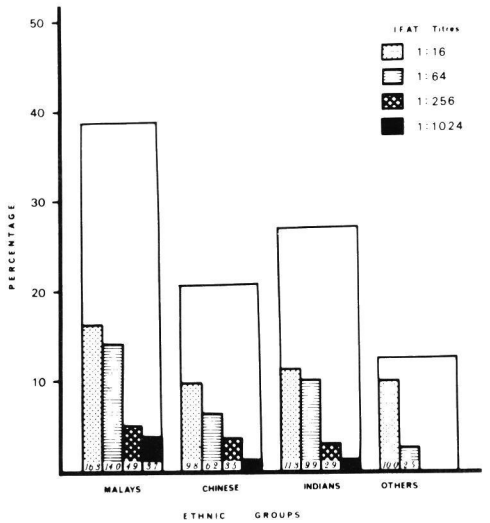
Of the 1,459 women examined, 394 (27.0%) showed positive titres of toxoplasma antibodies; 313 (21.5%) with titres below 1:256, 54 (3.7%) with titre of 1:256 and 27 (1.8%) with titre of 1:1024. (Table I).

Distribution of antibodies in the various race groups

Table I shows the distribution of toxoplasma antibodies in the various ethnic groups of antenatal patients mentioned (Fig.2).

Fig. 2

PERCENTAGE DISTRIBUTION OF ETHNIC GROUPS WITH TOXOPLASMA ANTIBODIES



It was interesting to observe that the antibody rate was significantly higher in the Malays than those in the other groups. Though with a smaller population of 431 Malays, which was less than the number of 615 Chinese, the overall incidence in Malays was 38.8% as compared to the 20.65% in Chinese. The 373 Indians showed an in-between incidence of 25.2%.

Table I also shows the distribution of the various titres of toxoplasma antibodies in the 4 ethnic groups. Each of the 4 four-fold antibody titres were found to be significantly the highest in the Malays, being about 30.3% with dilutions 1:16–1:64, 4.9% with the significant dilutions 1:256 and about 3.7% with 1:1024, and lowest in the Chinese, 16.0% with titres of 1:16–1:64, 3.5% with 1:256 and 1.1% with 1:1024.

Distribution in economic groups

Table II shows the distribution of toxoplasma antibodies in the two social-economic groups of income below and above $200/ .

75% of the patients were housewives, Of the remaining 25% who worked, 10.5% come from the higher income group while the other 14.5% were from the lower income group and they worked as in-door or outdoor labourers.

71.8% of the husbands of the patients with positive titres were from the lower-income group of Grades IV and V manual workers who were factory-workers and out-door labourers. The other 28.2% were executive, businessmen, salesmen, teachers and clerks in Grades I, II and III.

Geographical distribution

Table III shows the geographical distribution of the patients with positive titres. It was found that 56.7% of the patients with antibodies came from the rural and suburban areas, namely estates, and villages with or without electricity and water supply. The other 43.3% was from various parts of Petaling Jaya and Kuala Lumpur.

There was no real difference in the distribution of low antibody levels in the village or town folks. However, of those with titres of 1:256, the percentage of positive village folks was three times that of the townsmen, and of those with 1:1024, it was 2½ times more in the villagers than in the townsmen.

DISCUSSION

The toxoplasma antibody incidence of 20.65% in our current group of Chinese agrees with the incidence of 17.2% (29/169), that was found by Singh *et al.* (1968) in their apparently healthy individuals from Singapore where the population was mainly Chinese. Tan and Zaman (1973) found a very low incidence of 5% or 11/220 in their Chinese group of outdoor workers in Peninsular Malaysia.

Singh *et al.* (1967) reported incidences of 27.7% or 56/202 and 12.5% or 6/48 in their survey of pig sera from Singapore and Malaysia respectively. Zaman *et al.* (1972) found a 26% incidence in 131 pigs from Singapore (Zaman *et al.* 1967).

Peterson *et al.* (1972) in assessing the role of cats in the transmission of toxoplasmosis, found that 20.9% of their 235 subjects had possessed a pet cat sometime during their life.

Here in our study a wide significant difference of the incidences of toxoplasma antibodies in the Malays (38.8%) and Chinese (20.6%) was also recognised to be due to two main factors. Firstly, the Chinese have their pork, cut up into small slices or shreds and thoroughly cooked, thus killing off the organism before the meat is consumed. Secondly most of the Malays are very fond of possessing pet cats while the Chinese usually keep dogs as watch-dogs and very few of them are fond of cats. Hence it is the Malays who are likely to have the toxoplasma oocysts transmitted to them from the faeces of their cats.

Hence it is realised that toxoplasmosis is a public health problem of the lower-income group. A careful consideration of their daily life and habits lead us to the many facets in their lives when oocysts transmissions are very likely. Firstly people of lower economic status look for daily past-times and hobbies in and around their homes and the domestic cat is one of the favourite pets especially amongst the Malays. Other favourite past-times of the rural people include gardening and sitting outdoors in the evening.

Cat lovers are often very lenient with their cats that are allowed to roam the entire household. Cats can be seen lurking around their owners;

Following this preliminary paper where the pattern of toxoplasma antibodies has been traced in our Malaysian pregnant women, we hope to report the congenital pattern of toxoplasmosis from our follow-up studies at a later date. A study into the association of toxoplasmosis and cats is now in progress.

ACKNOWLEDGEMENT

We wish to thank Dr. R. Bhagwan Singh, Director, Institute for Medical Research, Kuala Lumpur and Prof. T.A. Sinnathuray, University Hospital, for their encouragement, advice and permission to publish; the nursing and medical staff of the antenatal clinics for blood collections; Mr. C.C. Lee of I.M.R. Kuala Lumpur for all technical assistance, and Mrs. S.A. Kassim for typing this manuscript.

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	Malays	Chinese	Indians	Others	Total
Total Exam.	431	615	373	40	1459
Positive	168	127	94	5	394
%	38.8	20.65	25.2	12.5	27.0
1:16	70(16.3%)	60(9.8%)	42(11.3%)	4(10.0%)	176(12.1%)
1:64	61(14.0%)	38(6.2%)	37(9.9%)	1(2.5%)	137(9.4%)
1:256	21(4.9%)	22(3.5%)	11(2.9%)	–	54(3.7%)
1:1024	16(3.7%)	7(1.1%)	4(1.1%)	–	27(1.8%)

Table I. Distribution of Toxoplasma antibodies in antenatals by race.

Titres	Percentage of Population with toxoplasma antibodies	
	Higher income (Grades I-III)	Lower income (Grades IV-V)
1:16 & 1:64	21.9	56.3
1:256	3.2	14.5
1:1024	3.1	1.0
	28.2	71.8

Table II. Distribution of toxoplasma antibodies by social economic groups. (Husbands' status).

Titres	Percentage of Population with toxoplasma antibodies	
	Villages	Towns
1:16 & 1:64	40.8	37.3
1:256	13.2	4.9
1:1024	2.7	1.1
	56.7	43.3

Table III. Geographical distribution of toxoplasma antibodies.

Ototoxic Therapeutic Agents

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Most therapeutic drugs and agents have to a greater or lesser extent undesirable effects on the patient. These effects may be mild or severe; temporary or permanent. Drugs with such side effects on the inner ear are termed ototoxic drugs. The sequele of the toxic effects are either a temporary or more often a permanent loss of function. Once the inner ear which is essentially a sensori-neural organ is damaged recovery is incomplete or absent. This is true of all specialized neural tissue. The side effects to a particular ototoxic drug is not uniform in all patients. Some may not manifest any ill effects at all, while others may show rapid onset of symptoms. There seems to be an idiosyncracy of the auditory neural tissue to these drugs. This decides whether toxicity will occur, and when it does the rate of onset and severity. These ill effects may manifest itself early or late - sometimes occuring after the withdrawal of the drug. It is this later feature that calls for a constant awareness of the physician to the danger of these drugs. Once the organ is damage the functional loss either of balance or hearing is a permanent feature.

The common ototoxic drugs used for treatment of infections are shown in Table I. The ones that are in common use are the antibiotic group. Other drugs especially in the miscellaneous group are only occasionally used. These drugs cause damage by their direct action on the end organs of hearing and balance or by interference with the metabolism of the neural tissue or its supporting cells.

Thalidomide

This drug was extensively used in the late fifties as a sedative in the first trimester of pregnancy. It is particularly damaging to the developing embroyo causing severe and multiple deformities, such as agenesis or maldevelopment of the limbs, etc. It also causes severe deformity of the external, middle and inner ear resulting in different degrees of conductive and sensori-neural deafness. Livingstone (1965) found arrested development of the labryinth in 6 out of 25 cases causing severe sensori-neural deafness. Fortunately, this drug has been withdrawn after the tragic effects on new born infants.

Ototoxic Antibiotics

Antibiotics with the streptomyces chain as a basic structure are one of the most effective and cheap anti bacterial agents. Unfortunately, its main draw-back is its toxic effect on the inner ear.

Streptomycin

Although many antibiotics have since been discovered or synthesized yet the streptomycin group of drugs have not lost their importance as the most effective drug against all forms of tuberculosis. However, its most serious drawback is its neurotoxical and ototoxical effect, first described by Brown and Hinshaw of the Mayo Clinic (1946). Since then a great many clinical and experimental papers concerning the ototoxicity of this basic streptomyces antibiotic have been published.

There are two forms of streptomycin.

(a) Streptomycin sulphate.
(b) Dihydrostreptomycin.

Streptomycin Sulphate

This drug is specifically toxic on the vestibular part of the labyrinth causing disturbances of balance. The symptoms of vertigo, nausea and vomiting, appear early in the course or within a month of commencement of treatment. It is therefore possible to stop further damage by withdrawing the drug. However, damage to vestibular part of the auditory nerve does not cause severe disturbance of balance as compensation by visual and tectile sensations take place, except in astranauts for whom complete integrity of the vestibular part of the labyrinth is essential in weightless state. This drug also causes a mild degree of high tone deafness and occurs several months after cessation of the treatment. Usually high doses are necessary up to 24 mg/Kg body weight, and is not seen in patients whose daily dose does not exceed 0.5 gm. Electrophysiological experiments of Stange et al (1964) proved that streptomycin by injuiring the metabolism, interferes with the excretion of the drugs by the cellular membrane. This results in a high concentration of streptomycin within the sensorineural cell with subsequent loss of function. Impaired renal function increases the susceptability to these drugs. There is an increase in the serum concentration of the drug in such patients.

Experiments to reduce this toxicity has been going on for many years, since this is an important and valuable drug. Holz et al (1968) found in animal experiments that ozothin an hydrosoluble oxidation product of oleum terebinthinae (turpentine oil) in combination with streptomycin not only increases the bacteriocidal effect of this antibiotic but also decreases its ototoxicity. Streptomycin by itself in therapeutic concentration causes marked hair cell degeneration in the organ of corti in guinea pigs but when given in combination with ozothin has no ill effects (Fig. 1). It acts by altering the permeability of the cellular membrane and so enhances the drug absorption and excretion. In this way, it not only increasing the intracellular concentration of the drug but also prevents stasis for a long time within the cytoplasm. The significance of this finding, is that it gives streptomycin sulphate an entirely new therapeutic possibility.

The effect of this drug on foetal labryinth used during pregnancy has been investigated by Conway & Birt (1965). They have shown that it crosses the placenta barrier. Of the seventeen children exposed to this drug during pregnancy four of them were found to have unilateral loss of hearing at 8000 Hz but no deafness in the speech frequency. The mothers of these children were found to be affected by high tone deafness. Therefore, children whose mothers have had streptomycin during pregnancy are at risk and therefore should have test of their labyrinthine function done before being giving streptomycin in future.

Dihydrostreptomycin

Dihydrostreptomycin is particularly toxic to the cochlear even in moderate amounts. There is often a latent period between the cessation of treatment and onset of deafness of an irreversible nature. Therefore, its use even in combination with other antibiotics like penicillin should be avoided.

Neomycin

This antibiotic was first isolated by Wakemann & Lechevaliar in 1949, from a soil organism streptomyces Fradiae. It was purified by Peck who isolated three active compound designated A,B and C. The one of importance therapeutically is compound B. It has the structure very similar to streptomycin.

Neomycin is poorly absorbed by the gastor-intestinal tract and about 97% of an orally administered dose is eliminated unchanged in the faecies. Toxicity has been reported even by this route of adminsitration – [Gibson (1967), Lindsay et al (1960) Last (1965). King (1962)] (Fig 2). In all cases the toxicity is directly proportional to:

(a) The dosage. The larger the dose the greater the absorption into the systemic circulation.

(b) The state of the gastro-intestinal tract. Acutely inflammed tract, e.g. ulcerative colitis absorbed more neomycin than normal tract (Fig. 3).

(c) Stasis in the gastro-intestinal tract as in chronic intestinal obstruction in whom the drug is retained over a long period of time with possible absorption within the system.

(d) The renal function. Whatever neomycin that is absorbed is excreted by the kidney. When renal function is impaired high concentrations build up in the serum and this, produces rapid toxic symptoms to the patient. However, renal damage is not a prerequisite for toxicity. In fact, neomycin itself is nephrotoxic and failure of excretion may be the result of this.

(e) Concentration in the serum. The higher the concentration in the serum the greater the amount of the drug that diffuses into

the neural epithelium.

(f) Route of administration. Although neomycin is used as a topical application in cavities such as the pleural space; in gastrointestinal infections; as a colonic lavage in large bowel surgery; as topical application over skin surfaces and as an aerosol, the drug is absorbed into the general circulation via the surfaces, in sufficient concentrations as to cause toxic symtoms (Fig. 3). The rate of absorption is enhanced by the inflammatory process that is invariably present.

Kanamycin

This is closely allied to neomycin, and is only slightly less ototoxic. It is a potent antibiotic against resistant organisms and used extensively in renal diseases, renal transplants and in those patients on immuno-supressive drugs. The drug is given parentarally. Stupp et al (1967) has shown that the concentration of kanamycin in the perilymph of guinea pigs rises rapidly to high concentrations beyond a certain dosage (Fig. 4) while the concentration in other organs has a proportional rise related to the dosage. Due to its ototoxicity it should be used only when there is strong indication and its doses controlled audiometrically. Most patients susceptable to the side effect of this drug appear to complain of tinnitus in the early stages and so should have the drug withdrawn. The effect is worse if there is renal insufficiency and therefore a satisfactory renal function is a prerequisite if this drug is to be used.

Histopathological changes in ototoxic group of antibiotics

The histopathological changes of the chochlear due to ototoxic antibiotics have been mainly studied in experimental animals and on occasions in human post mortem specimens. The changes are mainly seen in the organ of corti. The outer hair cells of this organ suffers most degeneration, especially in the basal turn of the chochlear while the inner hair cells are less involved. Degenerative changes in the cochlear nerve itself; in the central nuclei, (i. e.) the dorsal cochlear nuclei with neomycin, the lateral vestibular or Deiters nuclei with streptomycin and in the cerebellar cortex with streptomycin have been recorded. (Scott-Brown 1971).

Histopathological findings in humans are very scant. Only one case has been reported with neomycin ototoxicity - Lindsay et al (1960). The inner hair cells were completely destroyed with less involvement of the outer hair cells contrary to animal experiments. The pillars were involved to a lesser extent.

Quinine

Quimine is not taken frequently nowadays. It was at one time the commonest and cheapest anti malarial drugs available in Malaysia. When it is taken over a period of time in excess, it causes severe deafness with tinnitus. Not all patients taking this drug exhibit these symptoms for there is marked idiosyncracy to this drug and so toxic doses vary from patients to patient. Usually the deafness is reversible if the drug is stopped in time. There is also strong evidence that if given to pregnant mothers it crosses the placenta barrier and cause congenital deafness in the off-spring - (Taylor 1937).

Salicylates

Deafness due to salicylates is uncommon. Here again there seems to be a marked idiosyncracy. High doses such as is given in rhumatic diseases can produce acute salicylate intoxication with a sensorineural hearing loss characterised by a nearly equal threshold elevation for all frequencies (Fig. 5b). The hearing loss is entirely reversible if the drug is withdrawn in time and appears to be dependant upon the level ofsalicylate in the plasma- (Bernstein et al 1962). The drugs act mainly at the end organ level of the chochlear as evidenced by only a pure tone loss with a moderate but reversible depression of discrimination. There is no impairment of central summation or depression of the chochlear microphonics or action potentials. Further, these patients also manifest vestibular disturbances characterised by dizziness, vertigo, and loss of balance. The depression of vestibular function and complete recovery when drug is stopped as shown by caloric stimulation, suggests again a peripheral rather than central disturbance (Fig. 5c). The likely mechanism of salicylate toxicity is that the salicylate acts as an enzyme inhibitor and in this way alters the biochemical and bioelectrical integrity of the inner ear (Silverstein et al 1976).

Chloremphenicol)

Since its introduction in 1948 medical opinion regarding the use of chloremphenicol has varied a lot

due to its many side effects. Only one case of bilateral sensori-neural deafness in a child has been reported following parenteral therapy. (Gargye et al 1959). However, there is strong animal experimental evidence to suggest that topical application of chloremphenicol into the middle ear especially in the region of round or oval window for relatively short periods and in low concentration causes severe damage to the organ of corti and variable damage to the striavascularis in the region of the basal turn of the cochlear. Probably the effect is by direct diffusion into the inner ear, (Proud et al 1968). Evaluations of this experiment in the light of human ototoxicity to drugs such as kanamycin and dihydrostreptomycin should make all otologist hesitant in using chloremphenicol topically in the middle ear.

Diuretic-Ethacrynic Acid

Ethacrynic acid is a potent diuretic which causes chloride excretion balanced mostly by sodium and varying amounts of potassium. Its action is almost immediate after intravenous infusion and lasts 1–3 hours. It is especially useful in patients with refractory oedema, cardiac decompensation, hepatic cirrhosis and renal diseases. Apart form other known side effects like gastro-intestinal distrubances, hypoglycaemia, hyperuricemia and agranulocytosis, it also causes transient or permanent deafness, (Schneider & Becker 1966). In all cases the deafness appears immediately after infusion. Poor renal function seems to be a common factor. The pathology seems to be localised mainly to the outer hair cells (see Fig. 6). Therefore it is imperative that this drug be used with extreme caution in the presence of renal damage.

Comments

Evidence of ototoxicity, both clinical and experimental of drugs used for the treatment of specific diseases, in patients are so strong that it becomes obligatory on the part of the physician, to be cautious whenever such drugs are sued. Once the neural element of the chochlear or the vestibule is damaged complete recovery except in a few cases like salicylate is unlikely. While adequate compensation takes place when the vestibular component of the eight cranial nerve is damaged; damage to the cochlear component invariably results in a permanent loss. Management then can only be symptomatic. The severely deaf patients are ueprived of the important mode of communication and hence become socially isolated. This will lead to severe social, economic and emotional problems.

Idiosyncracy to the drug seems to be a definite factor in ototoxicity, and patients must be screened for this and onset of early symptoms like vertigo, tinnitus, should be taken seriously. The severity of the damage seems to be determined by several factors such as the dosage; the concentration of the drug in the serum; the rate of excretion by the kidney or detoxication by the liver; the duration of exposure to the drug and the route of administration. Due to the irreversible nature of the damage, the physician should exercise great care whenever these drugs are used. Alternate drugs if available should be used and if it becomes necessary to use these drugs, the patients should be screened with an audiogram (and liver and kidney function assessed). In the presence of sensori-neural hearing loss, the drug should be used in low concentration and for a short period as possible. Further these patients should be followed up at regular intervals for assessment of the cochlear function.

Summary

A review of the literature on ototoxic threapeutic agents is made. Toxicity of the commonly used drug like the streptomyces group is discussed in some detail. The sequele of these toxic agents are either temporary or most often permanent. There seems to be a definite ideosyncracy of patients to most of these ototoxic drugs and the toxic effects are directly proportional to several factors such as the dosage of the drugs, the concentration in the blood serum, duration of exposure, etc. Patients with renal damage are more prone to the toxic effect, due to failure of rapid excretion of these drugs. A plea is made to avoid the use of these agents if alternative drugs are available or if absolutely necessary to use them with caution.

Acknowledgement

The author would like to thank the Medical Illustration Unit, Faculty of Medicine for the illustration, and Miss A.M.Tan, Departemnt of Otorhinolaryngology, University of Malaya, for typing the manuscripit.

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TABLE I

COMMON OTO-TOXIC AGENTS

1. THALIDOMIDE.
2. OTO-TOXIC ANTIBIOTICS –
   THE BASIC STREPTOMYCES GROUP.
   STREPTOMYCIN – SULPHATE.
   – DIHYDROSTREPTOMYCIN.
   NEOMYCIN
   KANAMYCIN
   GENTAMYCIN
   VANCOMYCIN
   VIOMYCIN (ANTI TUBERCULOSIS)
3. QUININE
4. SALICYLATES
5. CHLOREMPHENICOL
6. DIURETIC – ETHACRYNIC ACID
7. MISCELLANEOUS GROUP

ARSENIC (SALVARSAN)	LEAD
ANTIPYRINE	MERCURY
ATROPHINE	MORPHINE
BARBITURATES	NOVOCAINE
CHLOROFORM	SCOPOLAMINE
ERGOT	STRYCHNINE
IODOFORM	CHLORDICIZEPOXIDE (LIBRIUM)

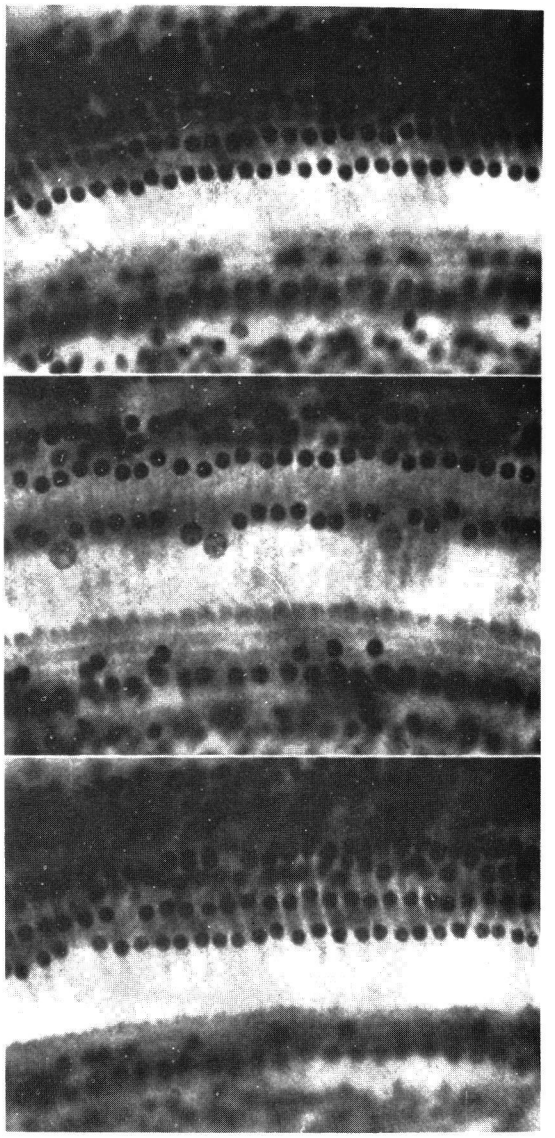


Fig. 1. Histological picture of the outer and inner hair cells of the organ of corti.
Top Normal hair cells of guinea pigs characterized by special symmetry of nuclei and by a serial arrangement.
Centre Animals after intra muscular injection of 10 x 250 mg/Kg streptomycin sulphate. Hair cells showing degenerative changes in the nucei.
Bottom Animals after intra muscular injections of 10 x 250 mg/Kg streptomycin sulphate and 10 x 12 ml/Kg ozothin showing normal hair cells (E.Holz et al 1968).

A Summary of Known Cases of Deafness Related to Oral Administration of Neomycin

Author	Age	Sex	Disease	Oral Dosage, Gm	Therapy, Days	Cochlea Deafness
Halpern[5]	40 Yr	M	Cirrhosis Esophageal vein Hepatic coma	About 600*	About 70	Complete
Last[6]	51 Yr	M	Cirrhosis Hepatic coma	560	140	High frequency loss
Greenberg[7]	53 Yr	F	Perforated colon Diverticulum	46	11	Complete
King[8]	18 Mo	F	Gastroenteritis	2	3-4	Complete
Gibson	11 Yr	M	Chronic ulcerative colitis	>600	About 300	Complete

Fig. 2. A summary of known cases of deafness related to oral administration of neomycin (Arch. Otolaryn. 86; 1967).
* Part of the total neomycin dosage was obtained with caloric irrigations of a neomycin solution.

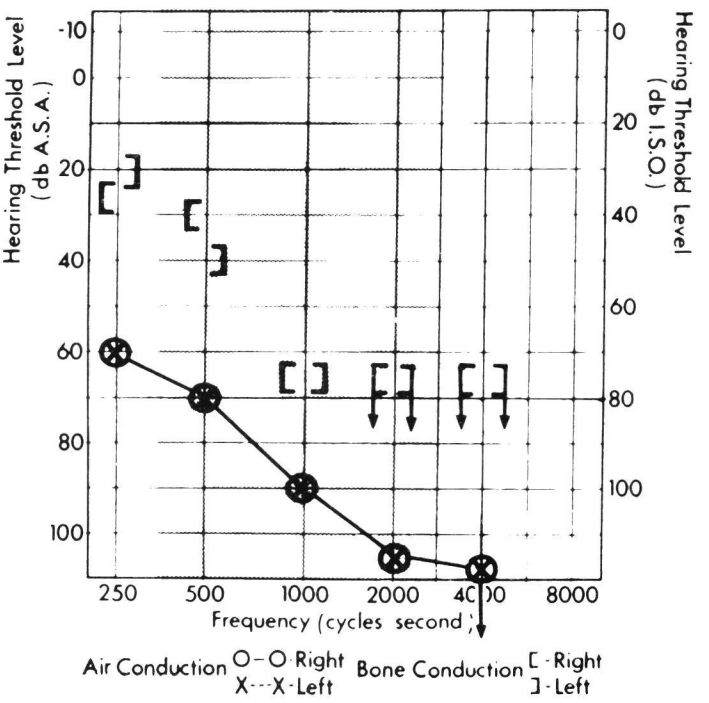


Fig. 3. Audiogram of a 11 year old boy suffering from ulcerative colitis, who was given oral neomycin approximately 600 gm over a period of 300 days and who complained of hearing loss. Bone conduction thresholds felt to be vibration. Speech discrimination was 0% at 100 db. Note severe loss of hearing over the speech frequency (Gibson 1967).

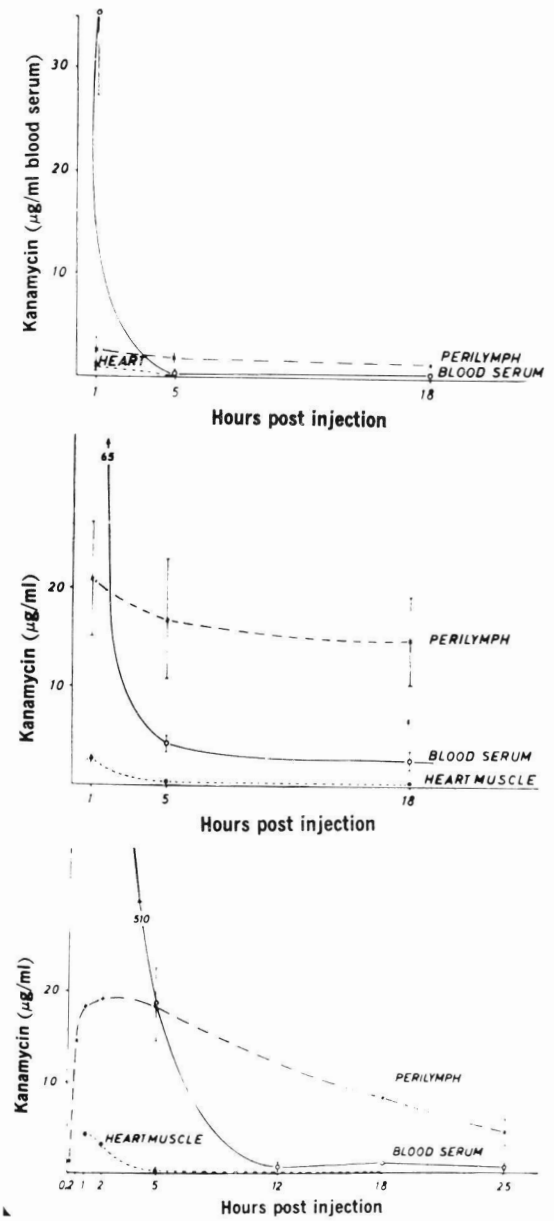


Fig. 4. Kanamycin level in the serum, heart muscle and perilymph in relation to the kanamycin dosage.

Top 25 mg/Kg.

Centre 50 mg/Kg.

Bottom 250 mg/Kg.

Note the high sustained concentration in perilymph (H. Stupp et al 1967).

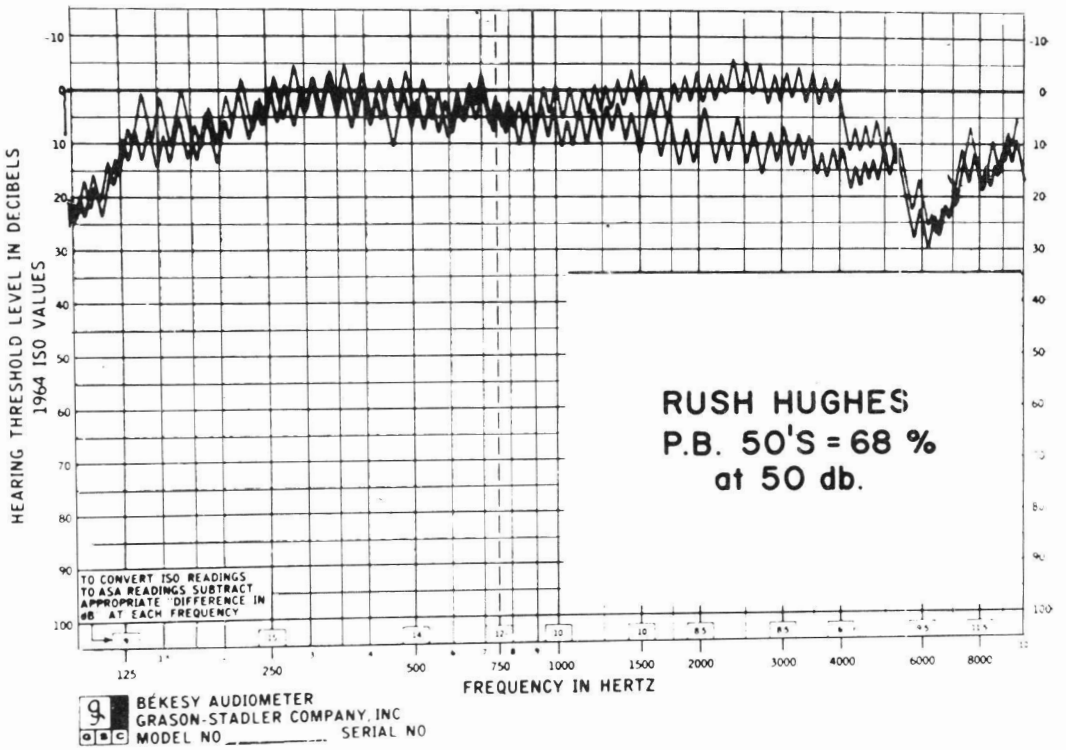


Fig. 5a Normal Pretoxic Bekesy Tracing. Note threshold of hearing between o – 10 db in all frequencies. (BERNSTEIN et al, 1962).

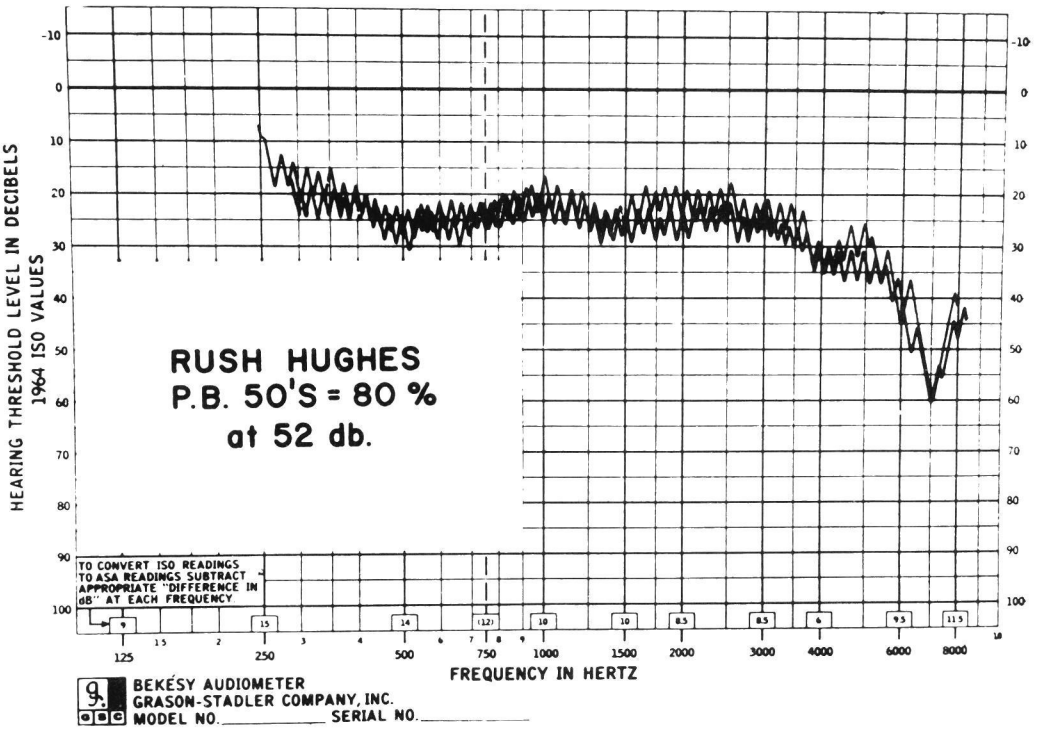


Fig. 5b. At time of salicylate intoxication, there is a nealy equal threshold elevation of all frequencies. Plasma level 26.5mg/100ml.

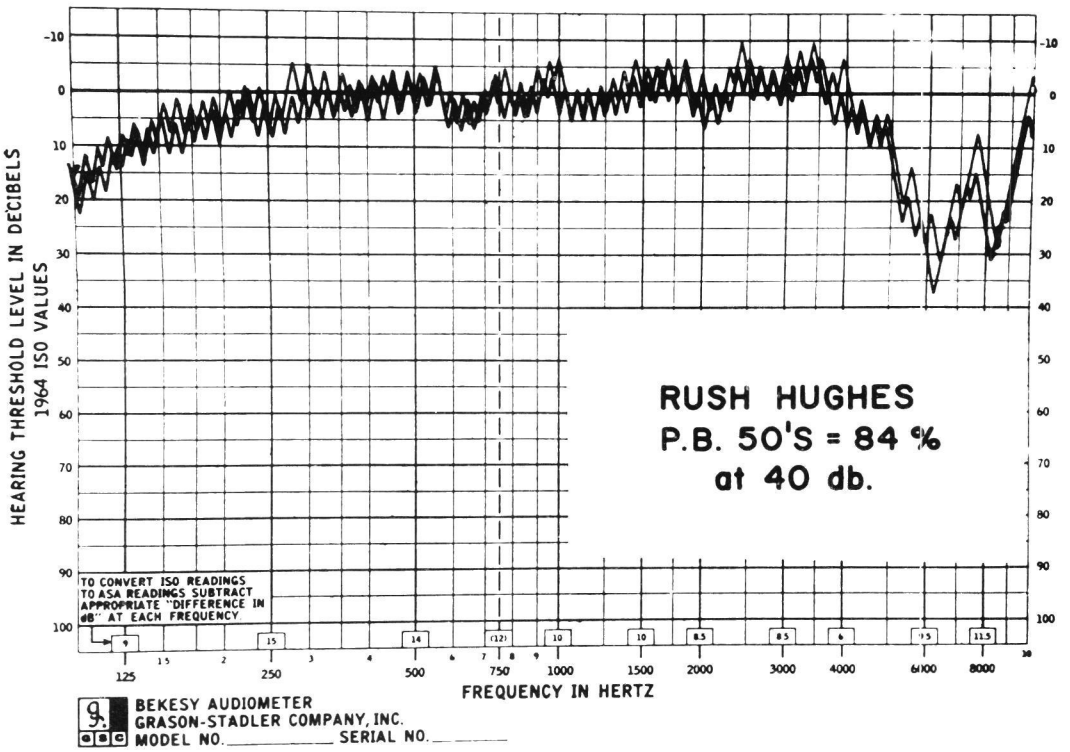
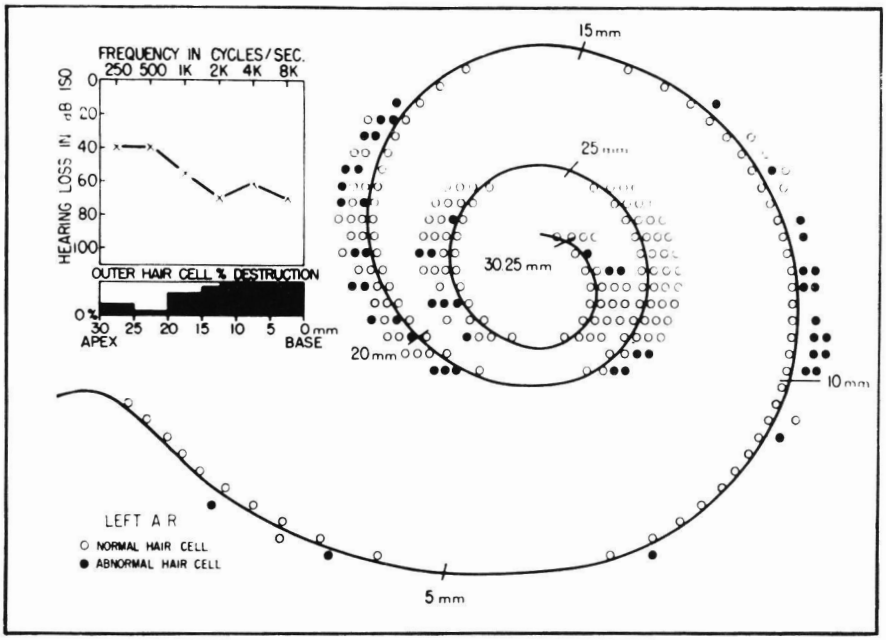


Fig. 5c. Recovery audiogram taken 4 days after withdrawal of salicylate showing normal tracing.



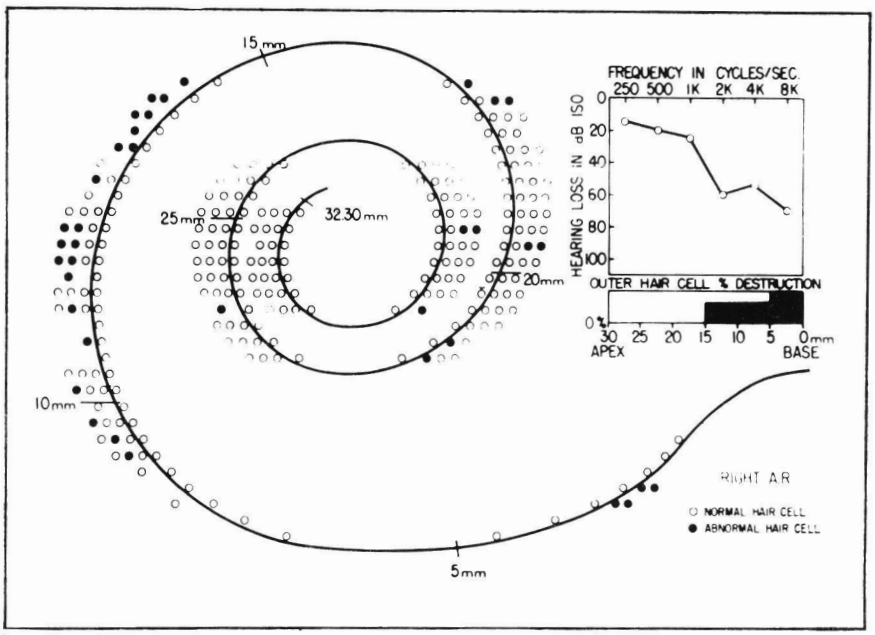


Fig. 6. Graphic reconstruction of the outer and inner hair cells of the organ of corti of the Left (Top) and Right (Bottom) cochlear, showing outer hair cell loss with preservation of the inner hair cells of a 53 year old woman, who 20 min. after receiving 50 mg. of ethacrynic acid I.V., complained of hearing loss. Note the the hearing loss (insert) in the pure tone audiogram (Matz et al 1969).

Puerperal sterilisation: comparison of the use of local anaesthesia and epidural lumbar anaesthesia

By

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In Malaysia, puerperal tubal ligations are performed under various forms of anaesthesia. The most commonly used method is local anaesthesia, Spinal anaesthesia and general anaesthesia are not often used because of lack of trained anaesthetists or doctors with anaesthetic experience. In a previous communication (Ng, K.H. and Wong, W.P., 1974), we assessed the safety, effectiveness and side-effects of lumbar epidural anaesthesia and its application to obstetric practice in Malaysia. This paper presents a comparison of the use of local anaesthesia and lumbar epidural block for post-partum sterilisation.

Presented at the 8th Malaysian Singapore Congress of Medicine September 7th–8th, 1974.

MATERIALS AND METHODS

There were in all 400 women who had puerperal sterilisation in this study. 200 of them had local anaesthesia and 200 had lumbar epidural block. All these patients had no contraindications for postpartum ligation. The type of anaesthesia used for each patient was randomly selected. All operations were performed in the University Hospital, Kuala Lumpur. The local anaesthesia was given by house officers, medical officers and lecturers who performed the operation. Epidural anaesthesia were administered by one of us and the operations were performed by house-officers and medical officers.

The premedication was standardised for all patients and consisted of 100 mgm. of pethidine and 50 mgm. of promethazine half to one hour before the operation. The anaesthesia was standardised, usually 15-20 ml. of 1 percent lignocaine was used for local infiltration. It was given beneath the skin, alongside and in the site of incision. The method of giving a lumbar epidural block has been described previously (Ng, K.H. and Wong, W.P., 1974). Basically, a 16 gange Touhy needle was used generally between second and third lumbar vertebrae. Loss of resistance was used as a method of testing entry into the epidural space. Low dosages of 0.5 percent marcain with adrenaline 1 in 200,000 was used. Before the block was undertaken, preliminary safety measures were undertaken. A control blood pressure reading was taken; an open vein was secured; a suitable vaso pressor, and a supply of oxygen with means of easy administration were made readily available. The operative procedure was initiated 10 minutes after the anaesthetic has been given.

RESULTS

The patients in the two groups were comparable in respect of race, parity, age and social class.

The patients who had local anaesthesia consisted of 86 Chinese, 93 Indians and 21 Malays. Sixty-five percent of the patients were grade–multipara with seventy percent in social class four and five. The average age was 29 years with a standard deviation of 5 years.

The patients who had lumbar epidural anaesthesia consisted of 88 Chinese, 86 Indians, 20 Malays and 6 other races. Sixty-three percent of the patients were grandemultipara with seventy-one percent in social class four and five. The average age was 28.4 years with a standard deviation of 5 years.

ANAESTHESIA ACHIEVED (TABLE 1)

The local anaesthetic agent was given to a small area on the skin and therefore the corresponding area of anaesthesia was necessarily small. The lumbar epidural block achieved a much greater area of anaesthesia, generally dermatome levels between T_7 and L_2. This large area of analgesia achieved was very important because occasionally the surgical incisions needed to be enlarged or another incision was necessary because of difficulty encountered during the operation or because of troublesome bleeding.

In all, there were 5 failures with the lumbar epidural block, an incidence of 2.5 percent. In one of these patients, the anaesthesia achieved was patchy.

TABLE I

DERMATOME LEVELS ACHIEVED WITH LUMBAR EPIDURAL BLOCK

UPPERMOST	DERMATOMES	LOWERMOST	DERMATOMES
T_{11}	3	T_{12}	8
T_{10}	11		
T_9	34	L_1	45
T_8	88		
T_7	31	L_2	138
T_6	22		
T_5	4	L_3	4
T_4	2		
FAILURES	5	FAILURES	5

SURGEONS' ASSESSMENT OF EFFECTIVENESS OF ANAESTHESIA (TABLE 2)

Effectiveness of anaesthesia during operation was assessed by the surgeons who performed the operations. The results showed that there was a significant difference; lumbar epidural anaesthesia being superior to that produced by local anaesthesia ($p<0.01$). Out of the 191 patients who had a successful lumbar epidural block and was assessed by the surgeons, 173 patients were considered to be well relaxed and anaesthesized for puerperal tubal ligation. In contrast, out of 154 patients who had local anaesthesia and who were assessed, only 45 patients were considered to be well relaxed and painfree.

This was reflected in the shorter operating time for patients who had lumbar epidural block which was significantly different in the two groups, (Table 3). The mean operating times with standard deviation were 39.6 mins ± 4.1 mins and 29.4 mins ± 5.8 mins respectively for patients who had local anaesthesia and patients who had lumbar epidural

block. When patients experience pain during the operation, they had a tendency to hyperventilate with consequent displacement of intestines into the operative field rendering it much more difficult to complete the operation.

Also, there was a tendency to use a more difficult but cosmetically better incision because of the good relaxation of the patients. The semi-lunar sub-umbilical incisions were used in only 13 patients who had local anaesthesia whereas 35 patients with lumbar epidural block had the same incisions.

TABLE II

EFFECTIVENESS OF ANAESTHESIA AS ASSESSED BY SURGEONS

SURGICAL ASSESSMENT		LOCAL ANAESTHESIA		LUMBAR EPIDURAL BLOCK	
GOOD	*	45		173	
FAIR	+	89		18	
POOR	O	20		5	x
NOT KNOWN		46		4	

* $p < 0.01$
\+ $p < 0.01$
o $p < 0.01$

x FAILURES

TABLE III

INCISIONS USED AND TIME TAKEN TO DO TUBAL LIGATIONS

	LOCAL ANAESTHESIA	LUMBAR EPIDURAL BLOCK
Type of incisions		
Sub-Umbilical Midline	183	160
Sub-Umbilical Semi-lunar	13	35
Time Taken (in minutes)	* 39.6 S.D. 4.1	29.4 S.D. 3.8

* $p < 0.01$

PATIENTS' ASSESSMENT OF ANAESTHESIA (TABLE 4)

We attempted to assess the effectiveness of the two types of anaesthesia with special regard to absence of pain at operation. Of the 200 patients who had local anaesthesia, 10 complained of severe discomfort, 144 experienced mild to moderate discomfort while no pain was experienced by 37 patients. This was significantly different when compared with patients who had successful lumbar

epidural block where only 4 patients suffered severe discomfort, 55 experienced mild to moderate pain and 136 patients, had no discomfort whatsoever. The pain experienced with local anaesthesia consisted mainly of discomfort on incising the peritoneum, of attempts to locate and/or deliver the fallopian tubes and during suturing of the peritoneum. In 3 of the patients who complained of pain with the lumbar epidural block, the discomfort was experienced when the peritoneum was pulled on when suturing was necessary at the end of the operations. What was very important when experience of discomfort was encountered was that more patients who had local anaesthesia for puerperal sterilisation were prepared to advise others against a similar procedure, (Table 5). There was significant difference between these and the responses of patients who had lumbar epidural block ($p<0.01$). Out of 195 patients who had successful epidural block, only 10 would advise against a similar procedure under a similar anaesthesia. These responses seem to be very significant in the context of encouraging patients to have puerperal sterilisation as a method of contraception. We have seen patients who experienced discomfort during the sterilisation procedure complain bitterly to their neighbours. And if these occur as regularly as 20 per cent of patients who had puerperal sterilisation under local anaesthesia, one can envisage the disastrous effect on a local post-partum sterilisation programme.

TABLE IV

ANAESTHESIA FROM PAIN AS ASSESSED BY PATIENTS

PAIN ASSESSMENT	LOCAL ANAESTHESIA		LUMBAR EPIDURAL BLOCK
SEVERE	*	19	4 + 5 *
SLIGHT TO MODERATE	+	144	55
NIL	o	37	136
		200	200

* $p < 0.05 > 0.02$
\+ $p < 0.01$
o $p < 0.01$

* FAILURES

TABLE V

RECEPTION TO TYPE OF ANAESTHESIA

	LOCAL ANAESTHESIA	LUMBAR EPIDURAL BLOCK
Advise For	158	185
Advise against	42	10 + 5 ⁺

$p < 0.01$

⁺ 5 – failures

SIDE EFFECTS

One of the characteristics of good anaesthesia is absence of side-effects. One of the commonest side effects with lumbar epidural anaesthesia is its effects on the blood pressure, (Table 6). In this study of lumbar epidural block, minimal drops in blood pressure were seen in 106 patients while moderate hypotension, namely fall of 20 mmHg systolic and 15 mmHg systolic, were seen in 31 patients. 4 patients had marked hypotension; the blood pressures falling by more than 20 mmHg or below the level of 90/60 mmHg. In the 4 patients who had marked fall in blood pressures, it was found that relatively large amounts of anaesthetic (0.5 percent marcain and adrenaline 1/200,000) of more than 10 ml. were used. These patients improved with positioning and administration of intravenous saline (Ng, K.H. and Wong, W.P., 1974). It was also found that minimal and moderate falls in blood pressure were seen in patients who had local anaesthesia. It was very likely due to the type of sedation that was given. However, there was significant difference in the incidence of hypotension. Marked blood pressure depreciations seemed to be commoner in those patients with labile blood pressures, namely, patients who had toxaemia during pregnancy and this was seen in 10 of the patients who had local anaesthesia and 8 of the patients who had lumbar epidural block.

There were also a number of side-effects of lumbar epidural block, (Table 7). There were two accidental spinal punctures. After removing the needles from the sub-arachnoid spaces, lumbar epidural anaesthesia were successfully performed. There was no incidence of an accidental massive spinal through an inadvertent spinal puncture. One patient had difficulty in walking after lumbar epidural block but she recovered after 2 days. There was hypoalgesia and hypoesthesia on the external surface of the leg and was probably consequent to direct damage to the 3rd lumbar root. These incidences of complications of epidural block are not higher than many other series, (Dawkins, C.J.M., 1971). 6 patients who had local anaesthesia had mild skin infection with wound breakdown. The possibility is that the multiple needle injections of local anaesthetic may serve to introduce infection into the operative fields.

TABLE VI

COMPLICATION OF ANAESTHESIA: BLOOD PRESSURE

EFFECT OF BLOOD PRESSURE	LOCAL ANAESTHESIA	LUMBAR EPIDURAL BLOCK
1. No effect or slight rise	116	54
2. Minimal Drop	64	106
3. DROP of 20 mmHg Systolic and/or 15 mmHg DIASTOLIC	20	31
4. SEVERE (20 mmHg or 90/60 mmHg or less)		4
	200	195

TABLE VII

OTHER COMPLICATIONS

LOCAL ANAESTHESIA	LUMBAR EPIDURAL BLOCK	
1. Skin Breakdown with infection	6	1. Backache	2
		2. Rash over site of epidural with pruritis	2
		3. Accidental dural puncture (completed epidural afterwards)	2
		4. Bleeding	
		5. Difficulty in walking (2 days)	1
		6. Failed Block	5

DISCUSSION

It can be seen that lumbar epidural block compared favourably with local anaesthesia as a suitable anaesthesia for puerperal tubal ligation. This form of anaesthesia produced excellent analgesia and relaxation, was well accepted by patients and was associated with low incidence of side-effects. Though local anaesthesia is commonly practised, it can be seen in this comparative study that its greatest disadvantage lies in the high rates of patients' discomfort and subsequent, rejections of the whole operative procedure of tubal ligations. One of the ways of advoiding discomfort with delivery of the fallopian tube can be the use of 1% lidocaine tubal spray (Kumarasamy, T. et al, 1974). Lumbar epidural anaesthesia do have their side-effects, chiefly, hypotension but this can be circumvented by using low dosages of the anaesthetic agents. We recommend that lumbar anaesthesia to be more widely practised in Malaysia as an excellent anaesthesia for puerperal tubal ligation.

ACKNOWLEDGEMENTS

Thanks to Professor T.A. Sinnathuray for encouragement and permission to publish this paper and Miss Magasvari for secretarial help.

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Brow Presentation

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Brow presentation is an uncommon complication of labour and is the most unfavourable of all cranial presentations. Several factors have been implicated in its causation but in the majority of cases, the cause is unknown. In its management, the trend has shifted from a more conservative attitude to a more liberal use of caesarean section.

This paper presents our experience with six cases of brow presentation in labour seen at the University Hospital, Kuala Lumpur. The essential clinical features and views on management of this complication are discussed.

RESULTS AND DISCUSSION

1. Incidence

   Between 1968 to July, 1974, six cases of brow presentation in labour were seen out of a total of 15,990 hospital deliveries, the incidence therefore being 1: 2665 deliveries. Two patients were Chinese, two were Orang Aslis, one was Indian and one was Malay.

   Reported incidences vary from 1: 514 to 1: 3000 deliveries (1, 2, 3, 4, 5, 8). Donald (2) (1972) commented that the complication is rare and incidences vary widely.

2. Predisposing Factors

   (i) Parity

Three patients were primigravidas and 3 were multigravidas; the pattern comparable to reported figures of 52.4% and 47.6% respectively (4). Parity is therefore unlikely to be a factor.

(ii) Cephalo - Pelvic Disproportion

In 4 patients, the maternal pelvis was average gynaecoid based on both clinical and radiological assessment. There was radiological evidence of pelvic contracture resulting in cephalo-pelvic disproportion in one patient (16.67%). The maternal pelvis was borderline by radiological assessment in the other patient. Foeto - pelvic disproportion has been suggested to be an important factor in the causation of brow presentation, the incidence varying from 7.7% to 53.8% (3, 4, 5).

(iii) Prematurity and Big Babies

In two patients (33.33%), the baby's birth-weight was less than 2500 g. One of these patients had, in addition, the factor of pelvic contracture.

Prematurity has been suggested to be the other important factor in the causation of brow presentation, being present in 5.8% to 64.0% of cases (3, 7).

Not only is a smaller baby prone to brow presentation, but a large baby of over 8 pounds is similarly prone (4). This factor is not present in our patients: the birth-weights of the remaining babies ranged from 3160g to 3480g.

(iv) Foetal Abnormality

One patient delivered an anencephalic foetus of 6 pounds 13 ounces (16.67%). Anencephaly could present as a brow, though it more commonly presents as a face (6, 7).

(v) Nuchal Cord

This was present in one patient (16.67%) where the diagnosis of brow presentation was made during pregnancy and Caesarean section was done for persistent brow in labour. There was no evidence of nuchal cord in the other 5 patients. Kovacs (4) (1970) noted this factor in 14.3% of cases.

Other factors that have been associated with brow presentation include uterine abnormality, uterine myoma, placenta praevia and Premature rupture of membranes (4). These were not present in any of our patients.

3. Time of Diagnosis

The diagnosis of brow was made during the first stage of labour in 3 patients (50.0%); two in early first stage and one in late first stage. It was apparent only in the second stage in 2 patients (33.33%) and only in one patient was the diagnosis made during pregnancy (16.67%).

This pattern is comparable to reported figures of 9.5% of diagnosis made during pregnancy, 52.4% in the first stage and 38.1% in the second stage or at delivery (1, 3).

4. Position of the foetal head before diagnosis

In 5 patients (83.33%), the head was not engaged during labour. In one patient, the head was engaged in the occiput-posterior position with deflexion; the subsequent brow presentation probably secondary to increasing deflexion.

The brow was anterior in 2 patients (33.33%), posterior in one patient (16.67%) and transverse in 3 patients (50.0%) compared to reported figures of 51.0%, 21.0% and 28.0% respectively (1).

5. Other complications of labour

Dysfunctional labour was present in one patient (16.67%), in whom caesarean section was done after 21 hours in labour. There were signs of obstructed labour at operation.

Meltzer et al (5) (1968) reported a 30.5% incidence of dysfunctional labour in association with brow presentation.

6. Mode of Delivery

In 5 patients (83.33%) the mode of delivery was caesarean section. In one patient with the anencephalic foetus, mid-cavity forceps was applied following manual conversion to face presentation (mento-anterior); cleidotomy was done for shoulder-dystocia and a fresh - stillbirth was delivered.

In the literature (1, 3, 4, 5, 6, 8), spontaneous brow delivery is said to occur in 7.0% to 45.0% of patients and forceps delivery following spontaneous or manual conversion in 20.0% to 60.0% of patients. The caesarean section rate varies from 20.0% to 70.0%.

The majority opinion favours caesarean section for brow presentation in labour (2, 3, 4, 6, 7). The few who advocate a trial of brow (1, 5, 8) nevertheless suggest caesarean section if there is contracted pelvis; a term baby with average size; brow posterior or if the foetal station is high; and caesarean section in labour if there is no progress or if labour is arrested at the phase of active acceleration or prolonged at the deceleration phase or during the second stage.

A full trial is allowed if the brow is engaged and labour progresses well to full dilatation, at which either one allows a spontaneous brow delivery or forceps delivery following conversion. Still, caesarean section will be performed for failed conversion or failed forceps.

7. Viability of foetus

All 5 babies delivered by Caesarean Section were live-births and were well 6 weeks after delivery. The only foetal death was related to anencephaly which is not compatible with continued existence of the foetus and therefore probably not related to the brow presentation.

The general opinion is that foetal morbidity is increased following spontaneous or manual conversion and especially following internal podalic version and breech extraction (4), the incidence being 50.0% to 100.0% while it is about 20.0% following caesarean section.

Similarly, foetal mortality is high following manual conversion and failed forceps (16.0% to 60.0%) and following internal podalic version and breech extraction (100.0%) (3, 4). The perinatal loss is 12.8% following spontaneous brow delivery. With primary caesarean section for brow presentation in labour, there should be no foetal loss (3, 4, 8).

The morale is that the best foetal results are associated with the least amount of interference vaginally.

COMMENT

Several relevant facts about brow presentation

in labour should be kept in mind, viz:

a) In the majority of cases (over 75.0%), the cause is unknown. Prematurity and foeto-pelvic disproportion are probably important factors in its causation. The influence of foetal abnormality and nuchal cord complications may be significant.

b) In a brow, the largest diameter of the head presents, that is, the mento-vertical diameter of 13.5 cm. Engagement is possible *only* if the baby is very small or if the maternal pelvis is more than normal size (2, 6, 7);

c) Opportunities for the relative *safe* delivery of these patients other than by caesarean section are rare because the doctor has seldom much personal experience with these conversion procedures which are *not* simple;

d) There is no place for internal podalic version and breech extraction in a brow presentation in labour;

e) Foetal prognosis is improved by less interference vaginally and by the more frequent use of caesarean section as the mode of delivery;

f) The more liberal use of caesarean section in this complication is recommended as this seems the only sensible and obvious treatment.

ACKNOWLEDGEMENTS

The authors thank Professor T.A. Sinnathuray for his encouragement and Miss Magasvari for secretarial assistance.

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Pseudopseudohypoparathyroidism: A case report

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Introduction:

Idiopathic hypoparathyroidism is due to a deficiency of parathyroid hormone with elevation of serum phosphorus and depression of serum calcium levels resulting in tetany. However administration of parathormone results in a six to ten fold increase in inorganic phosphate excretion (Ellsworth-Howard Test.)[1]

In 1942, Albright et al.[2] described a group of patients with biochemical findings of hypoparathyroidism together with a short and stocky stature, round face, short metacarpal and metatarsal bones, mental deficiency, calcification in the basal ganglia and subcutaneous tissues. There was no increased phosphaturic response to the administration of parathormone, which suggested an 'end organ defect'. Albright et al. called this pseudohypoparathyroidism. Pseudohypoparathyroidism was alluded to in the original communication as an example of the "Seabright Bantam Syndrome" after a species of cockerel in which the male bird developed female plumage despite a normal level of circulating male hormones.

Then, in 1952, Albright et al.[4] reported a syndrome with the somatic and radiological features of pseudohypoparathyroidism but without hypocalcaemia and hyperphosphataemia which was named pseudopseudohypoparathyroidism.

Wong[5] reported a case of pseudohpoparathyroidism, and pseudopseudohypoparathyroidism in the patient's elder sister. This paper reports yet another case of pseudopseudohypoparathyroidism which may well be the second in Malaysia medical literature.

History:

T.C.J., a 13 year old Chinese female was seen on 18th March 1974 at the General Hospital, Penang with a history of itchiness, generalized fits "since birth" and mental deficiency. On direct questioning her parents were not able to give the age of onset of fits. The fits were usually precipitated by fever. She had not experienced any fits for the past five years. She was delivered by forceps after a normal full term pregnancy. Milestones were all delayed. She spent only 3 years at school as she had persistently performed badly, and was in a Home for retarded children for 1 month. She was second in a family of four. There were no similar complaints nor similar physical abnormalities in other members of the family.

Physical Examination:

The patient was of stocky build. The height was 4' 6" and the weight 82 lb. The face was round. There were widespread pigmented lesions secondary to recurrent impetigo. The skull showed frontal bossing, scaphocephaly and facial asymmetry. The uvula was *bifid*. The thyroid was not enlarged. The 4th and 5th metacarpals were short in both hands and there was deformity of the (L) 4th toe due to shortening of the (L) 4th metatarsal. Chvostek's and Trousseau's signs were negative. She was mentally subnormal. Examination of the other systems did not reveal any abnormalities.

Laboratory Investigations:

Serum Calcium was 9.7 mg per 100 ml. Inorganic phosphate was 3.8 mg per 100 ml. Exami-

nation of the urine did not reveal any abnormal findings.

Radiological Investigations:

Radiographs of hands showed shortened 4th and 5th metacarpals of both hands and of (L) 4th metatarsal.

A Skull Radiograph showed scaphocephaly and exaggeration of the convolutional markings. There were no intracranial calcifications. Radiographs of the chest and pelvis did not reveal any abnormalities.

Discussion:

This girl had the clinical and biochemical features consistent with the diagnosis of pseudo-pseudohypoparathyroidism, namely a shocky build, round face, short metacarpals and metatarsal, mental deficiency, normal serum calcium and inorganic phosphate. The history of fits was significant too, as it is a recognised associated symptom in cases of both pseudo and pseudopseudohypoparathyroidism. Whether tetany was a contributory factor in the aetiology of the fits could not be ascertained. Apart from the usual clinical findings of this syn-

Fig. 1. Patient with Round Face and Stocky Build.

Fig. II. Both Hands showing Absence of the 4th & 5th Knuckles due to shortening of 4th and 5th Metacarpals.

Fig. III. Short 4th and 5th Fingers of Both Hands.

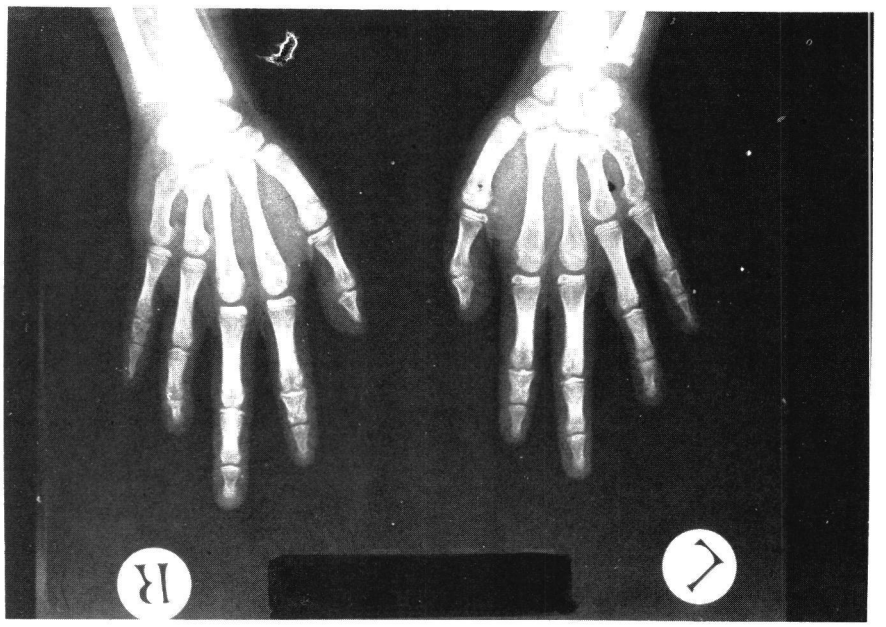

Fig. IV. Radiograph Showing Short 4th and 5th Metacarpals of Both Hands.

Fig. V. Deformity of Left 4th Toe due to Shortening of Left 4th Metatarsal.

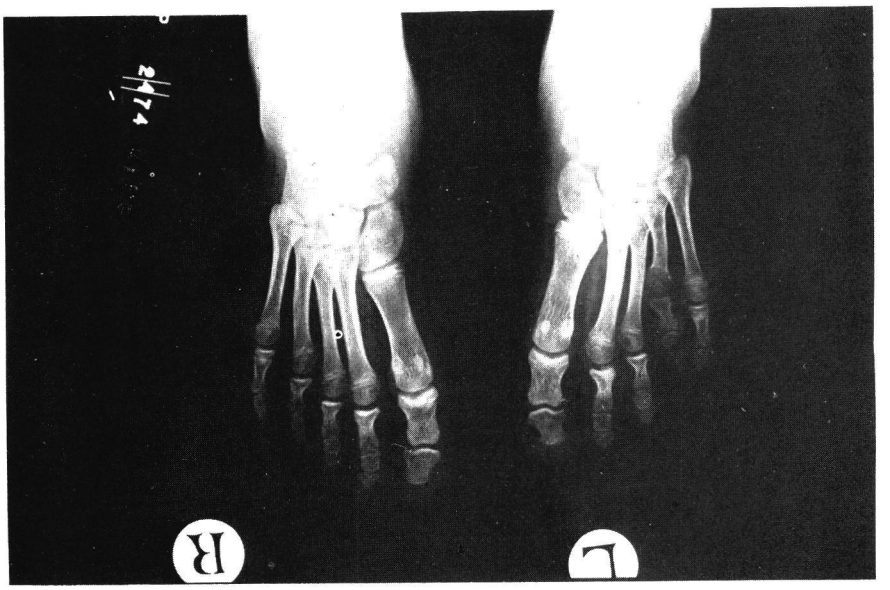

Fig. VI. Radiograph Showing Shortening of Left 4th Metatarsal.

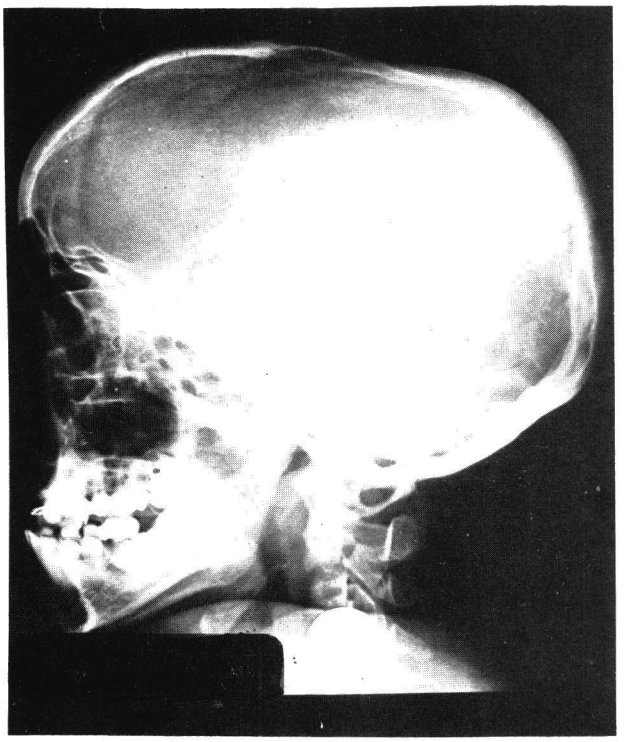

Fig. VII. Radiograph of Skull showing Scaphocephaly and Exaggeration of Convolutional Markings.

drome, this patient had in addition, a bifid uvula, scaphocephaly and exaggeration of the convolutional markings of the skull, both the latter features being suggestive of *craniostenosis.* Craniostenosis could have been significant in the causation of mental retardation and convulsions in this patient.

Cohen et al.[3] summarized the clinical features of pseudohypoparathyroidism as:-

1) Clinical & laboratory evidence of parathyroid insufficiency without evidence of renal diseases, steatorrhea or generalized osteomalacia and with little or no response to parathormone.
2) Shortening of the metacarpal and metatarsal bones.
3) Short, thick set appearance, round facies and mental retardation.
4) Soft tissue calcifications in subcutaneous areas and in the basal ganglia.

Other features include dental aplasia, delayed dentition and lenticular calcification. Diffuse electroencephalographic abnormalities may also occur (Miles et al.)[9]

Cusmano et al.[6] summarized the radiological features of pseudohypoparathyroidism which include shortening of metacarpals and metatarsals, calcification of basal ganglia, soft tissue calcifications, thickening of the calvarium with widening of the diploe space and miscellaneous findings such as bowing of extremities, osteoporosis, exostoses and accelerated osseous maturation. Other findings include osteosclerosis, coarse bony trabeculation and severe genu valgum. Clinical features of both pseudohypoparathyroidism and pseudopseudohypoparathyroidism have also been summarized by Mann et al.[7] and Papaioannou et al.[8] It is of interest to note that the features of bifid uvula and craniostenosis have not been reported in any of the earlier reviews of the condition[3,6,7,8].

The genetics of the complete syndrome of pseudohypoparathyroidism is currently explained by a sex linked dominant mode of inheritance and the incomplete syndrome of pseudopseudohypoparathyroidism is the incomplete expression of this mode of inheritance (Mann et al.)[7] The variability of the expression of the syndrome was documented by Gershberg et al.[10] who described a patient with the complete syndrome of pseudohypoparathyroidism at the age of 14, the severity of which diminished subsequently with normal serum calcium and inorganic phosphate, and had not required treatment until she was pregnant at the age of 20 when she was hypocalcaemic. Ray et al.[11] reported a case of pseudopseudohypoparathyroidism in a 7½ year old child with elevated serum phosphate but normal serum calcium. The patient later developed significant hypocalcaemia. The original diagnosis was later changed to be pseudohypoparathyroidism. Gershberg and Weseley[10] thus suggested that the two conditions were different forms of the same disease with pseudohypoparathyroidism being the more severe form, and pseudopseudohypoparathyroidism being the form in which hypocalcacima and tetany appeared only during periods of increased calcium demand such as growth and pregnancy. The sex distribution in both forms is 2:1 in favour of females. Differential diagnosis includes hereditary multiple exostoses, myositis ossoficans progressiva, multiple epiphyseal dysplasia, familial calcification of the basal ganglia and Turner's syndrome[7,12,13]. Pseudohypoparathyroidism has to be treated with dietary calcium and dihydrotachysterol while pseudopseudohypoparathyroidism needs no treatment.

Summary:

A 13 year old female having the features of pseudopseudohypoparathyroidism with craniostenosis and bifid uvula, is reported together with a brief review of the literature regarding clinical features, mode of inheritance and differential diagnosis of pseudohypoparathyroidism and pseudopseudohypoparathyroidism.

Acknowledgements:

I wish to thank the Director-General of Medical and Health Services, Malaysia, Tan Sri Datuk (Dr.) Haji Abdul Majid Ismail and Dr. V. Rudralingam, Consultant Physician, Medical Unit II, General Hospital, Penang for permission to publish this paper, and Dr. G. S. Dhillon, Consultant Radiologist, General Hospital, Penang for assistance in reading the radiographs.

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Unusual foreign body in the rectum

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Introduction

Foreign bodies have been introduced into the rectum since ancient times. The variety of foreign bodies which have found their way into the rectum is hardly less remarkable than the ingenuity displayed in their removal. Thus, a turnip was delivered by the aid of obstetric forceps; a tumbler with the mouth looking downwards was removed by filling it with plaster of Paris. Malaya, a rubber-producing country has its share of foreign bodies, including one made from sheet rubber. I would like to report this case in more detail.

Case report

Mr. X, a married man with 10 children and headmaster of a school was admitted to hospital complaining of pain and inability to pass urine following insertion of a self-made foreign body up his rectum. Since a month before admission, due to chronic constipation and rectal irritation the patient himself had frequently inserted a home rocket shaped object made of freshly processed rubber sheet. On 1 January 1965, the day of admission, this rocket-shaped mass went right up the rectum and he was unable to get it out again. Pain and retention of urine made him seek hospital treatment.

Clinical examination revealed that the bladder was distended up to the level of the umbilicus. The upper end of the foreign body was to the left of the umbilicus. On examination per rectum a foreign body was felt one inch up the anus, and this was seen on proctosocopy.

All attempts to remove the foreign body via the anus failed. At laparotomy an attempt to expel the foreign body via the abdominal route through the anus also failed. The foreign body was finally removed by incising the sigmoid colon. The colon was closed in the layers and the abdomen closed without a drain. The post-operative recovery was smooth.

The foreign body shown in FIG. 1 and 2 was 8½ inches long. 4 inches in diameter and 11 inches in circumference. It weighed 1 lb. 8 oz.

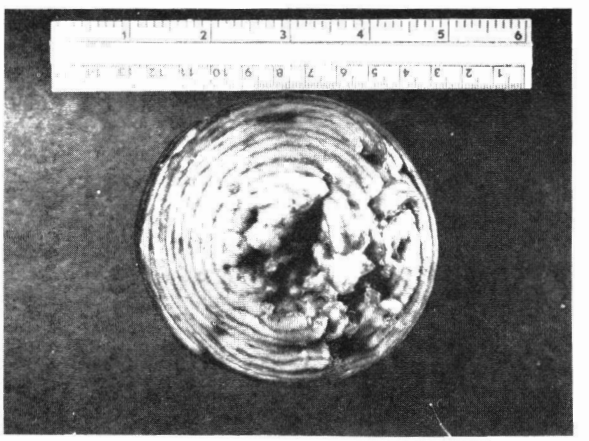

Fig. 1

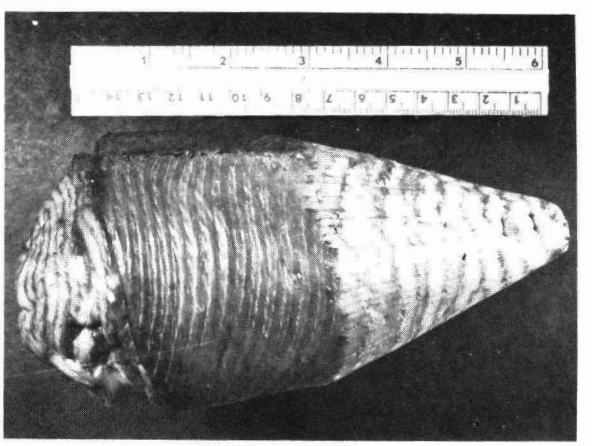

Fig. 2

Personal History

I was not able to obtain a detailed psychitric history from the patient. It is difficult to believe that it was constipation and chronic irritation which had made the patient insert a self-made rocket-shaped mass into his rectum repeatedly. A more plausible explanation is that he was probably bisexual.

Summary

An unusual foreign body in the rectum necessitating laparotomy for it's removal is reported.

Acknowledgement

I wish to thank Dr. Krishnappa, General Hospital, Johore Bahru, for taking the photographs and Datuk Dr. Majid the Director General of the Malaysian Medical Services for permission to publish this case report.

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BAILEY and LOVE, 'A Short Practice of Surgery.' 14th Edition.

Rectus Sheath Haematoma

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Two cases of rectus sheath haematoma seen and treated by the author are presented. It is a condition which should not be regarded with complacency as there is definite morbidity and fatalities have been reported. It is important in the differential diagnosis of the "acute abdomen".

Rectus sheath haematoma has been recognised since ancient times. The Greeks described it in the fifth century B.C. and Hippocrates, Galen and Leonardo da Vinci mentioned it in their works (PAYNE 1938). The condition is important as it has to be considered in the differential diagnosis of the "acute abdomen" and it causes morbidity with some reported fatalities.

CASE REPORTS

Case 1 - This 69-year old lady was admitted to hospital after falling two feet off a chair. On examination, there was a tender oval swelling, 10 centimetres by 8 centimetres, in the region of the left rectus muscle, 5 centimetres from the left pubic bone (FIGURES 1 and 2). The mass was confined to the margins of the rectus sheath and did not disappear on tensing the rectus abdominis muscle. There was ecchymosis over the lower part of the swelling. A diagnosis of rectus sheath haematoma was made and the patient was treated conservatively for 15 days. Over the thirteenth to fifteenth days, the mass grew bigger and painful and on the sixteenth day operation was performed. This revealed 500 mililiters of soft blood clot in the lower part of the left rectus sheath. There was some rupture of the rectus muscle here but no fresh bleeding. The patient made an uneventful recovery post-operatively.

Case 2 - This 90-year old lady was hospitalised with a complaint of fever and severe pain in the right hypochondrium for four days. There was no history of trauma. On examination, there was a fairly firm, tender mass in the right hypochondrium in the gall bladder region, 4 by 3 centimetres in dimensions. The overlying skin was red, hot and oedematous. The mass appeared to become less obvious on tensing the rectus abdominis muscle. The temperature was 100 degrees Fahrenheit. The diagnosis made was empyema of the gall bladder which was on the verge of rupturing. Immediate laparotomy showed that there was 200 mililiters of soft blood clot in the upper part of the right rectus sheath (Figure 3). There was some rupture of the rectus muscle. The intraperitoneal organs, including liver, gall bladder and bile ducts, were normal. The patient made a good recovery post-operatively.

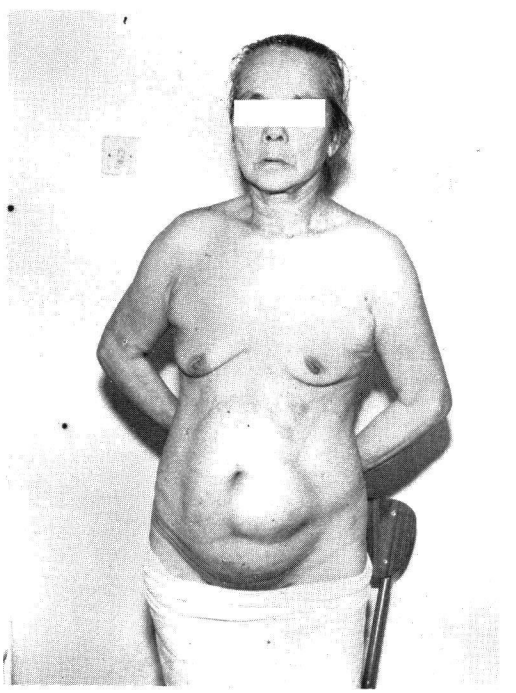

Fig. 1. CASE 1 - Swelling, below and to left of umbilicus, confined to rectus sheath. Ecchymosis over lower margin of swelling.

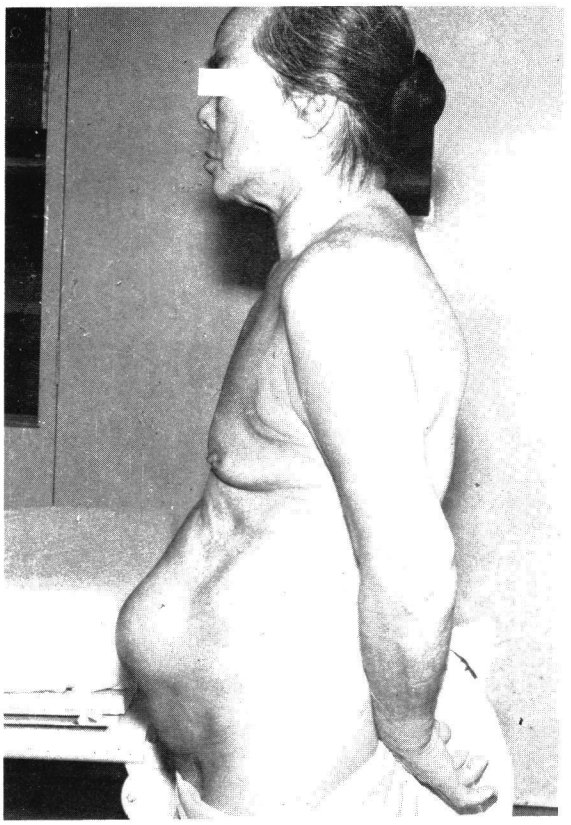

Figure 2 CASE 1 - Swelling is more obvious on lateral view.

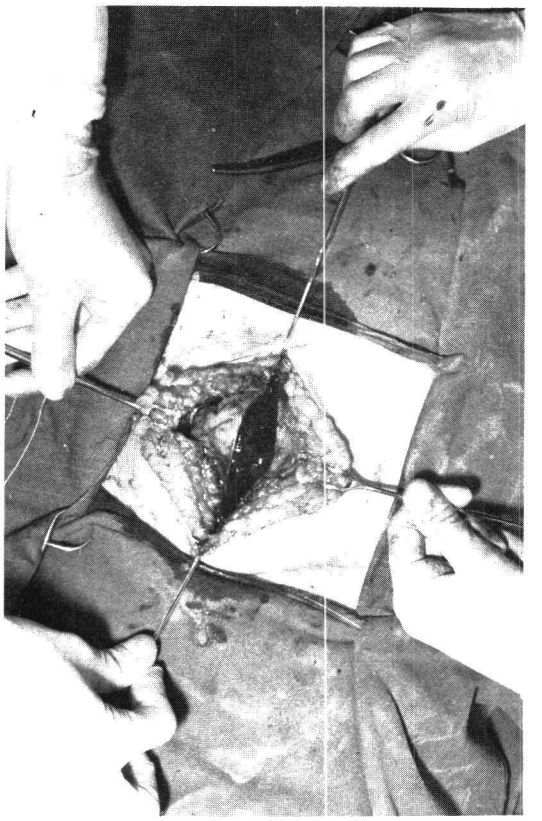

Figure 3 CASE 2 - Incision into rectus sheath reveals a haematoma.

DISCUSSION

The rectus abdominis muscle is particularly susceptible to haemorrhage due to its relationship with its nutrient blood vessels, the superior and inferior epigastric. These vessels must glide over the posterior aspect of the muscle to avoid being torn as it contracts. A haematoma is usually due to rupture of these vessels or their branches rather than a primary tearing of the muscle fibres. The inferior epigastric blood vessels are more tortuous and travel a longer distance before entering the muscle when compared with the superior epigastric blood vessels. Furthermore, below the semi-circular line of Douglas, the posterior rectus sheath is deficient, the muscle being supported only by the transversalis fascia and peritoneum. Therefore, the inferior epigastric vessels are more liable to rupture than the superior ones and most rectus sheath haematoma occur in the lower part of the sheath (MARTIN and THOMPSON, 1957). JONES and MERENDINO (1962) stated that 50 per cent of cases occurred in the right lower quadrant of the abdomen, 33 per cent in the left lower quadrant and 17 per cent in the other quadrants. Females are more often affected than males by a two to one ratio (FLETCHER and JOSEPH 1973).

In some cases, no cause for the haematoma can be determined (SCHAFER 1953) but often an aetiological factor is present, namely:-

1. Pregnancy – The haematoma may occur at any time during the pregnancy, labour or puerperium (CULLEN and BRODEL, 1937). Coughing and poor rectus abdominis muscle tone due to overstretching are contributory factors.

2. Trauma – This may either be direct or indirect and may tear the epigastric blood vessels or the rectus muscle itself. It may occur in tetanus (NICHOLSON, 1956), during unaccustomed violent exercise and after injury to the epigastric blo ' vessels during abdominal surgery, peritoneal di-

or abdominal paracentesis. A severe spasm of coughing or chronic coughing may precede the haematoma (SHEEHAN 1951; BOWLES 1939).

3. Muscle degeneration – Certain infective diseases may result in degeneration of muscles so that they are prone to rupture even under mild strain. These include typhoid fever (CULLEN and BRODEL, 1937) and influenza (COLE, 1918).

4. Previous abdominal surgery – Many patients who develop rectus sheath haematoma underwent previous abdominal operations. The development of fibrous tissue post-operatively prevents the epigastric blood vessels from freely gliding over the posterior surface of the rectus abdominis muscle so that there is strain on these vessels when the muscle contracts. STILES, RASKOWSKI and HENRY (1965) reported that 13 out of 16 cases of rectus sheath haematoma were associated with previous abdominal surgery.

5. Haemorrhagic diathesis – Blood dyscrasias, vascular degenerative diseases and anticoagulant therapy predispose the patient to rectus sheath haematoma. (SCHAFER 1953, JONES and MERENDINO 1962).

It is uncommon to make a correct diagnosis before operation and STILES, RASKOWSKI and HENRY (1965) reported that only 17 per cent of their cases were diagnosed pre-operatively. The differential diagnoses are many and varied. They include abdominal wall tumor, ovarian cyst, ectopic pregnancy, pelvic tumor or abscess including appendix abscess and obstructed or strangulated spigelian hernia. CASE 2 simulated an empyema of the gall bladder which was about to rupture. If the patient is a pregnant female, any obstetrical emergency must be considered, for example, rupture of a pregnant uterus (LUCAS and BAKER, 1958) and concealed accidental haemorrhage. The posterior rectus sheath is absent in the lower one third of the rectus abdominis muscle and therefore, a rectus sheath haematoma which spreads downwards and laterally can irritate the underlying peritoneum in this area, thereby producing symptoms and signs of any acute or subacute abdominal pathology. Rectus sheath haematoma presents as an abdominal mass which is still palpable on tensing the rectus abdominis muscle, the mass being usually confined to the limits of the rectus sheath. There may be ecchymosis over the mass as in CASE 1 or around the umbilicus and less commonly over the flank, penis or scrotum. The symptoms and signs are of sudden onset and there is marked localisation of pain and tenderness. Needle aspiration of the swelling may yield blood whilst a plain lateral abdominal radiograph may show that the mass is in the rectus sheath.

In the pregnant female with haematoma, SHEEHAN (1951) reported a foetal mortality rate of 25 to 50 per cent whilst TORPIN (1943) found that the maternal mortality rate was 12 to 15 per cent. JONES and MERENDINO (1962) described a mortality rate of 4 to 5 per cent in all patients with rectus sheath haematoma. STILES, RASKOWSKI and HENRY (1965) reported a case where the patient lost so much blood into the haematoma that a pre-operative diagnosis of ruptured aortic aneurysm was made. In addition, there may be extensive destruction of the rectus abdominis muscle in cases where treatment is delayed. Consequently, rectus sheath haematoma is not to be regarded with complacency as it carries a definite morbidity and may result in loss of life.

TREATMENT

If the diagnosis is certain, the patient is initially managed conservatively. Smaller haematomata tend to be absorbed and resolve spontaneously. If the swelling gets larger, becomes tender, there are signs of shock, or if there is evidence of peritonitis, then operation is at once performed to drain the extravasated blood and secure haemostasis. If the diagnosis is uncertain, operation is done as soon as possible after adequate resuscitative measures

ACKNOWLEDGEMENT

I thank the DIRECTOR GENERAL of HEALTH SERVICES, Malaysia, TAN SRI DATUK (DR.) ABDUL MAJID ISMAIL, F.R.C.S. (E); M. Ch. (ORTH.); F.R.A.C.S. for his kind permission to publish this article.

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CORRESPONDENCE

'BELL'S PALSY'

I refer to 'Bell's Palsy – a retrospective study'. by Dr. Diong Ko Ing (MMJ Vol. XXVIII, No. 4, June 1974 ppg. 248–250).

I quote Professor Wong Hock Boon's C.P.C. notes dated December, 1974 on Facial Palsy.....' If left alone, Bell's Palsy usually recover fully or partially in 96%, leaving 4% with residual palsy..... conservative means such as *steroids* have *not* proved to improve these prognostic fugures.....'. I presume Professor Wong's fegures are for the paediatric age group; I would be grateful for your comments on any comparable fugures for adults.

It is said that the first *72 hours* are the most critical period to determine whether patients are going to improve. Therefore I fail to understand Dr. Diong's opinion, "that all patients with Bell's Palsy presenting within *one month*... should be given a trial (steroids".

DR. LIM KOK LEE

Index

SUBJECTS

INDEX to Vol. XXIX – June 1975

AUTHORS