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Editorial

Dengue Haemorrhagic Fever

by A. A. Sandosham

A SUBJECT OF considerable concern and interest at the moment in Malaysia is the prevalence of the serious condition referred to as dengue haemorrhagic fever which tends to appear in epidemic form in Southeast Asia. Locally, we have long been accustomed to the endemic classical dengue fever, but although there are some features of similarity in the geographic distribution, clinical manifestations and mode of transmission, the recently recognized haemorrhagic form appears to be a different entity.

The WHO recognizing the public health importance of the problem and the progressive spread of the disease in Southeast Asia recently organised a symposium to review the situation and outlined a working definition of these two conditions. In its severe form dengue haemorrhagic fever is characterised by shock and/or gastro-intestinal haemorrhage or death during epidemics and is easy to recognize. But, as in many infectious diseases, there appears to be a spectrum ranging from mild to very severe forms. The milder forms in an epidemic could easily be confused with classical endemic dengue which occurs concurrently, and there is no readily available clinical or laboratory method to differentiate between them. Dengue haemorrhagic fever essentially involves indigenous children although older groups have been affected in Singapore, Calcutta and elsewhere.

Dengue haemorrhagic fever in Southeast Asia is a post-World War II phenomenon and was first reported in epidemic form in Manila in 1953. It has subsequently been reported from Saigon, Bangkok, Singapore, Penang, Calcutta and has spread to other urban areas of Southeast Asia and Pacific Islands. It has been noted that so far it is restricted to tropical areas with a high *Aedes aegypti* population and where classical endemic dengue has been present for a long time.

If this is a new disease a new infective agent must have been introduced into the region or some change must have occured in an existing infective agent, the vector, man or his environment. It seems unlikely that environmental and host factors have contributed greatly to the change in the situation although sensitization phenomen may be responsible for the shock syndrome. It has been suggested that double dengue infections with two dengue virus types may produce a synergestive effect or have resulted in a more virulent strain making its appearance. The likelihood also exists of a mutation leading to the appearance of a new strain of dengue virus. Not many virus isolations have been made in laboratory-confirmed cases of dengue haemorrhagic fever. So far, the viruses recovered have been found to be identical with or closely related to dengue types 1,2,3 and 4 and two Chikungunya viruses, the latter having been previously recorded only from Africa where it causes a mild dengue-like disease. Further work requires to be carried out to determine the exact aetiological agent of dengue haemorrhagic fever.

Aedes aegypti, the vector of classical dengue has also been incriminated as being responsible for the transmission of dengue haemorrhagic fever in Southeast Asia. It breeds almost exclusively in containers in and around houses, is predominently anthropophilic and feeds mainly indoors or in the immediate neighbourhood of houses during the

daylight hours. The original home of this species is Africa having established itself in this region since the turn of the century. Initially it was confined to the coastal urban areas but it gradually spread to inland cities and towns occuring side by side with and even replacing the native *Aedes albopictus* to varying extent. The suggestion has been made that the dengue haemorrhagic fever syndrome is the result of the appearance of a more virulent strain associated with the successful and progressive replacement of *Ae. albopictus* by *Ae. aegypti* in the urban areas of Southeast Asia. It has been shown that the incidence of dengue haemorrhagic fever is directly related to the *Ae-aegypti – Ae. albopictus* population balance in cities.

It is considered that *Ae. albopictus* which occurs in urban, rural as well as sylvatic areas is responsible for the transmission of jungle dengue viruses to monkeys and possibly also of a mild form of classical dengue to man. Thousands of macaques have been collected from the jungles since the War and exported through the Southeast Asian ports for poliovirus production. The hypothesis has been postulated that dengue haemorrhagic fever is a zoonosis *Ae. aegypti* having fed on these monkeys were now trainsmitting the jungle strain of viruses to man.

The present scare in Malaysia has resulted in widescale indoor spraying, fogging and aerial ultra low volume spraying of insecticides in an atempt to bring down the population density of the vector. This may be justifiable as an emergency measure but the most important and permanent control measure is the prevention of the breeding of *Ae. aegypti* in domestic water containers. For this, a carefully planned, professionally administered control programme, integrating all means of control is necessary. Public Health education should be given by men who know the biology of *Ae. aegypti*. For instance, it is not generally recognized that the adult *Aedes aegypti* lays its eggs just above the level of the water in vases and domestic containers. Merely emptying the containers will not destroy the eggs and refilling will give the opportunity for the larvae to hatch out. It is necessary therefore to scrub the inside of the water containers thoroughly. The cooperation of the public must be obtained and general sanitation improved to prevent breeding in tin cans, tyres etc. A fundamental method of reducing the vector population is the provision of adequate piped water supplies into homes, reducing dependance on storage containers. The squatter areas of our towns constitute one of the biggest problems in this respect since the water supply and sanitation here are most unsatisfactory.

Health Planning in the Context of National Development Planning, Malaysia

by Tan Sri Datuk Dr. Hj. Abdul Majid Ismail and *Dr. Gurmukh Singh*

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Background

NATIONAL DEVELOPMENT PLANNING has been in existence in Malaysia for over 17 years. Even before the attainment of Independence, the then "Federation of Malaya" had launched its First 5-Year Development Plan in 1956 (First Malaya Plan). Malaya achieved its Independence in 1957 and embarked on the Second 5-Year Development Plan in 1961 (Second Malaya Plan). During 1963 the states of Sabah, Sarawak and Singapore joined Malaya in forming the new nation of Malaysia (Singapore subsequently left Malaysia to become an Independent Republic State). The new nation then embarked on its 3rd 5-Year National Development Plan (1966-1970) called the First Malaysia Plan. Presently the country is in the second year of the 4th 5-Year National Development Plan – the Second Malaysia Plan (1971-1975). Over these past 17 years, as a result of a very intensive effort conducted by Government to create "development consciousness" amongst the peoples of the country "National and Rural Development" and "Development Planning" have become a way of life in the country. This motivation for "Development Planning" has permeated through the whole fabric of government and society from the very top political decision makers down to the "Ketua Kampung" (village headman) and the members of the village development planning committees comprising representatives from the rural communities.

National Administrative Framework in Planning

At the national level the staff-work on national development planning is the responsibility of the Economic Planning Unit (E.P.U.) of the Prime Minister's Department. In this role, it provides the staff-work to the National Economic Council which is a Ministerial body under the Chairmanship of the Prime Minister himself. The EPU in addition serves as the secretariat to the National Development Planning Committee (NDPC) consisting of senior public officers responsible for the formulation of the Plan, its periodic review, and its implementation. The Estimates Sub-Committee of the NDPC is responsible for detailed appraisal and examination of the Development Estimates. These estimates provide the annual development expenditure phasing of the public sector component of the Plan. A Standards and Costs Sub-Committee of the NDPC is responsible for formulating and providing guidelines for project-designs and standards to ensure that maximum economies are achieved. Both these Sub-Committees are also serviced by the EPU.

To complement the work of the central planning agencies, "Planning and Research Units" have been established in major ministries and departments such as the Treasury, Bank Negara, the Public Works Department and the Ministries of Agriculture, Education, Health & Transport. These Planning and Research Units work in very close collaboration with the EPU in the formulation of their respective sectoral development plans.

Review of past plans

At the start of the formulation of the Second Malaysia Plan a review of the past achievements showed that Malaysia's development to date had been substantial. It was however noted that al-

though remarkable progress had been achieved in all fields of economic and social development, the increased and improved education, growing urbanization and expanding economic activity had all resulted in the creation of new ideas, the loosening of old ties, the questioning of traditional values, and the search for new sources of meaning and understanding, particularly among the youth of society. It was noted that these developments in turn had resulted in the emergence of a socially and politically volatile society. An urgent and permanent solution had to be found to this new set of problems and there was felt the need for the evolution of new values, and new concepts and policies of social and economic order. Economic policies and development had to be considered in their relationship to social development and to the overriding need for national unity in the context of a multi-racial society. There was an imperative need to incorporate policies and measures to eradicate poverty through raising income levels, generating new employment opportunities and to restructure the society to correct racial economic imbalance.

New Policies for the Second Malaysia Plan

The Second Malaysia Plan therefore had to be designed in a manner that would see the emergence of a new "socio-economic" policy geared to the task of creating a united, socially just, economically quitable and progressive nation. Under the new socio-economic policy "development" would have to be undertaken in such a manner, that in the process of growth and expansion, the changes that would occur would make the maximum contribution to the achievement of national unity. Some of the more important policy decisions arrived at, which the health sector had to take serious account of in its own planning included —

A. **Eradication of poverty**

- Increasing opportunities for inter-sectoral movements from low productivity to higher productivity areas in new land development schemes ..... including the necessary organizational arrangements to facilitate movements into these modern sectors.
- Providing a wide range of free or subsidized social services (including Health and Medical Services) designed to raise the living standards of the low income groups.
- Greater job opportunities to be created especially for youths of all races.
- Steps to be taken to overcome the problems posed by extremely rapid population growth.

B. **Restructuring Society and Economic Imbalance**

- Modernization of rural life.
- Creation of a Malay commercial and industrial community.
- More equitable income distribution.
- Rapid growth of employment opportunities among the disadvantaged groups.
- Development of new regional economic growth areas.
- Provision of Schools, Libraries, Health facilities etc. ..... of as good a quality in the rural areas as in the urban areas ..... to make life richer and more rewarding for those who live in rural areas.
- Establishment of new manufacturing activities in rural areas now almost exclusively devoted to agriculture and mining.

It would appear that there was implecit in the Second Malaysia Plan a trend for economic planning for social goals, with economic development as a means rather than an end. In view of this it became important to ensure that the "Health Sector Development" was so planned as to make maximum contribution during the plan-period in consonance with the philosphy of government.

Health Planning

In the context of the above overall aims and objective enumerated by Government, and the subsequent statement of policies for the period of the Second Malaysia Plan, it became necessary for the Health Sector development planners to critically appraise the following:—

(i) the adequacy of the Rural Health Services infrastructure, and also its distribution pattern amongst the various states throughout the country to ensure that those regions/areas which were inadequately covered were given the highest priority;

(ii) the distribution pattern of medical-care services amongst the different states (Bed/population ratio, doctor/population ratio etc.) to determine areas which had lagged behind and therefore needed higher priority consideration;

(iii) the "level" of medical care being provided in the different states (including the

specialist services) to ensure a more equitable distribution of the quality of medical care;

(iv) the total health manpower resources required in order to determine the rate of increase required in the training capacity for medical, dental and paramedical personnel. This was to be given a very high priority in view of government's aim to provide a greater quantum (wide range) of free or subsidized social services (including health and medical services) designed to raise the living standard of the lower income groups;

(v) the anticipated additional requirements for health services in new land development schemes, and in the proposed new industrial and new regional economic growth areas;

(vi) the likely health (mental, physical & social) hazards that might arise out of rapid urbanization, industrialization and population migration with a view of proposing early and adequate prophylactic and preventive health measures;

(vii) the role that the health sector could contribute to overcome the problems posed by extremely rapid population growth;

(viii) the effect of certain major health problems that may retard the rate of development and economic growth (malaria, malnutrition, accidents and disability affecting production-workers etc.) in order to formulate adequate national programmes to reduce these problems to the minimum; and

(ix) how much emphasis had to be placed on preventive aspects of the health delivery system.

Findings and Conclusions

Studies carried out as a part of the plan formulation process revealed that:—

(i) there did exist disparities in the distribution of the rural health facilities throughout the country;

(ii) the bed/population radio, doctor/population ratio showed inequitability of distribution (including specialist facilities), with the less developed states in fact getting a poorer share of the cake;

(iii) a growing suburban population surrounding the major cities of the country were not adequately provided with health services;

(iv) there was a shortage of professional technical and paramedical health manpower to man even the existing health facilities adequately;

(v) the assumption that the district and general hospitals were catering solely for the urban population was incorrect, as over 30% of the facilities provided at both outpatient and inpatient level at these hospitals was in fact being utilized by the rural population;

(vi) the family planning clinics started at the hospitals and some clinics were proving effective (increasing numbers of new acceptors) and that this might be expanded usefully into the rural health service delivery system; and

(vii) the quality of care (availability of laboratory, X'ray, Operation theatre, accident and emergency services) was inequitably distributed throughout the country.

As a result of the above findings major policy decisions on the following lines were taken—

(i) the highest priority be given to redressing the inequitable distribution of the health delivery system (Rural health services, patient-care services including district and general hospital beds and medical and paramedical personnel);

(ii) that the training programme for all categories of key medical and paramedical staff be stepped-up considerably as a matter of urgency;

(iii) the quality or level of care be stepped-up in all hospitals especially the district hospitals in areas covering large catchment areas of rural population by the provision of adequate diagnostic and treatment facilities and the posting of specialists to these hospitals;

(iv) the extension of the coverage of the rural health services into the more remote rural areas, by increasing the mobility of the staff posted to the rural health units;

(v) family planning be functionally integrated into the rural health service;

(vi) the national programme like malaria eradication, nutritional improvement, environmental sanitation etc. ..... be stepped-up as a matter of the highest priority to support the overall national economic development programmes;

(vii) special emphasis be given to the development of new health delivery systems to support major economic activities of government such as new land development schemes and new industrial and regional economic growth areas; and

(viii) wherever possible the growth and expansion of the health delivery system be designed to be labour-intensive to support the overall aim of new job creation.

Plan formulation process

Based on the findings outlined above, directives were sent out to the various State Heads of Medical Services explaining the overall socio-economic goals set out by Government, and the broad policies that the Ministry of Health had set for the health sector plan to support the overall aims and objectives of Government. The State Heads of Medical Services were then requested to critically appraise the health delivery system within their state in greater detail and to come up with firm proposals — on a "project to project" basis — based on the broad policies laid down by the Ministry of Health. Each project had to be described in detail as follows:—

(i) Background and problem statement.

(ii) Project proposal — description of project.

(iii) Cost estimates — capital expenditure

— recurrent expenditure.

(iv) Manpower requirements.

(v) Benefits and justification.

(vi) Schedule of implementation.

(vii) Statement of priorities.

All these individual project proposals were then submitted to the Division of Planning and Research with copies to the respective Divisional Heads within the Ministry (Hospital Division, Dental Division and Health Division). The Division of Planning and Research then called a series of meetings with the individual State Heads of Medical Services and critically examined each project proposal wherever considered necessary. This was then followed by a series of meetings at the Ministry level with the Heads of Divisions (under the chairmanship of the Director of Planning and Research) where the various project proposals which had been classified and aggregated under various activity heads were discussed and accepted, or suitably modified or rejected. The composite plan was then presented to the Minister of Health for final acceptance.

It will be noted that the above procedures—

(i) enabled the State Heads of Medical Services to develop a health plan at state level on the basis of broad policy decisions enunciated at the Ministry (national) level;

(ii) enabled State Heads of Medical Services to liaise with the State Governments (State Development Committees) prior to submission of project proposals;

(iii) enabled the Ministry to get a feed-up of proposals based on local needs;

(iv) enabled the heads of various Divisions in the Ministry to contribute to the plan formulation process; and

(v) ensured that the "central planning team" in the Ministry continuously acted as the coordinating agency throughout the entire planning process.

One of the very satisfying features of the up-down, down-up planning process, combined with the horizontal dialogue between the various Divisions of the Ministry was that it exposed a large number of senior and middle level management personnel to the planning process. Although the bulk of the staff-work had to be borne by the Division of Planning and Research, it was however greatly relieved of the detailed preparatory work required on an individual project by project basis.

The whole process of plan formulation lasted seven months from the time of the initial "call-circular" received from the Prime Minister's Department to the submission of the firm proposals to the Economic Planning Unit and the central agencies (Treasury, etc. .....)

Subsequent analysis revealed that the time constraint —

(i) did not enable the Health Sector to develop an in-depth analysis of the health situation as would have been desirable;

(ii) did not enable the "Division of Planning and Research" to initiate adequate consultation with the various "senior clinical consultants" in the Hospital service, and with the various "programme directors" in the public health service; and

(iii) precluded initiation of a dialogue with other peers in the health field (private medical sector, university etc. .....)

One of the major weaknesses identified in the planning process was the inadequacy of "data" in suitable form on which to make rational decision. While it was found that there was an abundance of raw data being collected at all levels within the health system, much of this was valueless for planning purposes in the form available. Another major area of weakness was that data on "operating cost" of services was only available as macro-aggregate at State level and it was virtually impossible to identify the efficiency of various health units (hospitals, health centres etc. .....) in relation to outputs.

Generally, it can be stated that the planning process was simplistic in nature, and did not include the sophisticated methodologies of the Planning, Programming Budgeting System (P.P.B.S.), cost benefit analysis, system analysis, P.E.R.T., etc.....

Greater emphasis was placed on the detailing out of the implementation schedule, the monitoring of progress, and the building in of check-mechanisms with early intervention by the Ministry to ensure success in implementation. When the health plan was approved by Government (with very slight modification to the original submission), each and every project was tabulated in great detail showing the size and scope of project, location of project, the estimated cost, and the year of implementation. Various milestones were clearly identified (land purchase, detailed design, tendering process, construction work, equipping, commissioning, etc.) and targets set for them. These were then sent to the various State Heads of Medical Services for implementation. The implementation section of the Division of Planning and Research was given the responsibility of monitoring all the projects individually at national level, through a "feed-up reporting system" from the ground. It was empowered to intervene whenever necessary to ensure that targets set out were met.

At the higher Government level, there is a "National Operations Room" where all Ministries have to maintain up-to-date charts on the progress of plan implementation. The Prime Minister himself personally chairs monthly meetings at the National Operations Room where all heads of Government departments and Ministries are present and where any one of the heads may be called upon to brief the meetings on the progress achieved by his department/ministry.

Evaluation:

Built in into the planning process is a "mid-term review" provision, where it is mandatory for every Ministry/Department to carry out an evaluation of progress in relation to the targets set at a point of time midway through the plan period.

Opportunity is also given for a critical appraisal of policies and derivative goals at sectoral level in relation to their contribution to the overall aims and objectives of Government; and to effect necessary changes of programmes for the second half of the plan period if considered necessary.

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The Psychiatric Aspects of Epilepsy

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ACCORDING to Brain (1962) epilepsy is defined as a paroxysmal and transitory disturbance of functions of the brain which develops suddenly, ceases spontaneously, and exhibits a conspicuous tendency to recurrence. Although in its typical form, there is the characteristic loss of consciousness with tonic and clonic muscular spasms, many varieties of epileptic attack occur, their distinctive features depending upon differences in the site of origin, extent of spread, and the nature of the disturbance and function. In this paper, the psychiatric aspects of epilepsy will be discussed as it is one region between the neurologist and the psychiatrist which is fraught with confusion and vagueness.

The Epileptic Syndrome

Epilepsy is a symptom, not a disease, and there are almost as many determinants of this symptom as there are diseases and deviants which can disturb brain functionings. It is characterized chiefly by periods of disturbance of consciousness, involuntary movements or bizzare sensory hallucinations.

Neurologically, the epileptic process consists of spontaneous and massive discharges of brain cells. Whatever its stimulus, location or route of spread, the patient experiences in rather intense form the same behaviour, thoughts and feelings that are normally activated by the cerebral tissues involved. The stream of consciousness may vary from complete interuption of flow to a mere ruffling on the surface. There may be almost no disturbances of consciousness or loss of memory (Marchand, 1948). If there is complete loss of consciousness, there is usually amnesia, deep sleep, headache and some degree of post-epileptic confusion which may vary in degree of complexity from short bursts of purposeless running to apparently conscious and well-controlled behaviour. It is relevant that in any consideration of psychiatric manifestations of epilepsy, all shades of disturbances (most frequently with varying degrees of consciousness) occur, whereupon the behavioural aspects over-shadow the fit itself.

The Psychopathology of Epilepsy

On the understanding of the psychopathology of the epileptic, Williams (1968) considered five psychological aspects:—

1. Effects of associated physical brain damage upon bodily structure, function, intellectual capacity and personality and behaviour. The commonest cause of psychiatric epileptic manifestations is temporal lobe epilepsy. (Arid et al., 1967) found that 76% of the onset of temporal lobe epilepsy was within the first two decades of life and birth trauma accounted for 59% of his cases surveyed.

2. Effects of the fits on the person's behaviour or thoughts as well as upon his life pattern. The epileptic is apt to feel different from his peers as a result of this persistent, intangible and frightening disorder. He may suffer miserable restriction, loneliness or over-protectiveness at home, school, vocation and even marriage. He develops an emotional reaction to these restrictions and may develop what is termed a *chronic disease personality* (Livingston, 1963).

3. Results of medical or surgical treatment reflected in the alteration of intellect and behaviour.

   Rarely, surgical extirpation of cerebral tissues, if successful, leads to the improvement of patients' behaviour and intellectual performance. On the other hand, medical treatment in sufficiently large doses of barbiturates to suppress the fit, often makes the patient drowsy and retarded, while sometimes young children become restless and aggressive. Previously the use of bromides produced the *hypokinetic, stupid, lethargic* epileptic, which was once termed bromide psychosis.

4. Development of secondary neurosis as a result of the patient's disturbed life-pattern, whether he is brain damaged or not. In a survey of general practice, one quarter of adult epileptic patients had conspicuous psychiatric disorder in the absence of brain damage. In children, psychiatric disorders manifest as temper tantrums, indiscipline, bed wetting and indolence in school. It is important to recognize these disorders as a secondary reaction to epilepsy. Also, as long as they exist, epilepsy is likely to continue as a stress symptom. In adults, there is the development of the so called *epileptic temperament or personality* (Tizard, 1962).

5. Influence of intercurrent neurosis and apparently unrelated neurosis upon epilepsy.

   There could be a period of acute emotional stress which may be followed by a convulsion (induced fits) and the fits tend to continue in the same pattern after they have been induced by a disturbance in the life pattern. Furthermore, the occurence of a neurosis may be marked by the repetition of fits as a stress symptom. Long-lasting neurosis may prevent the response of illness to the use of anti-convulsant therapy. The frequent fits increase further the life disturbances which in turn enhance the neurosis to increase the epilepsy.

Diagnostic Consideration of Psychomotor Epilepsy

Lennox (1960) called epilepsy *paroxysmal cerebral dysrhythmia*. When the focal discharge pattern is in the parietal, occipital or frontal lobes, symptomatology is largely neurological. If the disorder is in one or both temporal lobes, its symptomatology is largely psychiatric or psychomotor epilepsy. While 5-10% of normal persons have abnormal EEG's similar to epileptics, about 85% of persons (Kolb, 1968) with a history of epilepsy show abnormal EEG between convulsions. Furthermore, some confirmed epileptics never show any abnormal EEG tracings due to the foci of discharge being deep in the brain, and discharges occuring too infrequently.

By and large, the main stay of diagnosis of psychomotor epilepsy is through the EEG. Sometimes psychical (emotional) seizures occur in the absence of abnormal EEG tracings and the diagnosis may have to be made from the clinical history.

Since epilepsy is a symptom of many diseases, it can take many unusual manifestations (Gibberd, 1969). Nocturnal epilepsy occurs when the patient is asleep, or often immediately followed by sleep, so that apart from tongue biting and nocturnal enuresis, the patient may be unaware of the convulsions. Epilepsy during drowsiness differs from nocturnal epilepsy in that it occurs when the patient is falling asleep or awakening, occurring most frequently when the patient is about to get out of bed or dozing in the chair. Photogenic epilepsy occurs when patients are looking at a flashing light or watching television.

It is almost impossible to classify the psychiatric manifestations of epilepsy satisfactorily in all respects. The phenomena can be classified as acute, sub-acute or chronic. Acute phenomena can be pre-ictal, ictal or post-ictal. The importance in recognising the time relationship to the seizure is that post-ictal phenomena have little localizing value.

Generalized or Centrencephalic Epilepsy

This major seizure manifests no aura and the EEG shows no focal abnormality. Total loss of consciousness need not occur although in every case, there is an alteration in the state of consciousness. Some post-ictal cases manifest localized paralysis or Todd's paralysis which may be mistaken for a hysterical reaction or a cerebro-vascular accident. Some degree of confusion is invariable. The patient is likely to be restless, fidgeting about in a manner reminescent of *occupational delerium* (Slater & Roth, 1969). Post-epileptic automatisms of varying degrees of complexity occur, and explosions of irritability and anger are not infrequent.

The Petit Mal Status

Here the patient may have an altered state of consciousness with EEG showing characteristic spike and wave complexes. The patient is apathetic, retarded and preoccupied, bordering on stupor.

This disturbance of consciousness may last from a few seconds to weeks, and throughout the apparent lifelessness, he may be experiencing continuous visual and auditory hallucinations of a cinematographic nature. The condition is frequently called *epileptic stupor*.

Another form of petit mal attack named by Lennox (1945) as the *petit mal triad* consists of:—

(a) Catalepsy or akinetic seizure due to a sudden loss of muscle tone.

(b) Myoclonic seizure.

(c) Petit mal *absences*.

Temporal Lobe Epilepsy

The commonest focal epilepsy is temporal lobe epilepsy where localizing features are found consisting of transient psychological, sensory or motor symptoms, constituting the *aura* which normally lasts for a short time. The aura preceeding the epileptic seizure may be for long the only symptom of the illness. Furthermore, while the major fit may be suppressed by medication, the aura may remain the only symptom of the epilepsy. The localizing value of the aura for indicating the focus which the epileptic discharge arises is important (Penfield & Kristiensen, 1951). Penfield has suggested that an aura of hallucinations or *dream-like state* may point to a focus in the temporal lobe. Clinically, temporal lobe attacks are associated with *psychomotor* attacks. Characteristically, there is tremendous variability in the clinical picture from case to case.

Psychical Seizures

Jackson (1888), described 50 cases of uncinate fits, which were characterized by:—

(a) Only rarely loss of consciousness.

(b) Convulsions were seldom present.

(c) A marked disturbance of thought, perception, feeling and behaviour. They are also called *psychical seizures*. (Whitten, 1969) or *dream-like states*.

Characteristically they show perceptual illusions *(deja-vu phenomena)*, hallucinatory seizures, mood or emotional changes, forced thinking, dreamlike states. Here the paroxysmal psychiatric phenomena appear as *emotional states or disorders* substituting the convulsive fit, and has to be differentiated from the paroxysmal psychomotor equivalent. Their symptoms are not those that occur as an emotional reaction to organic disease or emotional problems. They are symptoms of a paroxysmal disturbance in cerebral function and are indicative of organic disease.

The *psychical seizures* are all associated with a disturbance of consciousness, and may be so brief as to go undetected. Generally, they are almost all associated with temporal lobe epilepsy.

1. **Perceptual Illusions**

There is a false interpretation of real sensory stimuli which takes many forms and can involve any sensory modality. Epileptic illusions consist of micropsia, enhanced vision and objects moving further or nearer than they really were. However in the same patient, the illusions are constant and repetitive (Gibbs, 1948). Common among their illusions is the

(a) *deja-vu* phenomena, where strange objects or persons seem familiar.

(b) *jamais-vu*, where objects appear far away and unreal.

(c) depersonalization, derealization and disturbances of body image. It was probably related to a disturbance in the limbic system of the temporal lobe (Kenna & Sedmon, 1965). More often the patient describe brief paroxysmal feelings of loneliness or strangeness or a *dreamy feeling* or being a spectator to an event and not part of it.

2. **Hallucinatory Seizures**

They are probably the most commonly-encountered phenomena in *psychical seizures* and are symptomatic of a discharge from the temporal lobe. The hallucinatory experience is usually made up of the individual's personal experience as well as an awareness of his surroundings. This leads to a *doubling of consciousness* in the mental state. The hallucinations represent any of the sensory modalities — visual, olfactory, gustatory, hearing, touch and often strips of past feelings and memories.

The diagnosis is made from the history and is characterized by brief, paroxysmal, stereotyped and irresistible symptoms followed by transient cerebral impairment. They seldom last for more than a few minutes, and are repetitive, occuring at nidefinite intervals and in clusters. There is no associated aura.

The patient may have a *hallucinatory march,* i.e., from one thought to another without variation in each. When the occipital lobe is involved, there may be visual hallucinations, usually of crude perceptions of colour. Occasionally the phenomenon is motionless. If the uncus of the temporal lobe is involved, uncinate fits occur.

Another interesting phenomenon is autoscopy, where the patient sees an identical image of himself, apart from himself. The organic view is that it is an irritation of the temporal or parieto-occipital areas.

3. **Mood or Emotional Changes**

This is probably the commonest change in epilepsy. A prodromal mood ranging from depression to irritability often precede a fit and is aborted by the fit (Vander, 195). The epileptic mood is of sudden onset, building up within a matter of hours to days. Suicidal or homicidal attempts are not uncommon in these states.

More commonly, there are moods of irritability, even of violent anger with senseless aggression which is frequently called *epileptic furor*. They can occur without any disturbance of consciousness, e.g., *mania-a-potu* in chronic alcoholism. Other epileptics who are liable to mood changes may start drinking in *dipsomaniac* bouts. Others in this state develop paranoid experiences and are liable to misinterprete everything as suspicious. An affective aura is common and the description of this aura was vividly described by Dostoievsky (Slater & Roth, 1969) as "..... a feeling of happiness which I have never experienced in my normal state of which I cannot give the idea ..... complete harmony with myself and with the whole world".

Sudden feelings of despair, guilt, anxiety and terror may occur. Premonitions of death, of the end of the world, basic and philosophical doubts, suicidal and aggressive urges have also been described. Dewhurst & Beard (1970) described six cases of proven temporal lobe epilepsy who had sudden religious conversions after their fits. Each experienced religious aura, visual and auditory hallucinations.

Some patients with anterior superior temporal lobe disease experience feelings of well being, i.e., *epileptic ecstasy*. Mulder and Daly (1954) illustrated a case "who suddenly felt as if he had no worries, as though everything was all right". Epileptic depressions and prolonged psychomotor automatism can last for weeks or months and can occasionally be interrupted by a single induced convulsion (Hill, 1954) or a seizure.

4. **Forced Thinking**

Forced ideas were experienced like the passivity phenomena in schizophrenia, e.g. the idea of eternity or infinity may suddenly present itself to the patient, or a storm of indescribable thoughts may race through the epileptic's mind (Slater & Roth, 1969). These thoughts are compelling and recurring and all other thoughts are excluded. The forced thinking may comprise the entire attack or may be an aural phenomena. He usually cannot remember the exact nature of the thoughts, or tone of the process, which is usually unpleasant. He may describe a recurrent loss of control of his thoughts or a fixation on thoughts and manifest similarly to an obsessive-compulsive disorder (Penfield & Kristiensen, 1951). Such symptoms are usually associated with frontal lobe lesions as well as temporal lobe lesions.

5. **Dream-like States or Twilight States**

Wilson (1940) subdivided the *dream-like states* as release phenomena, while hallucinations were discharge phenomena. The post-ictal twilight state may follow all kinds of epileptic attacks, with a clouding of consciousness, and associated with mood changes of irritability and sensitivity to minor stimuli and outbursts of primitive rage reactions. These states often accompany acute psychotic symptoms, delusional ideas, hallucinations, illusions, compulsive acts and disturbances of affect. The disturbance of consciousness may range from a dullness of comprehension to gross psychomotor retardation. Within the twilight or *dream-like states,* the patient may undergo a fugue where he wanders wanders absent-mindedly away.

6. **Prolonged Disturbances**

Gold and Goldensohn (1960) described a number of patients who had well-documented seizures. While there were no motor seizures, they described prolonged, behavioural, emotional and intellectual changes in the patients, with simultanous

EEG abnormalities. These changes were rapid in onset and termination and were characterized by confusion, hostility, negativism, withdrawal, fogginess and dreaminess. The patients never lost consciousness and had good post-ictal recall. These behavioural changes lasted 12 to 72 hours and were indistinguishable from temporal lobe seizures except for their long duration.

Psychomotor Attacks

Penfield (1952) has produced an impressive body of evidence to suggest that when automatic behaviour is prominent or prolonged at whatever stage of the epileptic attack, the origin of the initial discharge is narrowed down to certain sites in the cerebral cortex. The recollection of a well-defined aura after automatism favours the site of origin. The main manifestations of prolonged psychomotor attacks are automatisms and epileptic fugues.

1. **Automatisms**

Mclachlan (1966) defined automatism as "an act which appeared purposive, executive and at times extra-ordinarily elaborate, but occuring without the person knowing what he was doing, and the memory of which, in most instances, do not persist". According to Penry et al. (1969) automatisms could be ictal, post-ictal and perseverative automatisms in epilepsy. They could be associated with petit mal epilepsy but the spread of the epileptic discharge necessary for the appearance of automatism occurs in temporal lobe epilepsy. The interest in automatism lies in the apparent ability to do highly complicated actions, while not yet fully in command of the senses and often followed by complete or partial amnesia.

The medico-legal implications of automatism are important especially for criminals accused of severe aggressive crimes and try to plead epilepsy. Points in favour of epilepsy are:—

(a) absence of a motive or premeditation.

(b) incongruity in the setting of the patient's life which has often been previously blameless.

(c) absence of dissimulation.

(d) presence of amnesia.

(e) presense of subsequent irresistible sleep or coma.

Jackson (1888) looked on automatism as a release phenomenon. The exhaustion of the most highly-developed centres led to the temporary release of less highly-developed centres, which acted on their own accord. Consequently he defined all automatism as post-ictal phenomena. Smith (1956) in his series of 469 cases of temporal lobe epilepsy found that 90% with automatism had a unilateral cerebral focus.

2. **Epileptic Fugues**

The essential factor in the epileptic fugue is the *twilight state or dream-like state*. Marchand (1948) found that 6.4% of epileptics had fugues. A fugue may replace terminal sleep after a seizure, but may precede the first major fit. The patient may wander off, board trains and buses, behave in a *drunken* but apparently purposeful state and appear drowsy and absent-minded. He may be found miles away from where he started, and may suffer from total amnesia in his travels. Evidence of his wanderings may be indicated only by tickets, food and hotel bills. Many authors suspect that *orderly prolonged fugues* may be a hysterical symptom adequately called *hysterical vigilambulism*.

Epilepsy and Sexual Disorders

Kluver and Bucy (1939) reported abnormal sexual behaviour in monkeys in association with temporal lobe lesions. Similar behaviour was noted in human beings following bilateral temporal lobectomy (Terzian & Dalle, 1955). In 1945, Erickson had a female patient who had a tumour removed from the medial surface of the right cerebral hemisphere and developed nymphomania and seizure of aura of *passionate feeling* over the left side of her body.

The best known case is that of Mitchell et al. (1954) in which *safety pin fetishim* was associated with epilepsy and relieved by temporal lobectomy. There is a great deal of evidence to suggest a close and directly-causal relationship between brain lesions and aberrant sexual behaviour, either through *irritation* or *release* of pre-existing tendencies. Rosen (1964) cited a case where a female homosexual had suffered temporal lobe epilepsy with vaginal aura and sexual excitement followed by the unpleasant experience of a seizure may have resulted in strong conditioning with subsequent disturbance of sexual orientation. In 1969, Hooshmand and Brawley reported two cases of exhibitionism suffering from temporal lobe epilepsy. Their automatisms simulated exhibitionism. The first case was a male who

usually exposed himself to all and sundry (making true exhibitionism unlikely); while the second patient was an unlikely female exhibitionist.

Taylor (1969) examined 100 patients diagnosed as temporal lobe epilepsy before and after temporal lobectomy and found that there was a reduction in sexual drive post-operatively. It has been found that two-thirds of cases of temporal lobe epilepsy had hyposexuality and it was difficult to say if symptoms were due to drug medication or to epilepsy.

Relationship of Hysteria and Epilepsy

There are some features in common between a hysterical disturbance and an epileptic fit. Moreover, epileptics are at times liable to disturbances which closely resemble hysterical mechanisms. Charcot first postulated the concept of *hystero-epilepsy* when he encountered patients in whom it was difficult to distinguish between epileptic and hysterical seizures.

The correct diagnosis depends on the following points:—

(a) The patient may be suffering from epilepsy, or the seizure may be hysterical in nature (pseudo-seizure).

(b) Epilepsy and the hysterical reaction may coexist as separate entities together in one individual. This mixed form is rare.

(c) Epilepsy may result in a hysterical reaction and this is particularly true in temporal lobe epilepsy.

(d) A hysterical reaction may activate an epileptic seizure — an affective reflex epilepsy, e.g., a woman may develop an epileptic fit which is perpetuated after receiving news of the sudden death of her husband.

Despite of the above attempts at differentiating the two conditions, it can be difficult to distinguish epileptic from hysterical seizure despite of modern techniques. It is difficult to know when hysterical fits end and when epilepsy begins.

The Epileptic Personality Disorder

Previously, the personality of the epileptic was said to be a consequence of repeated fits, causing a state of moral and intellectual deterioration. The *epileptic personality* is said to be composed of apathy, flattened affect, egocentricity, rigidity, eccentricity and hyper-sensitivity. They are also liable to explosive episodes of anger, irritability and aggression. Bleuler in 1936 stated that 'epileptics were as a rule psychopathic'. His findings were based of course on the institutionalized mental hospital population. However, Lennox (1942) felt that the epileptic character was the result of difficulties in life associated with the recurring fits.

Current thinking (Duffy et al., 1966; Slater & Roth, 1969) emphasizes that in most cases of epilepsy, there is no deterioration of intellect. However psychomotor epilepsy is associated with a significant degree of emotional illness. The source of emotional factors and emotional upsets frequently trigger seizures. The patient's concern about seizures and the dulling effect of drugs intrude and influence all aspects of his daily life. The paroxysmal disturbances may stimulate submissive and masochistic strivings, together with guilt, dependency and expitiation. The experience of helplessness may stimulate infantile type of regressive longings as well as oral, excretory and genital strivings. He reacts against having any special concessions and pity being made because of his illness. A prevading sense of insecurity carries him to work long hours, thereby resulting in depression and anxiety. The psychopathology of the epileptic personality arises out of the epileptic process proper and may lie interwoven with strivings and conflicts arising out of the relationship with the environment.

Nevertheless it is certain that personality changes take place after the onset of epilepsy, i.e., at a very young age before the crystallization of the personality. About 50% (Guller, 1960) of patients show this change, and they are in greater part in severe and long-standing cases. Patients with the greatest number of fits show the severest alteration in personality. Both intellectual and effective components are affected. On the intellectual side, there is retardation, perservation, circumstantiality and a narrowing down of the personality to the *organic orderliness* of the obsessional. He ties himself to a fixed routine and protects himself from insecure situations. On the affective side, there is a tendency to irritability and explosions of affect. The epileptoid character is said to be bipolar, oscillating between viscosity and explosivity. Chronic epileptics are capable of actions of malicious and petty spite. There is also a curious tendency towards religiosity and to use religious phrases devoid of inner meaning.

In the more advanced stages of *epileptic dementia*, there is an incapacity to deal with what is new, and a gradual loss of old and well-established patterns of behaviour. Memory deteriorates and the epileptic may eventually resemble the chronic schizophrenic and state.

The Epileptic Psychosis

The psychotic state in epilepsy follows only after years of epileptic fits, clinically closely resembling schizophrenic psychosis. The onset of psychosis has been generally insidious and coincided more often with a fall rather than a rise in the frequency of epileptic fits. There is, however, no close association between the epileptic psychosis and the endogenous psychosis.

Pond (1958) described their psychotic states as closely resembling schizophrenic psychosis, with paranoid ideas which might become systematized, ideas of reference, auditory hallucinations often of a menancing quality and occasional frank thought disorder with neologisms, condensed words and inconsequential sentences. However, their affect remained warm and there was no typical deterioration to the hebephrenic state.

Thus the clinical picture represents a problem in the differential diagnosis of schizophrenic and complex *psychical seizures*. Slater and Beard (1963) stressed the difficulties and importance of distinguishing the two syndromes. On the other hand, Heath (1962) stressed that although the inter-seizure behaviour of psychomotor epilepsy may be similar to schizophrenia, the EEG of the schizophrenic is characteristically normal (although the EEG is slightly more abnormal in schizophrenics than normal persons). In only a small minority of cases are there difficulties in differentiating between the syndromes of schizophrenia and psychomotor epilepsy. The confusion usually occurs when the inter-ictal behavioural abnormalities of the epileptic are prolonged and less circumscribed. Depth EEG recordings of the seizural group are quite different from the schizophrenic group, even when the epileptic displays features indistinguishable from schizophrenia. Due to the difficulty in differentiating the two disorders, Monroe (1959) set general guidelines to diagnosis. If one emphasized the sudden onset and sudden disappearance of the episodes, the disorientation, the amnesia, the automatic and repetitive movements and the borderline EEG, one would arrive at the conclusion that it was an epileptic disorder. On the other hand, if one emphasized the rather pronounced inter-ictal behavioural disturbances, the length of the attacks, one would be more inclined to make a diagnosis of schizophrenia.

Controlled comparative investigations by Flor-Henry (1969) showed that temporal lobe epilepsy of the dominant hemisphere disposed to schizophrenic-like psychotic manifestations; whereas epilepsy in the non-dominant temporal lobe was associated with manic-depressive psychotic reactions.

Conclusion

The psychiatric aspects of epilepsy were discussed and evaluated. Practically all psychiatric manifestations could occur in epilepsy ranging from psychical seizures to psychomotor automatisms and fugues. The personality of the epileptic was said to have been the result of an emotional reaction to the illness and was similar to that of any person suffering from a chronic illness. It was difficult in some cases to differentiate epileptic psychosis from schizophrenia although there was no pathological relationship between the two syndromes. By and large, the EEG remained the main diagnostic instrument in the diagnosis of psychomotor epilepsy.

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Instructional Development in Medical Education

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Introduction

INTEREST IN MEDICAL EDUCATION was stimulated in Malaysia by the foundation in 1963 of its first medical school, the Faculty of Medicine in the University of Malaya. Two conferences on medical education were held in the Faculty, one in 1965 focusing on medical education in Malaysia and the other in 1968 having as its theme the place of the university hospital in medical education in a developing country. With the formation of a second medical school at the Universiti Kebangsaan in 1972, medical education has come once more to the forefront. The subject has engaged the attention not only of medical educationists, but also of the government, the medical profession both as individuals and as representative associations, and the public.

Discussions have centered on philosophical concepts and general objectives of medical education in relation to the needs of the country; on evolving patterns of curricula, including the need for working in the community and the inclusion of new disciplines; on difficulties and problems in organisation-staffing and professional training. General objectives have been formulated by experienced physicians and leading authorities in the field of medical education in accordance with needs and concepts and these have been translated into the curriculum. A pyramid has evolved (Fig. 1).

It seems to the writer that there are two defects in this pyramid; firstly, it does not reach down to its true foundation, the students, and secondly, it actively involves relatively few persons, who most often are the senior teachers.

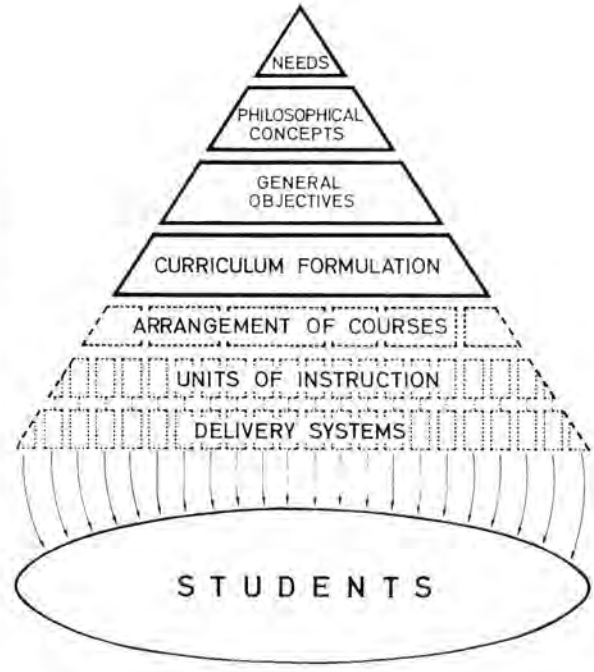

Figure 1

Transformation of the curriculum into courses and further into units of instruction has not been sufficiently stressed in the context of medical education.

The lecturer to whom a course or unit of instruction is allocated is often a physician who has qualifications and clinical experience in his chosen

specialty or a basic scientist with research interests and experience. When he joins a teaching department, he is expected to teach, even though he has had little or no experience or training in instructional technology or instructional development. In such a situation the lecturer tends to fall back on his own learning experiences and to use methods similar to those to which he was subjected when himself a student. Thus in medical schools, teaching methodology becomes largely self-perpetuating.

How should units of instruction be devised so that the stated objectives of each unit and course will be achieved? More importantly, how should delivery systems be selected so that the student can learn effectively? Answers to these questions may be sought in the educational field of instructional development, which in this context may be defined as a planned series of inter-related procedures which aim at the creation of suitable learning situations or experiences so that a maximum number of learners (students) will achieve the stated objectives of a particular unit of instruction.

This paper proposes a scheme for instructional development which may be of assistance to the lecturer who has to plan and develop a course or unit of instruction. It is hoped that the creation of effective learning situations for the student will assist in achieving particular course objectives, a small step towards the general objective of developing an efficient and socially responsible physician.

The Scheme

The proposed scheme of instructional development (Fig. 2) consists of procedures that fall into two categories in relation to a framework of requirements and resources:

The **framework:** the situational characteristics under which the unit of instruction is to be designed, evaluated, modified and finally delivered.

The **design:** the main instructional development process by which the unit of instruction is designed and developed under the influence of the framework characteristics.

Evaluation: has to be planned and developed as a parallel process to the design, so that the progress of students towards the achievement of stated objectives can be monitored.

When a course or unit of instruction is assigned to a lecturer, the first step in instructional development, the recognition of a need, has already taken place. The next step is the formulation of objectives for each unit of instruction.

A SCHEME OF INSTRUCTIONAL DEVELOPMENT

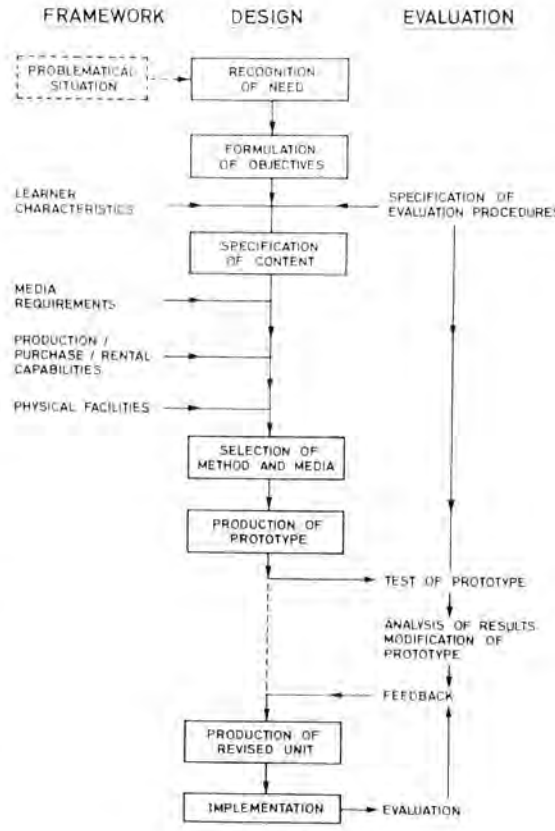

Figure 2

Objectives for units of instruction, unlike general objectives for the medical curriculum, should be stated in terms that allow both lecturer and student to understand what is required of the student at the end of the unit of instruction and clarifies for the lecturer what he has to impart. The who? (audience), what? (behaviour), and how? (condition and degree) should be clearly specified. In educational terms, behavourial objectives should be written. For example, the behavourial objective for a unit of instruction dealing with the use of food composition tables by Year III medical students may be written as follows:

> After the unit of instruction on the use of food composition tables, a **Year III medical student** should be able to: (audience)
>
> **Calculate** the nutrient composition of five local foodstuffs (behaviour)

when **given** a list of such foodstuffs, a set of Malaysian food composition tables and a calculating machine. (condition)

He should be able to do this in **half an hour** and should make **no mistakes** in his calculations. (degree)

At this stage, the characteristics of the learner have to be considered, such as whether the background knowledge (or entry skills) of the student will allow him to be introduced directly to the subject of whether some preliminary reading or instruction is necessary. At the same time, procedures of evaluation should be specified to ensure that the test taken by the student truly measures the achievement or failure of achievement of the objective and is not a test of some skill or knowledge outside the unit of instruction or is not required by the objectives of the unit. In the example cited above, the evaluation procedure has been indicated within the objective itself.

The next step is to specify the content of the unit. This is the subject matter, block of knowledge, or skill that is to be learnt by the student.

Possible systems of delivery should now be considered. Although the methods and media required to create the most effective learning situations are desired, constrains within the framework play an important part in the final choice of a delivery system. Are the production, purchase or rental capabilities of the school adequate to meet the needs of the proposed system? Are the physical facilities of the school capable of accommodating the system? It may be difficult to engage in small-group teaching if small seminar rooms are not available and futile to rent a good videotape series when no playback machines are within reach. A well-prepared traditional lecture may be ruined by poor acoustics or faulty amplifier systems within the lecture hall.

The delivery system having been selected and co-ordinated with the specified content material, the prototype of the unit of instruction is ready for its trial run. This tests effectiveness and efficiency and permits modifications to be made before it is offered to the student. This step is seldom possible and revisions are usually done as the class proceeds or before the next class is assigned. Upon the implementation of either the prototype or the revised unit of instruction, adequate procedures of evaluation which were built into the unit will generate enough feedback for both the lecturer and the student. For the lecturer, the feedback allows him to see weaknesses in his unit of instruction and indicates where corrections, refinements or other alterations may be made, and for the student, allows him to monitor his progress towards the achievement of the objective.

This process of implementation — evaluation — feedback — modification should continue if the lecturer — student relationship is to be a profitable one.

Where educational back-up or support facilities such as media production units or instructional development services are available (Teoh, 1972), medical lecturers can easily utilise these services in order to follow the steps in this proposed scheme.

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The Organisation of Accident and Emergency Services in a Developing Country

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THE PROBLEM OF providing adequate care for the injured is well documented and goes back into antiquity. Generally speaking, evil sometimes, if not always, brings good and so it is with war. Every major human conflict has, on its cessation, seen a progress in the science and art of surgery. Accident surgery evolved with the management of wounds sustained in conflict. The earliest documentation regarding the care of wounds is in the Edward Smith Papyrus written about 1700 B.C.1

Man's desire for speed and even more speed in transport, and the growing mechanisation of industry to meet the increasing demands of economy, have left in their trail an ever increasing number of accidents. It has to be appreciated that these injuries affect the productive members of a given community and today, the risks of accidents do, by far outweigh the perils of disease. Accidents are the main cause of death in the 1-35 age group in most countries. In Great Britain, industrial accidents caused more loss of man hours and productivity than labour disputes throughout the country, while injuries sustained in travel cost the community £172 million in 1955 and this cost is still rising. In the U.S.A. there are 50 million accidents with 120,000 deaths annually. These figures are ever increasing and the economic loss to the country when the healthy wage earner is incapacitated, needless to say, is a tragic circumstance both for his family and the country. The necessity of adequately organised accident and emergency services is therefore being felt throughout most of the countries of Europe, the United Kingdom, and the United States. The need, therefore, to have an adequate and efficient service in a developing country is even much greater. Even though the economy may be strong enough in a country it could ill afford the loss of man hours, or the distribution of its finances in the form of compensation. The injured must be treated promptly and adequately with final rehabilitation back to work, without unnecessary loss of time in the process.

Organisation

Accident and Emergency services in a country should be on a regional basis. It should be planned on a three-tier pattern with the accident centre as the main hub of the region, base hospitals as minor centres and district hospitals as the peripheral units. All peripheral units and base hospitals should be in communication with the main centre.

The Central Accident Unit

It is accepted that the main accident centre should be in a General Hospital, where all specialist services are available for consultation. In such an organisation, with the co-operation of the consultant staff, the patient with multiple injuries will get ideal treatment. This will be a much better service than one that could be arranged in an accident hospital. There should be about thirty beds per 100,000 of population.

The Accident and Emergency Department should be a self-contained service with separate entrances for ambulant and ambulance patients.

The importance of an adequate organisation for such a service need hardly be stressed. It is felt that injuries to the locomotor system form the

main turbulent stream of traffic that such a centre is forced to face, and is estimated at 75 to 80 percent. Hence the ideal person considered suitable to organise the service should be a senior orthopaedic surgeon. The remaining injuries and emergencies not attributable to accidents form a mere insignificant trickle. To quote the Central Health Services Council Report on accident and emergency service — "We think that is necessary to appoint one consultant to be in administrative charge of an accident department. It is clear from figures which have been put before us that by far the greatest part of accident work falls within the province of the orthopaedic surgeon. It is therefore normally the best arrangement for a senior orthopaedic surgeon to have the day to day control of the accident and emergency department." His duties would include arranging the daily rosters of consultants, registrars and other medical staff, maintaining liaison and goodwill between the various departments which would have to partake in the service, namely, general surgery, neuro-surgery, plastic surgery, dental and last but not least, psychiatry.

Members of these various units will have to be available for consultation as need be, when the occasion arises.

The average patient is generally able to choose his or her own doctor, but unfortunately, the patient involved in the emergency is unable to make this choice, and is rushed to an accident emergency centre where he expects the best treatment.

Patients should be brought into the reception area where trained medical officers are available. These patients would be suffering from injuries to the locomotor system, while some no doubt will be more serious with multiple injuries. The Medical Officer on duty should, after examination, refer the patients to the appropriate speciality for their management. Critically ill patients such as those with multiple injuries may need admission to the intensive care unit directly.

Whenever a psychiatric problem is brought into reception, the psychiatrist on duty will have to be available for consultation. Attempted suicides should have this specialised care and help before being discharged from the hospital to prevent such drastic attempts on their lives again.

A committee on management, with the officer-in-charge of service as chairman, should be formed. This committee should have representatives from all the fields involved in management of accident and emergency patients, namely, general surgery, neuro-surgery, plastic surgery, dental, anaesthesia, gynaecology, obstetrics, psychiatric and medical specialities. Inter-departmental goodwill and understanding would be the "Open Sesame" to a smooth and efficient working of the service.

Observation Ward: This is a very useful and necessary facility in the service. Here patients may be kept under observation where there is doubt as to the need for admission. Thus overcrowding of the main wards of the accident unit can be avoided.

Burns Unit: This facility is very necessary in every accident unit and should be managed by a plastic surgeon.

Provision for Geriatric Cases: Some provision will have to be made for these patients as they are of the long stay category by virtue of their age and general condition. If these patients are to be kept in the acute hospitals very soon they would fill up all the available beds. Under these circumstances, a convalescent extension for these patients is an absolute necessity.

Paraplegic Unit: Rehabilitation of paraplegics and tetraplegics is very necessary. Such programmes are best organised and started in a separate centre. Patients could be transferred to such a centre on completion of the management of the acute phase.

Rehabilitation: From the time of admission to the service, treatment should be planned for these patients with a view to getting them back at employment with the minimum loss of time, hence the importance of medical rehabilitation in their management. If they are unable to go back to employment immediately on discharge, they should have some industrial rehabilitation to fit them into their former occupation. Where this is not possible, facilities will have to be organised for assessment of these patients and their vocational rehabilitation in a new trade in keeping with their aptitudes, intelligence, and physical disability.

Disaster Organisation: Finally, the centre should be geared for the occurance of any form of national disaster. This organisation should be put to the test at regular intervals by practices so that should the unfortunate incident occur, the organisation can be put into operation without any hitch in the scheme of things. Added medical staff from the various departments of the hospital would have to be on the roster for such an eventuality. Medical Officers should be given instructions as to what should be done in such an event. There should be two teams, one to work at the scene of the disaster, and the other at the accident centre itself. The nurses in the hospital and other ancillary staff should

also be on a roster to give added help when needed in these circumstances. Additional theatre staff and theatres will have to be ear-marked for such emergency work. First aid kits should be available, prepared and sorted to be taken immediately to the scene of tragedy. This should include the availability of sterilised dressing packs at the Central Sterile Supply Unit. Sets of splints would also have to be put by to be taken when required.

A Public Relations Officer should be available to liaise with the medical officers, nurses, the relatives of the patients, police and the press. Thus the technical staff would be prevented from wasting time worrying about clothes and valuables of the injured as well as answering the numerous questions of anxious relatives, and that of the press. At least two unlisted telephones, should be available in the accident and emergency centre. These numbers should be known only to the Director of the hospital, the Head of the accident emergency, the police, and chief of the ambulance services.

The Accident Units

The accident centres in base hospitals should have facilities for resuscitation of the severely injured prior to transfer to the main centre, and facilities for treatment of the less complicated cases. Patients needing management in specialised units can be transferred to the main centre after initial care. The bed strength at these centres should also be about twenty-five to thrity per 100,000 of population.

The Peripheral Accident Service

The main purpose here is to provide treatment for minor injuries. It should also meet the demand of the so called "casual patients". It is common knowledge that for every major injury, there are at least a hundred minor injuries. Here morbidity is the important factor.

General practitioners in the periphery and medical officers in cottage hospitals can be organised into this peripheral service, which can be sited at suitable points, either in general practitioner surgeries or the cottage hospitals.

Planning For The Future

Development should include a carefully planned programme to cope with not only the management of accidents but also their prevention. Here, education of the undergraduate is an important responsibility of the service for it is he who will be the general practitioner of tomorrow or the post-graduate of the future. The basic foundations in the knowledge handling of the injured, whether it be an accident or other emergency, must be ingrained in the young and developing mind at this stage. To attain this ideal he should have an adequate period in the service. In most centres in Great Britain, it is felt that the time allotted for under-graduates in accident and emergency is far too little, especially in the context of the modern trends of increasing accidents. Steps are being taken in most centres to increase the time to a period of three months. This under-graduate training is vitally important, for in a perfect world of the future made sterile by an ideal antibiotic, congenital deformities eliminated by careful inbreeding, the doctors of the space age will be chiefly orthopaedic surgeons because there is as yet no way to prevent the occurance of accidents.

The post-graduate, on the other hand, should have a period of at least one year in the accident and emergency department where he will be exposed to an extensive programme in management of these patients. A training period in accident surgery is now an essential requirement for eligibility to sit for the Final Fellowship of any of the Royal Colleges of Surgeons.

Education and training of the general practitioner should be a part of this service. He should be well indoctrinated into the fundamentals of accident surgery and could then form an important member of the regional service. Such training should include methods of resuscitation and the correct handling of the severely injured.

Enhancing the knowledge of para-medical personnel like nurses, assistant nurses, physiotherapists, occupational therapists, in coping with the problems that arise in patients of this category would be an added duty of the service. Eventually it is assumed that there should be courses in orthopaedic nursing with a view to manning the orthopaedic and accident services throughout the country with suitably trained nurses. There should also be schools of physiotherapy and occupational therapy, to provide staff for the rehabilitation of the injured.

Education of the public is just as important as training of medical and para medical staff. Such education should consist of enhancing the knowledge of safety precautions and first aid measures. The need for availing oneself of immediate attention to reduce morbidity and minimise physical disability is another priority to be appreciated.

Adequate personal care in homes from the dangers and hazards of open fires and home appliances has to be taught. In industry, the education of staff in the need for using safety precautions is a must. Every major industry should have ade-

quately manned and equipped first aid stations where the injured could receive much needed initial treatment.

Enlightenment of the public on road safety measures and the appreciation of the fact that roads are for the entire general public will help to reduce carelessness, selfishness and self-assertiveness — all common causes of accidents.

Research

Finally, research should form a very integral part of the services of an Accident Centre. It is the only way to reduce mortality and morbidity figures. There are many facets in the management of trauma that need further investigation and study such as the problem involved in the resuscitation of patients with multiple injuries. The pattern of trauma has changed and is continuing to change with high velocity vehicles. Hence our approach must keep pace.

Conclusion

A scheme has been outlined for the organisation and maintenance of an accident and emergency service on a regional basis. The necessity of such centres has been adequately stressed both from the point of view of service to the community, and also for the need of adequate facilities for training both under-graduates and post-graduates associated with medical schools, not to speak of para-medical personnel that would also need such training and instruction. Plan for the organisation and administration of the service has been laid out on the basis of what is accepted in most countries in the west.

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A Preliminary Survey of Drug Dependence in the State of Penang, West Malaysia.

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Introduction

THERE is much current interest in the problem of drug abuse in Malaysia. Though much has been said, little is known about the actual extent and pattern of drug dependence in the country. Experts are divided in their views. Some contend that the threat at present is minimal (Wagner & Tan 1971). Others (Mahadevan 1970) feel that it is rapidly getting out of hand, and that firm measures are warranted. It was in the midst of this controversy that the Steering Committee on Drug Addiction in Penang decided to make an attempt to study the problem in their own community.

This committee, comprising of members from the legal and medical profession, education and social welfare officials, representatives from the Police, Customs, Chemistry and University Departments, was formed in September 1970 following a public forum on Drug Addiction. The author served on the Committee as a representative of the Malayan Medical Association. It was evident to all members at the beginning that an accurate epidimeological survey was not possible. The committee then decided to confine its initial investigation to the population of the General Hospital and Prison. Both these institutions are situated in Georgetown, the state capital.

Area of Inquiry

The State of Penang comprises of the island, Pulau Pinang and part of the mainland known as Province Wellesley. It covers an area of nearly 400 sq. miles and has a population of about 800,000 (1970 census) comprising of 55% of Chinese, 30% Malays, 12% Indians and 3% others. The capital, Georgetown is situated on the island itself. The mainland is accessible by ferry.

Method, results and discussion

The study may be conveniently divided into two sections: A — Hospital Inquiry and B — Prison & Police Survey.

A. Hospital Inquiry Method

The case notes of all admissions to General Hospital Penang from 1st January 1968 to 31st December 1970 with a diagnosis of Drug Addiction (Code: 316) were obtained. The following data were extracted: sex, age, race, occupation, marital status, education, reason for referral, previous police record, major durg of addiction, souce of influence and previous attempts at withdrawal treatment.

Results

(i) Observed Trend in Admissions for Drug Addiction from 1.1.68 — 31.12.70

Table 1(a)
No. of Cases/Year

Year	1968	1969	1970	Total
No. of Drug cases	21	34	57	112
Total No. of Admissions	23730	26495	24696	
% of yearly Admissions	.09	.14	.22	

There is a significant increase in the number of cases admitted with a diagnosis of drug addiction between 1968 and 1970.

	1968	1969	1970	Total
Opium/Morphine	15	25	30	70
Heroin	3	7	20	30
Marijuana	0	1	2	3
Pethidine	2	2	1	5
Amphetamine	0	0	1	1
Alcohol	1	1	1	3

The gain was most marked in the case of heroin addicts. The most common drug of abuse among the patient population during this period was opium and morphine (63%) followed by heroin (27%).

Cultural Aspects

Table 2
Type of Drug/Race

	Chinese	Malay	Indian	Others
Opium/Morphine	48	10	10	2
Heroin	22	5	2	1
Marijuana	0	2	1	0
Pethidine	5	0	0	0
Amphetamine	0	0	0	1
Alcohol	0	0	3	0
Total	75	17	16	4

The addicts admitted for treatment were predominantly Chinese (67%). This is not surprising as the Chinese comprised 58% of admissions for the three year period. In this ethnic group, the types of drug abused were opium/morphine (64%), heroin (29%) and pethidine (6%) and no cases involving other types were found. There were only three cases of marijuana dependence (2.5%) and of these two were Malays and one Indian.

(iii) Age Factor

Table 3(a)
Age at time of referral

17-19	20-29	30-39	40-49	50-59	60+	N.K.
3	39	24	15	9	19	3

The largest number of admission were in the 20-29 age group.

Table 3(b)

	Under 30	30-49	Over 50	Age not known
Opium/Morphine	17	23	27	3
Heroin	21	9	0	0
Marijuana	2	1	0	0
Pethidine	0	5	0	0
Amphetamine	1	0	0	0
Alcohol	1	1	1	0
Total	42	39	28	3

Among the heroin users, 70% were under 30, whereas in the opium/morphine category, the largest number of cases (39%) were over the age of 50.

(iv) Sex, Marital Status, Occupation & Geographical Distribution

Table 4(a)

Sex	
Male	Female
110	2

Except for two housewives, all the cases were male. Both the females were dependent on Opium.

Table 4(b)

Marital Status at time of referral	
Married	Single
47	65

58% of patients were unmarried.

Table 4(c)

Job Status at Time of Referral						
Employed					Unemployed	Housewives
41					69	2
Special grade						
I	II	III	IV	V		
0	5	2	22	12		

62% of cases were unemployed on admission. Among the employed, none were in Social Grade I, 17% in Social Grade II & III, and 83% in Social Grade IV and V.

Table 4(d)
Geographical Distribution

Within city (Georgetown) Limits	Outside city within State (Penang)	Outside State
98	10	4

84% of patients came from within the city limits of Georgetown, the State capital.

(v) Source of influence and reasons for wanting treatment

Table 5(a)

Source of influence	
1. Influence by friends	30
2. Seek Medical Relief	5
3. Medical complication	3
4. Not known	74

27% blamed their friends as the initial source of influence in their addiction.

Table 5(b)

Reasons given for wanting treatment	
1. Patient wants to give it up	40
2. Withdrawal symptoms	17
3. Economic reasons	12
4. Not known	11
5. Admitted for Medical/surgical reasons	17
6. Admitted for Psychiatric reasons	11
7. Referred from the courts	4

56% stated that they wanted to give it up on admission. Of the 17 cases (15%) that were admitted for medico-surgical reasons, three were pethidine addicts presenting with abdominal pain. Of the remainder, all of whom were opium/morphine addicts, 9 were admitted on account of debility and malnutrition and 5 for investigation of acute abdomen which later turned out to be withdrawal symptoms.

(vi) Duration of addiction on admission

Table 6
Type of Drug/Duration of Addiction

	12	8/12 yr.	1-3 yr.	3 yrs.	Duration not known
Opium/Morphine	2	4	18	49	6
Heroin	3	9	14	3	0
Marijuana	1	0	5	4	0
Others	0	0	3	6	1

Compared to others, heroin users tended to seek medical assistance at an earlier stage of their addiction.

Discussion

The results of this inquiry have to be considered in the context of a biased hospital population, though it may be claimed that the trends observed are for a fixed bias over a period of three years. We have found that during this time, there was an increasing demand for medical treatment of drug dependence. The rate of increase was most marked for heroin addicts and the predominant problem involved the narcotic group of drugs (heroin, opium, morphine & pethidine) which together comprised 80% of the total number of cases admitted.

That the largest number of cases were between the ages of 20 and 29 and that the majority in this group were heroin addicts merits concern. This was the pattern observed in developed countries when drug addiction came to be recognised as a serious social problem. (Second Brain Committee Report 1965).

It may also be inferred that the addict who comes to the notice of hospital authorities in Penang is almost always male, an urban dweller and often unemployed or in the lower income group. About a quarter were influenced by friends in the beginning and roughly one third volunarily requested withdrawal treatment.

Marijuana, alcohol and amphetamine dependence did not appear to be serious problems in the community judging from hospital data alone. It is interesting to note however, that all the admissions involving these three drugs were for psychiatric reasons. In the case of marijuana, all three cases were regular users of over 2 years duration. They presented with toxic hallucinatory psychosis and their condition resolved within one week on treatment with phenothiazine. The alcoholics presented with paranoid psychosis, depression and delirium respectively. The solitary case of amphetamine addiction was admitted on account of paranoid psychosis.

B. Prison and Police Survey I Prison Data

Prior permission was obtained from the Superintendent of Penang Prison to conduct this inquiry. All inmates serving sentences for drug offenses were interviewed. Their co-operation was voluntary and no refusals were encountered. The interviews were conducted by two members of the Steering Committee with the assistance of a group of undergraduates from the University of Penang. The survery began in February, 1971 and was completed by July, the same year. All the cases in this study were made (there were no female cases) and a total of 81 in-mates were interviewed.

Result

(i) Cultural and Age Factors

Table 7(a)
Race/Type of Drug

Race	Type of Drug				Total
	Marijuana	Morphine/opium	Heroin	Others	
Malay	13	5	4	3	25
Chinese	9	5	12	2	20
Indian	14	4	4	2	24
Others	1	2	1	0	4
Total	37	16	21	7	81

Convictions for marijuana (45%) and heroin (26%) formed the majority of cases. Drug abuse of the marijuana type was more common among the Indians and Malays, whereas the Chinese appeared to favour heroin or opium.

Table 7(b)
Age/Type of Drug

Age Group (years)	Type of Drug				Total
	Marijuana	Morphine/opium	Heroin	Others	
17-19	2	0	3	1	6
20-29	23	5	13	3	44
30-39	10	10	4	1	25
40-49	2	1	1	2	6

The largest number of cases (54%) fall within the 20-29 age group, and this pattern was repeated when heroin and marijuana cases were considered separately.

(ii) Educational Level & Income

Table 8(a)
Education Level/Drug Type

Education Level	Type of Drug				Total
	Marijuana	Morphine/opium	Heroin	Others	
Illiterate	4	3	1	2	10
Primary	23	12	13	4	52
Lower Secondary	7	1	6	1	15
Upper Secondary	2	0	1	0	3
College/University	1	0	0	0	1

77% were illiterate or received only primary education, 18% had lower secondary education, and 5% had completed upper secondary or college/University education.

Table 8(b)
Income level/Drug type

Income Level	Drug type				Total
	Marijuana	Morphine/opium	Heroin	Others	
Less than average poor)	24	9	10	4	47
Average	3	3	5	0	11
Above average	5	2	3	1	11
Rich	1	1	2	2	6
Don't know	2	0	0	0	2

The poor (less than average) income group comprised 58% of cases.

(iii) Reasons for taking drug

Table 9

Reasons for taking drug	Drug type				Total
	Marijuana	Morphine/opium	Heroin	Others	
Influence by friends	17	8	14	4	43
Seek relief from worries	6	3	1	1	11
Medical reasons	2	0	1	0	3
Increase sexual potency	1	1	0	0	2
Work better	1	0	0	2	1
Others	9	3	5	2	19

More than half (53%) cited their friends as a major source of influence.

(iv) Attitude towards Law Enforcement

Table 10

Attidue Toward Law Enforcement	Drug type				Total
	Marijuana	Morphine/opium	Heroin	Others	
Taking drugs should be legal	18	2	4	4	28
Taking drugs should be illegal	17	13	17	2	49
Don't know	1	0	0	1	2

87% of morphine/opium and 81% of heroin addicts were in favour of legal restriction. The marijuana users, however were about equally divided in their opinion.

(v) Type of Assistance sought

Table 11

Type of Assistance Sought	Drug Type		
	Morphine/opium	Heroin	Others
Private Doctor	1	4	0
Hospital	4	7	2
Friend/relative	1	4	1
None	7	5	0
Total	13	20	3

About 75% of heroin addicts had sought assistance for their addiction, mostly from hospital or private practitioners. None of the marijuana users felt the need for assistance of any kind.

II. **Police Data:** The Criminal Investigation Department in Penang provided the committee with data on all case charged with offences under the Dangerous Drug Act (No: 30 of 1952) from January 1968 — December, 1971. For ethical and security reasons, only information on the type of drug abused, race and age were made available. The total number of cases amounted to 431.

Results

(i) Age and Cultural Factors

Table 12(a)
Age/Drug Type

Age	Drug type				Total
	Marijuana	Morphine/opium	Heroin	Others	
Under 16	5	1	4	0	10
17-19	19	1	13	0	3
20-29	80	8	92	0	180
30-39	50	12	14	0	76
40-49	20	11	5	0	37
Over 50	24	71	0	0	95
Total	198	104	128	1	431

Like the jail figures, the predominant drug of abuse was marijuana (46%), followed by heroin (30%) and opium/morphine (24%). The largest number of cases (42%) were in the 20-29 age group and in this category, the commonest drug of addiction was heroin (51%) followed by marijuana (44%). There was a significant number of cases (23%) over the age of 50 Opium (78%) was the main drug of abuse in this group.

Table 12(b)

Race	Drug Type				Total
	Marijuana	Morphine/opium	Heroin	Others	
Malay	80	2	19	1	102
Chinese	28	100	93	0	221
Indian	79	2	7	0	88
Others	11	0	9	0	20
Total	198	104	128	1	431

Malays and Indians together comprised 80% of the marijuana users, whereas the Chinese formed 96% of the Morphine/Opium group and 73% of the heroin group.

Discussion

The prison and police survey is largely a prevalance study on a biased population. Assuming that factors such as the chances of arrest are considered equal for all types of illegal drugs, marijuana appears to be the commonest drug abused in the catchment population. There appears also to be a distinct cultural bias in the choice of illicit drugs, with Malays and Indians favouring marijuana and the Chinese preferring the opiate group.

Narocitic addicts as opposed to marijuana users tended to favour the implementation of legal control. The need for control may be interpreted as the need for an additional prop to prevent relapse, and to a certain extent reflects the severity of the addiction in narcotic cases. It is also the opiate abusers who frequently solicited medical attention and the results of the hospital study support this observation. It may be pertinent to suggest that in the planning of a campaign against drug abuse — singular attention should be given to facilities for the control and treatment of narcotic addiction in general and heroin in particular. Preventive measurers, e.g. education, would be most usefully directed at the under 20 age group, before they enter the high risk age between 20-29.

Lastly, both offenders and the patient population show similarities in their low social status and level of income. Judging from reports in developed countries, (Faris and Dunham 1939), it is not the poverty itself but poverty in socially disorganised urban areas which is the important factor.

Summary:

Data on 112 hospitalised drug addicts and 512 (81 convicted, 431 charged) drug offenders were studied by members of the Steering Committee on Drug Addiction in Penang. Their main findings were:—

(1) There is an increasing demand for medical treatment of drug abuse, mainly from narcotic users, who favour anti-narcotic legislation and who are predominantly Chinese.

(2) The largest number of drug addicts fall within the 20-29 age group. Most heroin addicts are under 30, while opium/morphine addicts are generally over 50.

(3) Characteristics found among drug addicts in this study are that they are almost exclusively male urban dwellers, often single with poor educational attainment and of low socio-economic status. Friends were often blamed as the cause of their addiction.

(4) Marijuana abuse is common and occasionally, transient psychotic reactions are encountered among chronic users.

(5) Alcohol, amphetamine and barbiturate abuse do not appear to be serious problems in the community studied.

(6) A multidisciplinary approach to the study of drug dependence is advisable.

Acknowledgements

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(3) To the Director-general of Medical Services, Malaysia for his kind permission to publish this report.

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Practical Methods in Resuscitation of Multiple Trauma Victims*

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Introduction

THE ANATOMICAL PATTERN OF multiple trauma in a victim is governed by the trauma inflicted. Obviously various parts of the body and various organs can be involved in any one victim. Resuscitation will depend on the injuries sustained and the resulting dangers to life.

A useful classification of multiple trauma patients is adapted from Pizzi (1968) and from Kennedy (1963). See Table 1.

Table 1
Showing a classification of Multiple Trauma Patients (Pizzi, W.F. 1968. Journal of Trauma 8, No. 1, 91-103, Kennedy, R.H. 1963. Maryland State Med. J. 12: 94-100).

Type I — **Multiple Tissue Trauma**
- Crushed forearm and hand.
- Fracture of femur.
- Open fracture of tibia and fibula.

Type II — **Trunk Fractures: Genito-urinary Tract Trauma with Additional Injury.**
- Concussion of brain.
- Fracture of clavicle.
- Vertebral fracture.
- Bladder rupture.
- Pelvic fracture.
- Pelvic fracture.
- Fracture of femur.

Type III **Central Nervour System Trauma with obvious additional injury.**
- Fracture of skull with laceration of brain.
- Fracture of radius and ulna.
- Open fracture of femur.

Type IV **Central Nervour System Trauma with Hidden Additional Injury**
- Brain concussion.
- Ruptured spleen.
- Ruptured kidney.
- Open fracture of tibia into knee.

Type V **Embrassment of Respiration plus Other Trauma**
- Multiple rib fractures with lung laceration, tension pneumothorax — Crushed chest.
- Divided flexor tendons.
- Open fracture of femur.

Type VI **Ruptured Abdominal Viscus with Additional Injury**
- Mild concussion.
- Ruptured jejunum.
- Bladder contusion.
- Fracture of carpal navicular.
- Fracture pelvis with telescoping of femur into acetabulum.
- Bilateral of Calcis fracture.

Resuscitation (Pizzi, 1968) is broadly geared to deal with

1. Asphyxia
2. Shock
3. Coma
4. Haemorrhage.

Resuscitation depends on the facilities available and can be classified according to the site where it is carried out (See Table 2).

Table 2
Classification of Resuscitation according to site where it is carried out.

*This paper was presented at the Malaysian Orthopaedic Association Symposium on "Accident Surgery" held on 21st April 1973, Faculty of Medicine, University of Malaya, Kuala Lumpur, MALAYSIA.

1. **Outside the confines of a hospital**
(No hospital facilities available).
— in the house
— by the roadside
— site of air or rail crash.

2. **Within the confines of a hospital**
Hospital facilities available).
— Accident/Emergency Unit
Resuscitation Room.

Resuscitation of Multiple Trauma Victims

I. Without hospital facilities (Delilkan 1970).

A basic underlying principle should be followed — minimal interference and speedy transport to the nearest hospital where adequate facilities exist.

Asphyxia and unconsciousness are tremendous problems. Clearance of the mouth and pharynx of blood, broken teeth, regurgitated food debris, etc. might have to be done. Positioning into the lateral, slight head-down position with chin support can be life-saving and should be maintained during transportation. Mouth-to-mouth expired air ventilation might be required if respiration has ceased but it is vital to make sure that the mouth and pharynx are first free of any obstructing foreign matter. In the extreme situation a crico-thyroid membrane stab tracheostomy can be life-saving when upper respiratory tract obstruction cannot be otherwise relieved. Unfortunately, more often than not the Resuscitator at this site is a member of the lay public. Public education in resuscitation should be periodically carried out via television and lecture-demonstrations by medical personnel, stressing on life-saving procedures like safe positioning of the unconscious victim, jaw support, expired air ventilation and external cardiac massage.

The method of choice for arresting haemorrhage and preventing shock is by direct pressure using any available clean cloth, bandage or handkerchief. Tourniquets applied by non-medical personnel are often dangerous because of poor application or if the duration of application is not watched carefully.

There are certain habits which should be stressed against:

1. Raising the victim's head with a pillow or with some improvisation. This can worsen any hpotension present and increase the danger of lung aspiration. The intention is laudable but the consequences can be lethal.

2. Giving the victim a cup of hot, sweetened tea. This will increase the hazards of anaesthesia if required later. To the anesthetist a case of multiple trauma is presumed to have a full stomach because of the concomitant gastric stasis. The 2 — 6 hour stomach emptying time rule (Wright, 1971) does not hold. It can be applied to the interval between the last meal and the time of the trauma.

II. With Hospital Facilities.

Immediate management follows certain guidelines (Walker, 1969) See Table 3.

Table 3

Showing guidelines for immediate resuscitation of multiple trauma patient in Accident/Emergency Unit of a hospital. (Walker, W., The Medical and Surgical Management of Road Injuries, Ed. T. Nash, Sydney, N.S.W., E.J. Dwyer Pty Ltd. P. 34-38).

1. Institution of adequate infusion.
2. Estimation of blood and fluid deficit.
3. Assessment of nature and extent of injuries.
4. The avoidance of hypoxia.
5. The treatment of pain.

The Resuscitation Room must be adequately equipped to:

1. Re-establish and/or maintain adequate respiration (in the presence of threatening asphyxia and/or unconsciousness).

2. Re-establish and/or maintain an adequate circulatory or cardiovascular system (in the face of shock and haemorrhage).

Resuscitation of Respiratory System

Insertion of an oro-pharyngeal airway, endotracheal intubation or tracheostomy might be required for airway maintenance. If spontaneous respiration is adequate this can be allowed with oxygen enrichment. If respiration is inadequate (cyanosis, sweating, poor respiratory excursions or paradoxical breathing) or if apnoea is present, controlled ventilation must be instituted (mouth-to-airway, mouth-to-endotracheal tube, resuscitator bag-to-endotracheal tube, anaesthetic apparatus or automatic ventilator-to-endotracheal tube or via tracheostomy tube). Muscle relaxant drugs might be needed for intubation or for controlled ventilation.

Circulatory or Cardiovascular System Resuscitation.

Intravenous fluid infusion (often multiple I/V drips) must be started. Until blood is available Hartman's solution or a plasma expander (Haemacel, low molecular weight dextrans) can be used. The basic parameters to follow are pulse rate, blood pressure, skin status and urine output. A central venous pressure line is useful if possible.

Various authorities (Wylie and Churchill-Davidson, 1972; Grant and Reeve, 1951; Clarke and Fisher, 1956) advocate that a pulse rate of more than 100/min suggests a 20% deficit while a systolic blood pressure of less than 100 mmHg implies at least a 30% deficit in blood volume. If the patient is pale, sweating, cold and restless with poor capillary filling of skin and nail beds, has a thin, thready, rapid pulse, oliguria and hpotension, a serious circulatory blood volume deficit of at least 1,500 ml or 30% of normal, effective blood volume exists (Dwyer, 1969).

Hydrocortisone is empirically advocated by some on the basis of the metabolic response to trauma (Zimmermann, 1965). The anterior pituitary secretes increased amounts of ACTH in response to surgical trauma. The main effect of ACTH is to stimulate the adrenal cortex to secrete cortisol (Compound F or hydrocortisone). On this basis intravenous hydrocortisone might thus cater for any inadequacy in the body's metabolic response to multiple trauma. It is also known to produce an increase in adrenal secretion of aldosterone.

Sodium bicarbonate should be given intravenously to correct metabolic acidosis which is invariably present in such cases. If facilities are available an arterial blood gas analysis will guide this correction as well as help in the respiratory management.

Pain relief is a problem because the drugs used can complicate and confuse the picture; their absorption, if administered intramuscularly, in the presence of shock is almost nil initially. Careful intravenous administration, titrated with patient response, is more rational but is more dangerous in the hands of the less experienced.

Resuscitation of the patient with multiple trauma is primarily to save life, simultaneously to make the patient more safe, in the circumstances, for the urgent surgery under anaesthesia which invariably follows. It is essentially team work that saves lives. The resuscitator at the scene, the anesthetist, the orthopaedic surgeon, the general surgeon, the neuro-surgeon, the thoracic surgeon, the genito-urinary surgeon, all have a role to play. The presenting physiological disturbance is shock. Once all injuries are recognised the essential problem after resuscitation is sequence of treatment.

Summary

Multiple trauma victims and resuscitation are outlined with classifications and the problems.

Resuscitation and the problems are discussed under two groups: without and within the confines of a hospital.

Team work in resuscitation of the multiple trauma patient is stressed.

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Spontaneous Bowel Perforation after Exchange Transfusion

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Introduction

INTESTINAL PERFORATION in the newborn can follow mechanical obstruction (atresia, volvulus, Hirschsprung's disease, etc.), high acidity (peptic ulceration in a Meckel's diverticulum) or may be spontaneous (necrotising enterocolitis). The last mentioned, necrotising enterocolitis, is not uncommon, as evident by the numerous reports on it. Perforation of the bowel is the last stage in its pathological course. With the accumulation of clinical data from several neonatal units, predisposing and/or associated factors are being increasingly recognised. The relationship between spontaneous bowel perforation and exchange transfusion, however, is a relatively new experience. In this report, a case is described to illustrate this association, and to emphasise the importance of passage of blood per rectum as an early diagnostic indicator.

Case Report

A 3.59 kg male infant was born normally at term to a healthy secundigravida in December, 1972. The mother's blood group was O, Rh negative, and the baby's group, A, Rh positive. A previous pregnancy had resulted in a rhesus-positive infant without any clinical or haematological evidence of isoimmunisation. No anti-D globulin had been given to the mother because examination of postpartum maternal blood had not revealed any foetal red blood cells. During the present pregnancy, tests for Rh antibodies were negative on two occasions.

The infant's clinical state at birth was excellent, the one-minute Apgar score being 9. Cord blood results were: Direct Coomb's test positive; Hb 14.7 gm% and bilirubin 4 mg%. Rising serum bilirubin necessitated two exchange transfusions, 10 and 24 hours after birth, via an umbilical vein catheter. 14 hours after the second transfusion, at the age of 38 hours, the child developed tachypnoea and grunting. He passed fresh blood and mucus per rectum and was reluctant to feed. Slight abdominal distension was also noticed. Bowel sounds were normal and a chest X-ray showed no abnormalities. Abdominal X-rays showed dilatation of the small bowel and gas in the bowel wall (pneumatosis intestinalis). There was no air-fluid level to indicate obstruction, nor was there any free gas in the peritoneum. A diagnosis of necrotising enterocolitis was made.

Treatment and progress. The child was managed conservatively by intravenous drip, gastric suction and parenteral penicillin and kanamycin. He, however, continued to pass blood per rectum, developed further abdominal distension and gradually developed oedema of the lower chest wall, anterior abdominal wall, scrotum, penis and buttocks. Gastric aspirate became bilious and bowel sounds scanty, but repeated abdominal X-rays failed to show free gas in the peritoneum or air-fluid levels. The intramural gas was no longer seen in the follow-up films. Conservative management was continued because there was no evidence of intestinal obstruction. On the sixth day of life, the child's condition deteriorated rapidly. Gastric aspirate was initially brownish but soon became frankly haemorrhagic. Bowel sounds were not heard and there were clinical signs of a left pleural effusion which was confirmed radiologically. There was haematological evidence of disseminated intravascular coagulation — pro-

thrombin 39%, platelets, 59,000 per ul. and fibrinogen 195 mg%. Intravenous hepairn was therefore commenced. The patient, however, succumbed after a respiratory arrest on the following day.

Autopsy. The whole ileum and much of the colon were infarcted and friable and there was a small perforation in one of the infarcted loops of ileum. Histologically, there was autolysis of the mucosal layer with haemorrhagic and neutrophilic infiltrates. There was generalised peritonitis, the umbilical vein was partially thrombosed and infected, and a peripheral hepatic artery was thrombosed, but the inferior vena cava, its major tributaries and the portal veins were free from thrombosis.

Discussion

Neonatal hyperbilirubinaemia is a common medical emergency in paediatric units, and exchange transfusion through the umbilical vein is an established method of treatment. Complications of exchange transfusion such as infection, portal thrombosis and cardiovascular disturbances are well-known. On the other hand, spontaneous bowel perforation (necrotising enterocolitis) has only been recognised as a complication of exchange transfusion since 1965[5]. Exchange transfusion was suggested as an aetiological factor after it was found to be the one important common denominator in mature infants (as compared to premature newborns) who developed spontaneous bowel perforation.[10]

The clinical presentation is typical, and the diagnosis easy if one is aware of the entity. Patients are usually well at birth. Shortly after the exchange transfusion, the early signs appear, heralded by passage of blood and mucus per rectum, refusal to feed and slight abdominal distension with gastric retention of bilious material; there may be grunting, tachypnoea and lethargy. Later, the abdominal distension becomes more marked and bilious vomiting may occur. Oedema of the anterior abdominal wall follows, due to umbilical sepsis and cellutitis, inferior vena caval obstruction or portal pyaemia and thrombosis. Pallor, poor peripheral circulation and hypothermia are late signs. Bowel sounds become inaudible when peritonitis sets in. A tympanitic abdomen with loss of liver dullness indicates intestinal perforation. The clue to the diagnosis is the appearance of fresh blood per rectum after the exchange transfusion.

Radiologically, five signs have been described — (1) intestinal distension, (2) intramural gas or pneumatosis intestinalis, (3) intrahepatic portal vein gas, (4) pneumoperitoneum (erect or lateral decubitus film), and (5) toxic dilatation of the colon.[1] The abdominal X-rays in the present case initially showed intestinal distension and intraumral gas, but follow-up films showed just non-specific intestinal dilatation. Although a perforation was detected at autopsy, pneumoperitoneum was not demonstrated radiologically. In reviewing 311 cases of necrotising enterocolitis, Pochaczevsky and Kassner[10] found bowel perforation in 43%. Yet, abdominal X-rays had shown pneumoperitoneum in only 19% of the cases. Intramural gas is a constant diagnostic feature although it has been reported as an isolated finding in severe diarrhoea with carbohydrate intolerance.[3]

Management. Conservative management — intravenous fluids and gastric suction, penicillin and kanamycin or gentamycin, and correction of acidosis — is still the initial line of approach. Surgery — laparotomy and ileostomy, colostomy or end-to-end anastomosis — is indicated when there is definite evidence of bowel perforation or when the clinical course is downhill.[1] In our patient, there was no clinical or radiological evidence of perforation and the deterioration in general condition was so fast that the stress of surgery was considered too great to be tolerated. As it was, the gut was so friable at autopsy that it crumbled in the pathologist's hands. Fairly good results have been obtained with surgery when the general condition of the child is better.

Patients with bowel perforation after exchange transfusion seem to fare better than those with perforation not associated with transfusions.[4,5,10] The survival rate for perforation associated with transfusion alone has been reported at 75%.[10] That for spontaneous perforation of mixed aetiology has been quoted to be as low as 15%.[7] One reason for these contrasting results is that the group with the mixed aetiological factors includes a large number of premature infants who do not tolerate surgery well. The group with perforation following transfusions consists mainly of infants who weigh 2.25 kg or more, and they natrally tolerate the stresses of surgery better.

Pathology. Necrosis of the bowel wall is the essential finding, with haemorrhagic and neutrophilic infiltrates. Perforation is found in the majority of cases of so-called "necrotizing enterocolitis" at operation or autopsy, although the clinical and radiological picture may not suggest it, as in the present case.

Aetiology. Many causes have been postulated but none proved. The association with exchange transfusion has been well documented. Several aetiologic mechanisms have been suggested, all implicating the portal venous system. Mechanical

disturbance of the portal circulation occurs in every exchange transfusion although the exchange is supposed to take place with inferior vena caval blood. An umbilical vein catheter inserted to the recommended legnth of 5 to 7 cm has its tip well short of the junction of the umbilical and portal veins.[4] Blood exchanged involves blood from the inferior vena cava via the nearby ductus venosus and blood from the portal circulation. (Fig. 1). Great

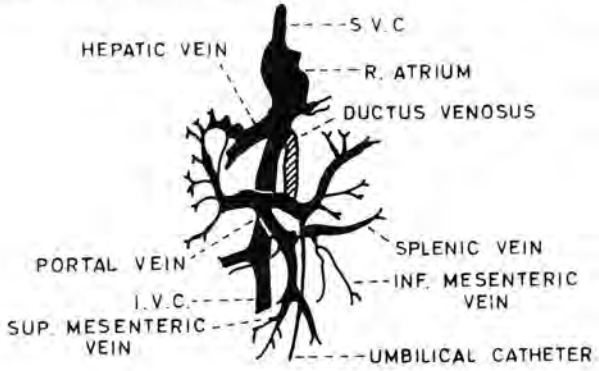

Fig. 1
The portal venous system, showing the relationship of the umbilical vein catheter and the ductus venosus.

pressure variations can therefore occur in the portal circulation during the procedure. Furthermore, the ductus venosus closes within a few days after birth,[6] and the umbilical vein catheter finds its way to the desired position in the inferior vena cava in only 20% of the procedures. In the other 80%, it is in a branch of the portal vein.[9] The sudden pressure variations can cause a vascular accident such as dislodging a small thrombus and causing retrograde embolism in the mesenteric vessels.[4] Reflex venospasm has been suggested to lead to infarction, but alone, it needs at least 18 hours to cause macroscopic infarction.[2] Temporary ischaemia has been postulated to predispose the bowel mucosa to enzymic autodigestion leading to ulceration and necrosis.[1] It has also been suggested that the pressure variations damage the portal microcirculation primarily,[10] causing haemorrhage and thrombosis in the capillaries which have an extremely small pressure difference between rupture and collapse.[8] Necrosis and perforation then follow.

That a vascular cause is responsible is supported by the constant finding of blood per rectum. This implies that a haemorrhagic infarct has occurred during the procedure. The haemorrhagic infiltrates found on histology also support this belief.

Summary

Necrotising enterocolitis complicating exchange transfusion in the newborn is a relatively new experience. Awareness of the entity and the recognition of the early sign, namely passage of blood per rectum, enables one to make a confident diagnosis, and this can be supported by the findings in the abdominal X-rays. Surgical correction is the treatment of choice in the presence of perforation. The procedure of exchange transfusion has been aetiologically implicated through the great pressure variations it causes in the portal circulation, and the damage is believed to occur in the portal microcirculation.

Preventive measures will include the use of a slow even pressure during the exchange transfusion to minimise the pressure variation, and the use of fresh catheters for every exchange transfusion to prevent thrombi formed at the catheter tip in an indwelling catheter from being dislodged and forced into the portal circulation. It is important that exchange transfusion be recognised as a skilled procedure, to be undertaken with all the proper precautions, as it can have fatal consequences.

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Incidental Perinatal Mortality in Prolapse of the Human Umbilical Cord*

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A COMPREHENSIVE clinical epidemiological survey of 264 consecutive cases of prolapse of the human umbilical cord, that had occurred amongst all births, delivered at the Aberdeen Maternity Hospital, Aberdeen, Scotland, United Kingdom, over the 10-year period from 1953 to 1962 inclusive, was undertaken. This study was a retrospective survey, undertaken during 1962-1963, towards the end of my tenure of postgraduate appointment at the above Institution (Sinnathuray, 1967).

During this 10 year period, there occurred 36,687 total births and 264 cord prolapse births in this Hospital, giving an incidence of 1 cord prolapse birth in 139 total births (0.7%) for this Hospital. Cord prolapse stillbirths accounted for 5.2% of all stillbirths, and cord prolapse 1st week neonatal deaths accounted for 2.6% of all 1st week neonatal deaths in this Hospital. The overall standards of obstetric care, in particular, perinatal obstetric care, at this Hospital have been and are one of the highest throughout the world, so that the perinatal salvage rates for most obstetric disorders are one of the best in the United Kingdom, if not in the world. This applies equally well for the condition of prolapse of the umbilical cord (Sinnathuray, 1967 and Table II).

It will be noted from Table I that out of 264 cord prolapse births, 202 remained alive beyond the first week of life, giving a perinatal cord prolapse survival rate of 76.5%. The Incidental Perinatal Deaths contributed to a significant 9.1% (24 cases)

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Table I

Overall Distributional Pattern of Cord Prolapse Cases

Case Pattern	No. of Cases	%
Incidental Perinatal Deaths	24	9.1%
Salvageable Perinatal Deaths due primarily to Asphyxia	22	8.4%
Salvageable Perinatal Deaths due primarily to Trauma	4	1.5%
Salvageable Perinatal Deaths due partly to Asphyxia and partly to Prematurity	12	4.5%
Surviving Cord Prolapse Births	202	76.5%
Total	264	100%

of all cord prolapse births in this Survey. A further 8.4% (22 cases) of cord prolapse births were Salvageable Perinatal Deaths due primarily to Asphyxia; 1.5% (4 cases) were Salvageable Perintal Deaths due primarily to Trauma; and the final 4.5% (12 cases) of cord prolapse births were Salvageable Perinatal Deaths due partly to Asphyxia and partly to Prematurity.

Table II presents the patterns of foetal mortality, as evidenced in this clinical survey. It is strikingly apparent that the 24 cases labelled as "Incidental Perinatal Deaths" had a 100% foetal mortality rate. The Corrected Salvageable Foetal Mortality Rate for this Survey was 15.8% (38 deaths out of 240 cases). Thus, the overall Gross Foetal Mortality Rate for this Survey was 23.5% (62 deaths out of

Table II
Overall Foetal Mortality Patterns

Patterns of Foetal Mortality	No. of Deaths	No. of Cases	Foetal Mortality Rate
Incidental Foetal Mortality Rate	24	24	100%
Corrected Salvageable Foetal Mortality Rate	38	240	15.8%
Gross Foetal Mortality Rate	62	264	23.5%
Corrected Treatable Foetal Mortality Rate for the Hospital (A.M.H.)	25	227	11.0%

264 cases). However, if the foetal mortality rate is ultimately corrected to exclude all the incidental perinatal deaths, as well as all those cases of cord prolapse, where the foetus was already dead on arrival at the doorstep of this Hospital, a further 13 cord prolapse foetal deaths would be excluded. This would give a Corrected Treatable Foetal Mortality Rate for this Hospital of only 11% (25 deaths out of 227 cases). This is an extremely low foetal mortality rate for this condition of cord prolapse.

Table III
Perinatal Mortality Distributional Pattern

Perinatal Mortality Pattern	No. of Deaths	%
Incidental Perinatal Deaths	24	38.7%
Asphyxial Perinatal Deaths	22	35.5%
Traumatic Perinatal Deaths	4	6.5%
Asphyxial/Prematurity Perinatal Deaths	12	19.3%
Total	62	100%

A breakdown distribution of the 62 perinatal deaths in this Survey (Table III), reveals the following pattern. The Incidental Perinatal Deaths (24 deaths) accounted for 38.7% of all the perinatal deaths, which is a significant proportion of all the perinatal deaths in this Survey. The Asphyxial Perinatal Deaths (22 deaths) accounted for 35.5% of all the deaths; the Traumatic Perinatal Deaths (4 deaths) accounted for 6.5% of all the perinatal deaths; and the Asphyxial/Prematurity Perinatal Deaths (12 deaths) accounted for the remaining 19.3% of all the perinatal deaths in this Clinical Survey.

Out of the 24 "Incidental" perinatal deaths, there were 6 deaths associated with gross foetal abnormalities incompatible with life, and the details of these foetal deaths are presented in Table IV. It will be noted that 3 of these are anencephalic foetuses, 2 are renal agenesis, and the last is a case of gross hydrocephalus with spina bifida.

It will be noted from Table V that 6 of the "Incidental" perinatal deaths in this Survey presented with gross degrees of maceration, which could have only arisen well before the onset of labour and before the occurrence of the cord prolapse. One of these cases was associated with severe rhesus immunisation, 2 with some form of chronic placental insuffciency, and in the remaining 3 of these macerated foetuses, the intra-uterine deaths (I.U.D.) remained unexplained, despite detailed clinical and autopsy studies.

It will be noted from Table VI that in 4 of these "Incidental" perinatal deaths, the foetuses were in a state of extreme foetal prematurity (less than 1500 gms. or 3 lbs. birth-weight, and below 34 weeks gestation). This state of extreme foetal prematurity and immaturity is incompatible with extra-uterine survival.

Table IV
Incidental Perintal Deaths (1)
Foetal Abnormalities Incompatible with Life

Case No.	Gestational Age	Birth-Weight		Pattern of Case
		Grammes	lbs. oza.	
1.	36 weeks	1,362	3 – 0	Anencephalus with Spina Bifida
2.	40 weeks	2,794.8	6 – 2½	Renal Agenesis
3.	39 weeks	3,049.5	6 – 11½	Gross Hydrocephalus with Spina Bifida
4.	34 weeks	1,645	4 – 10	Renal Agenesis
5.	41 weeks	1,816	4 – 0	Anencephalus
6.	38 weeks	2,028.3	4 – 7½	Anencephalus

Table V

Incidental Perinatal Deaths (2)

Grossly Macerated Foetuses

Case No.	Gestational Age	Birth-Weight			Pattern of Case
		Grammes	lbs.	ozs.	
1.	32 weeks	1,503.5	3	5	Unexplained I.U.D.
2.	40 weeks	1,589	3	8	Severe Chronic Placental Insufficiency
3.	38 weeks	2,127.3	4	11	Severe Rhesus Immunisation
4.	41 weeks	2,205.1	4	13¾	Unexplained I.U.D.
5.	39 weeks	2,043	4	8	Unexplained I.U.D.
6.	32 weeks	1,021.5	2	4	Severe P.E.T./Placental Insufficiency

Table VI

Incidental Perinatal Deaths (3)

Extreme Foetal Prematurity Incompatible with Life

Case No.	Gestational Age	Birth-Weight			Pattern of Case
		Grammes	lbs.	ozs.	
1.	30 weeks	1,347.9	2	15½	N.N.D. Lived for 2 days
2.	33 weeks	1,219.3	2	11	N.N.D. Lived for 9 hours
3.	32 weeks	1,127.3	2	7¾	1st Twin. Lived for 23 hours
4.	30 weeks	1,347.9	2	15½	2nd Twin. Fresh S.B. 1st Twin was macerated.

Table VII

Incidental Perinatal Deaths (4)
Other Incidental Perinatal Deaths

No.	Gestational Age	Birth-Weight			Pattern of Case
		Grammes	lbs.	ozs.	
1.	36 weeks	1,957.5	4	5	Concealed APH with 80% premature placental separation
2.	32 weeks	2,085.5	4	9½	Concealed APH with 40% premature placental separation
3.	32 weeks	2,000	4	6½	Placenta Praevia Type I with repeated bouts of APH.
4.	38 weeks	2,687.4	5	14¾	Gross Hudrops Foetalis (Rh Immunisation)
5.	34 weeks	3,091.9	6	13	Gross Hydrops Foetalis (Rh Immunisation)
6.	34 weeks	1,759.4	3	14	Oesophageal Atresia. Post-operative N.N.D.
7.	35 weeks	1,652	3	10¼	Oesophageal Atresia. Post-operative N.N.D.
8.	39 weeks	2,609.6	5	12	Purulent Meningitis and Severe Bronchopneumonia. 4th Day N.N.D.

Other Incidental Perinatal Deaths

In Table VII is presented the remaining groups of "Incidental" perinatal deaths seen in this Survey. There were 3 "Incidental" perinatal deaths that were associated were severe ante-partum haemorrhage, and the details of these 3 deaths are presented in the first section of this Table. In 2 "Incidental" perinatal deaths, the pregnancies were severely Rhesus immunised leading to gross hydrops foetalis which were incompatible with life, and the details are presented in the second section of this Table. Two further "Incidental" perinatal deaths followed post-operatively on the 2nd day, after major surgery for oesophageal atresia. The details of these 2 deaths are presented in the third section of this Table. The last "Incidental" perinatal death resulted from severe noenatal infection. The infant died on the fourth day of life from severe purulent meningitis and broncho-penumonia, as detailed in the last section of this Table.

Table VIII

Summary of Incidental Perinatal Deaths

Incidental Perinatal Mortality Pattern	No. of Deaths	%
Foetal Abnormalities Incompatible with Life	6	25%
Grossly Macerated Foetuses	6	25%
Extreme Foetal Prematurity Incompatible with Life	4	16.7%
Severe Ante-Partum Haemorrhage Incompatible with Foetal Survival	3	12.5%
Gross Hydrops Foetalis	2	8.3%
Major Post-Operative Neonatal Deaths	2	8.3%
Severe Neonatal Infection	1	4.2%
Total	24	100 %

Summary of Incidental Perinatal Deaths

In Table VIII is presented the summary of the "Incidental" perinatal deaths reviewed in this paper. It will be seen that "Foetal Abnormalities Incompatible with Life" (25%), "Grossly Macerated Foetuses" (25%), and "Extreme Foetal Prematurity Incompatible with Life" (16.7%), together, contributed towards two-thirds (66.7%) of all the "Incidental" perinatal deaths in this Survey.

The other 4 groups of "Incidental" perinatal deaths, which accounted for a total of one-third (33.3%) of all the "Incidental" perinatal deaths in this Survey (Table VIII), appear to be purely coincidental.

Comparative Studies

The term "Incidental", as applied to cord prolapse perinatal deaths, refers to those cases of cord prolapse perinatal deaths, where the occurrence of the prolapsed loop of the umbilical cord was purely coincidental and incidental, and had in no way contributed towards the perinatal death. It represents the non-salvageable component of the perinatal deaths in any series of cord prolapse births. The exclusion of these "Incidental" perinatal deaths is, therefore, an absolute correction factor in the computation of the "Corrected" Perinatal or Foetal Mortality Rate in all surveys of cord prolapse births.

Several workers, including Bowen (1949), Brandeberry and Kistner (1951), Kush (1953), Schultz (1955), Seligman (1960), Winchs and Claman (1961), and Kurtz and Munro (1962), have repeatedly shown, that "Foetal Abnormalities Incompatible with Life", "Grossly Macerated Foetuses", and "Extreme Foetal Prematurity Incompatible with Life" are the 3 common causes of "Incidental" perinatal deaths seen in association with cord prolapse births. In most of these studies reviewed, these 3 groups of "Incidental" perinatal deaths were responsible for more than 50% of the non-salvageable incidental perinatal deaths associated with cord prolapse births. It will be noted that, in this Study, these 3 groups of "Incidental" perinatal deaths, together, contributed towards two-thirds (66.7%) of all the "Incidental" perinatal deaths.

It is of interest to note that all these 3 causes have been commonly incriminated as predisposing factors towards the occurrence of cord prolapse. The operative mechanism is claimed to be "failure of the foetal presenting part to fit the pelvic brim snugly" or "foetal hypotension", either one or both of which could predispose towards the prolapse of the loop of the umbilical cord below the foetal presenting part.

Summary and Conclusions:

1. In a comprehensive clinical epidemiological survey of 264 consecutive cases of prolapse of the human umbilical cord, there occurred a total of 62 perinatal deaths, giving a gross perinatal mortality rate of 23.5%.

2. In 24 of these 62 perinatal deaths, the presence of a prolapsed loop of cord was purely **Incidental,** and was in no way contributory towards the deaths. These 24 **Incidental** perinatal deaths accounted for 9.1% of all cord prolapse cases and 38.7% of all the perinatal deaths in this clinical survey.

3. The 3 common types of **Incidental** perinatal deaths in this Survey were "Foetal Abnormalities Incompatible with Life" (25%), "Grossly Macerated Foetuses" (25%), and "Extreme Foetal Prematurity Incompatible with Life" (16.7%), and together they contributed towards two-thirds (66.7%) of all the "**Incidental**" perinatal deaths in this Survey. A similar pattern of findings was reported in many other studies. These represent the natural foetal wastage associated with prolapse of the human umbilical cord.

Acknowledgement:

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Retroperitoneal Teratomata

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A TERATOMA is a true tumour or neoplasm composed of multiple tissues of kinds foreign to the part in which it arises (Willis 1962). It is an uncommon lesion and Palumbo et al (1949) could find only 58 "bona fide" cases of primary retroperitoneal teratomas in the literature up to 1949.

Case Report

A twelve day old male Indian infant was admitted to the General Hospital, Kuala Lumpur, Malaysia, on 14th March, 1972 with the complaint that the parents had noticed a swelling in the right side of the abdomen since the birth of the child. The swelling had remained of the same size. The birth was normal and full term. The child had an older sibling which also had a normal and full term birth, and was healthy. Apart from the abdominal swelling, the patient did not have any other complaints.

On examination, the child was normally developed for his age. There was an oval swelling in the right lumbar region, 8 by 10 centimetres in dimensions, firm and smooth. The swelling was easily balotable and did not move with respiration.

Plain radiograph of the abdomen showed a swelling in the right side of the abdomen with opacities which appeared to be rudimentary limb bones (Fig. 1 and 2). A diagnosis of abdominal teratoma was made.

Laparotomy was performed on 30th March, 1972 and this confirmed the presence of a large cystic right-sided retroperitoneal swelling which has pushed the liver upwards and medially (Fig. 3.) The swelling was easily excised. It was well encapsulated, cystic and had an umbilical-cord-like structure at one part (Fig. 4). When the tumour was excised it was found to contain a brownish clear fluid, hairs, well-formed bones, cartilage, muscle and other tissues (Fig. 5).

The histological examination of the specimen confirmed that it was a benign cystic teratoma with organoid formation.

Post-operatively, the child recovered well and was discharged on 11th April, 1972 in good condition.

Discussion

The main sites of teratoma (Willis 1962) are, in order of frequency, the ovaries, the testes, the anterior mediastinum, the retroperitoneum, the presacral region and the coccygeal region. Rarer sites are the base of the skull, the pineal gland, the brain and the neck. Teratomata of viscera (other than the gonads) and of the skull vault, posterior mediastinum, body walls and limbs are all very rare.

Teratomata have occured in the liver (KIRYABWIRE and MUGERWA 1967), the rectum (NIGAM, 1947; EL-KATIB 1972), the stomach (PAUL et al 1962) and the Fallopian tube (GRAY and HITCHCOCK, 1969). Teratomata are commoner in females and GROSS et al (1951) found that out of 40 cases, 32 were in females. It is thought that the female ovary differentiates later than the male testis so that females are more susceptible to developmental defects including teratomata.

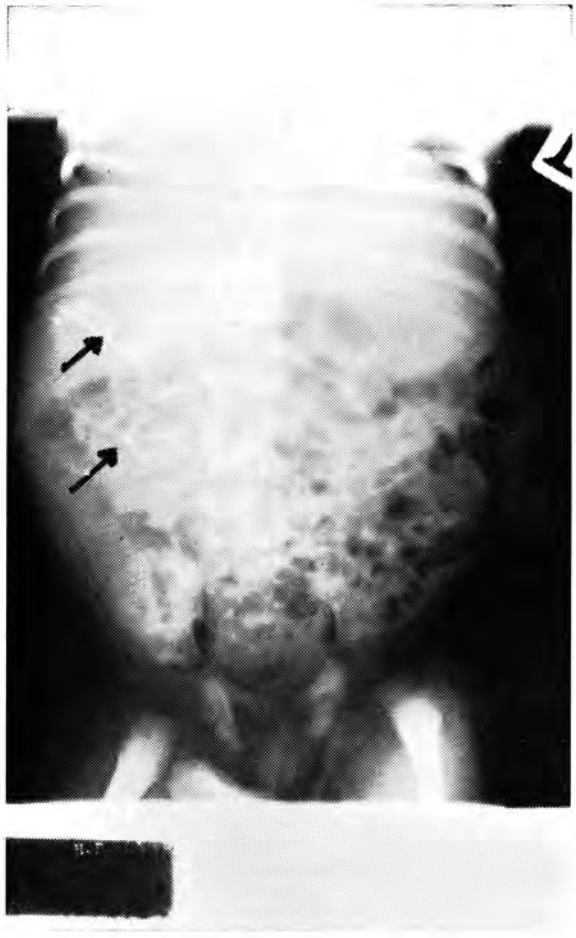


Figure 1
Plain postero-anterior abdominal radiograph. Arrows indicate bony clacification in rudimentary limbs.

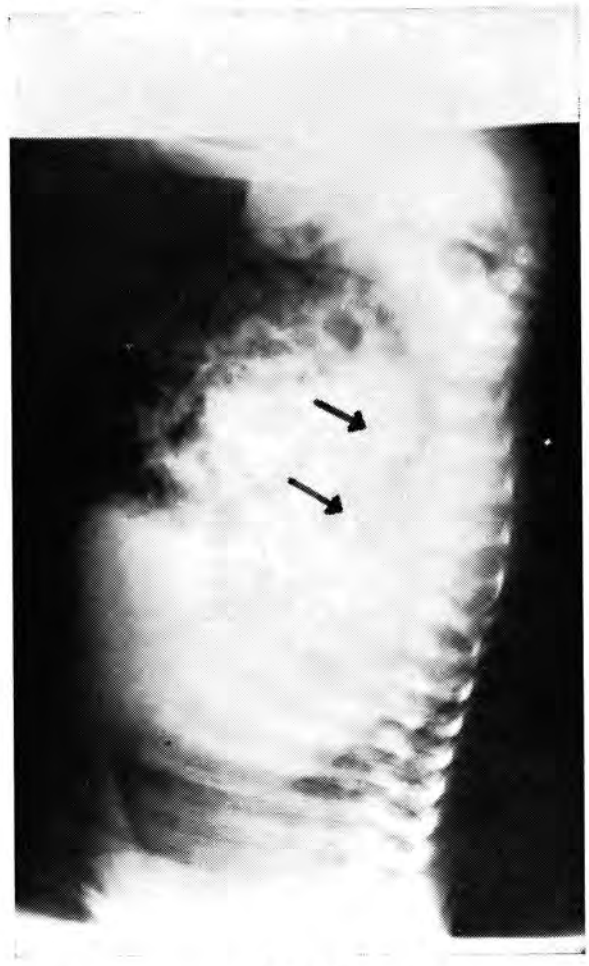
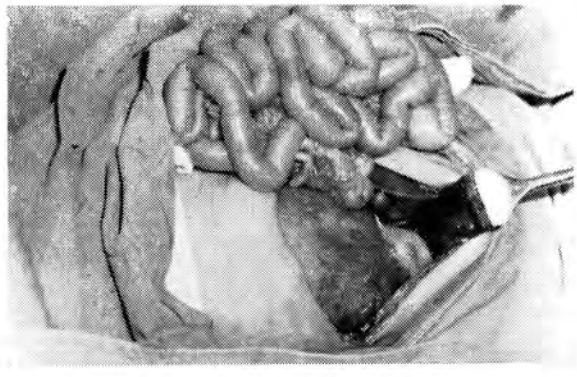


Figure 2
Plain right-lateral abdominal radiograph. Arrows indicate bony calcification in rudimentary limbs.



Fgirue 3
Operative findings. A large cystic right-sided retroperitoneal swelling is pushing the liver upwards and medially.

Figure 4
The uncut specimen. Note the umbilical-cord-like structure at one part.

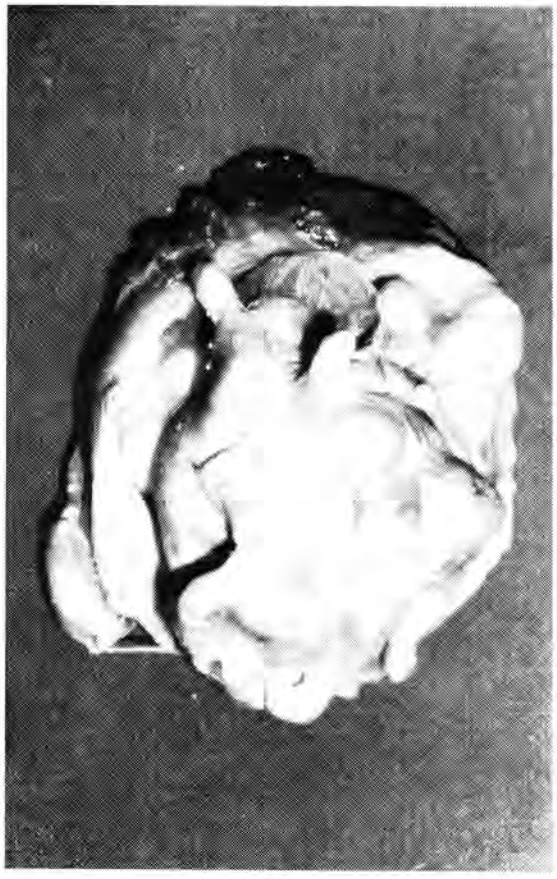


Figure 5
The cut specimen. Note the bony and cartilaginous projections amidst the soft tissue.

Most, and probably all, of the retroperitoneal teratoma are present at birth (Willis 1962). Most teratomata — gonadal, retroperitoneal, sacrococcygeal and cranial — arise in tissues which developmentally occupy pre-axial median or closely paramedian positions. This distribution strongly suggests disturbances occurring in the embryonic axial structures — the primitive streak, the head process and the notochord — as causing teratomata (Budde 1926).

The most widely accepted theory of origin of teratomata is that of WILLIS (1951) who thought that they arose from foci of toti-potent cells which had escaped the influence of the primary organiser during embryonic development.

Teratomata may be mainly crystic or completely solid and both types may be intermixed. The cysts are usually multiple and contain either sebaceous matter or clear fluid. Teratomata are tridermal structures and often contain derivatives of ectoderm (skin, teeth, nerve tissue), endoderm (alimentary and respiratory epithelia), and mesoderm (vascular and connective tissue).

A very important group of neoplasms in infancy and childhood are those in the retroperitoneal space. The two commonest ones are Wilm's tumour (embryoma of the kidney) and neuroblastoma. Retroperitoneal tumours are the third commonest of this group of retroperitoneal tumours although they are much rarer than the Wilm's tumour and neuroblastoma (Gross, 1953). Before operation it is often difficult to tell which of these three tumours is present. However, certain features are helpful in the differential diagnosis. Wilm's tumour and neuroblastoma are much commoner than retroperitoneal teratoma. The first two tumours are more liable to present at the end of the first year of life or after this time, with a peak incidence at between the second and fourth years of life. Retroperitoneal teratoma is discovered most commonly in the first

year of life, especially the early months after birth. A neuroblastoma usually has a finely nodular surface and its borders are ill-defined — such features are less often present in a teratoma. Plain abdominal radiographs rarely show calcification in Wilm's tumour but this is often present in teratoma and neuroblastoma. If the radiograph shows tooth or bone, then the lesion is a teratoma. A pyelogram of the urinary tract which shows great distortion of the renal pelvis and calyces is more suggestive of Wilm's tumour. If metastases cocur, secondaries limited largely to the lungs suggest Wilm's tumour whilst multiple destructive deposits in the long bones and skull suggest a neuroblastoma.

Teratoma range from entirely benign structures consisting of mature tissue with no signs of proliferative activity to malignant growths which involve all or only a segment of the specimen. Because of the danger of malignancy and of other complications such as haemorrhage, pressure effects on adjacent vital structures and infection, the treatment of teratomata is surgical removal. The approach should always be transperitoneal by way of an abdominal incision. This will allow of maximum access to the lesion and enable it to be dissected away from surrounding important structures such as duodenum, kidney, aorta and inferior vena cava. If malignancy is present in the specimen, post-operative irradiation is given to the tumour site and its surrounds. The prognosis depends on the degree of malignancy of the tumour and if benign lesions are completely excised, complete cure of the patient results.

Summary

Teratomata are rare developmental tumours and amongst the rarest of these are the retroperitoneal teratomata. They vary from benign to highly malignant lesions. Treatment is by surgical excision followed by post-operative irradiation if the tumour is malignant.

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Vibrio Parahaemolyticus Gastroenteritis in Malaysia

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Introduction

DIARRHOEAL DISEASES are a problem all over the world especially in tropical and sub-tropical countries. The more common pathogens such as the **Salmonellae,** including the Arizona serotypes, **Shigellae,** Enteropathogenic **Escherichia coli** and certain parasites are often isolated from such infections. But in more than half the cases presenting with diarrhoea no known pathogens can be isolated. Virological studies on stool specimens from diarrhoeal cases are increasingly being asked for but the correlation between viral isolates and clinical symptoms have been disappointing.

Some of the lesser known and studied organisms have been identified as aetiological agents of diarrhoeal diseases. Some of these are **Edwardsiella tarda** belonging to the family Enterobacteriaceae (Ewing et al., 1965; Bhat Prema et al., 1967) and **Plesiomonas shigelloides** (Ampalam and Fang, 1971) an organism closely resembling the **Aeromonas** and **Shigella** organisms, which have been implicated in infantile diarrhoea.

Another organism which is emerging as a significant cause of gastroenteritis is **Vibrio parahaemolyticus,** a halophilic, gram negative rod primarily of marine origin.

This organism was first described in 1951 by Fujino (Fujino et al., 1953) in Japan as the aetiological agent of "summer diarrhoea". In one outbreak it was shown that this organism was the aetiological agent for 60-70% of the cases (Smith, 1971). The original outbreak of food-poisoning was associated with the eating of dried salted sardines (Fujino et al., 1953), but later it was also found to be associated with the consumption of raw fish known as "sushi".

Since the discovery in Japan that Vibrio parahaemolyticus is an organism capable of giving rise to food-poisoning or gastroenteritis type of infections, many other countries have isolated and implicated this organism as the cause of diarrhoeal diseases e.g. Ceylon, Hawaii, Hong Kong, Taiwan, Phillipines, Thailand, Korea and China (Fifield, 1971).

The present study was inspired by the fact that the Chinese in this country eat raw pickled fish after the Chinese New Year and that this may give rise to food-poisoning outbreaks, but later it was learnt that the particular fish eaten after the Chinese New Year is a fresh water fish. Nevertheless, once we started looking for **Vibrio parahaemolyticus,** there was no difficulty in isolating the organism from cases of gastroenteritis.

Materials and Methods

Stool samples from patients with gastroenteritis were received by the Department of Medical Microbiology, Faculty of Medicine. These specimens were from both in-patients as well as from out-patients of the University Hospital. The specimens were cultured on both solid and enrichement media for the usual intestinal pathogens such as **Salmonella, Shigella** and Enteropathogenic **Escherichia coli.** In addition, the specimens were cultured on media selective for **Vibrio parahaemolyticus.** These were thiosulphate citrate bile salts sucrose

agar — TCBS (Oxoid) and alkaline peptone water followed by subculture onto TCBS agar. **Vibrio parahaemolyticus** was usually isolated as a pure and heavy growth on the direct TCBS plate.

Bacteriological Features

Vibrio parahaemolyticus is a gram negative motile rod. After overnight incubation, the organism appears on TCBS medium as large (2-4 mm), smooth, green colonies, with no discolouration of the medium. They are oxidase positive and catalase positive on subculture and sucrose negative. This is in contrast to Vibrio cholerae colonies which are sucrose fermenting and hence appear on TCBS medium as bright yellow colonies with yellow discolouration of the surrounding medium.

Suspensions of Vibrio parahaemolyticus organisms do not agglutinate with the polyvalent Vibrio cholerae antiserum.

Table 1 gives the bacteriological features of the organism. All testswere performed at 37°C with media containing 1-2% sodium chloride. Serotyping and the Kanagawa test for potential pathogenicity was done on all the isolates.

Table 1

Hugh & Leifson's Test	Fermentative
Motility	+
Oxidase	+
Catalase	+
Glucose (gas)	—
Glucose (acid)	+
Lactose (acid)	—
Mannitol (acid)	+
Sucrose (acid)	—
Dulcitol (acid)	—
Gelatin liquefaction	+
Hydrogen sulphide production	—
Methyl red test	+
Voges-Proskauer reaction	—
Indole production	+
Urease	—
Arginine decarboxylase	—
Lysine decarboxylase	+
Orinithine decarboxylase	+

Results

A total of 7 strains were isolated throughout 1972 and these belonged to 5 different serotypes. The Kanagawa phenomenon was positive for all except one strain. Serotyping of the strains was done by Dr. G. I. Barrow of Turo, Cornwall, England. Table II gives the serotypes of the isolates.

Discussion

Vibrio parahaemolyticus was isolated from 4 out-patients and 3 in-patients, whose ages ranged from 15 years to 40 years. Two were females and 5 were males.

Table II

Strain	O antigen	K antigen	Kanagawa test
1	014	K42	—
2	07	K19	+
3	03	K7	+
4	03	K7	+
5	03	K29	+
6	03	K29	+
7	04	K9	+

The main presenting symptoms were diarrhoea and vomiting which was present in all the patients. The frequency of diarrhoea had a wide range from 3 to 4 times a day to 15 times a day. Vomiting was severe in only 2 patients. Abdominal pain was present in 4. Fever was notably absent in all the 7 patients. Two patients had mucus in the stools and only one had bloody diarrhoea. No "rice-water" stools were observed in any of the patients.

In August 1971, there was an outbreak of gastroenteritis in 320 of 550 persons attending a picnic in Maryland, U.S.A. Their symptoms included diarrhoea (98%), severe abdominal cramps (78%), nausea (76%), vomiting (74%), fever (26%), headache (25%) and chills (10%) (Wkly. epidem. Rec. 1971). These findings differ slightly from ours in that none of our patients had fever, nausea, headache or chills. This might be due to smaller numbers of the organisms ingested or some other factors such as antigenic differences in the organisms resulting in variation in the virulence.

The disease itself was self-limiting and did not last more than 48 hours. This correlates well with the Maryland outbreak where the mean duration of illness was 2 days (range 1-5 days).

Three of our patients were treated symptomatically with kaolin, 3 were given tetracyclines and one sulphathalazole. All follow up stool cultures were negative for Vibrio parahaemolyticus. If patients are treated with antibiotics they practically cease to excrete the organism after the 5th day with an occasional positive being observed now and then (Kasai, 1971).

All strains of Vibrio parahaemolyticus have identical H antigens. Most of the strains isolated from human sources can be typed using 11 specific 0 antisera and 52 K antisera. Although an 0 type can have more than one K type, individual K types occur in only one 0 group. There were no predominant serotypes although 2 had 03/K7 antigens and another 2 strains had 03/K29 antigens.

The "Kanagawa phenomenon" (Miyamoto et al., 1969) is a test for the potential pathogenicity of a strain and is based on the ability of the organism to produce haemolysis on fresh human blood-agar media. Non-haemolytic strains are said to be non-pathogenic but if ingested in large quantities can cause disease. Only one strain out of our 7 was Kanagawa negative but this patient had very severe diarrhoea, about 15 times a day, and no other intestinal pathogens were isolated from his stools.

The "Kanagawa phenomenon" is thus not a very clear indication of pathogenicity. It is hoped that an "enteropathogenic factor" such as an exotoxin or endotoxin, if demonstrable, might be a better indication of pathogenicity or specific serotypes as in Enteropathogenic Escherichia coli.

In volunteer experiments it was observed that 6-8 hours incubation was required for the haemolytic variant to cause the initiation of the disease, whereas the non-haemolytic variant required approximately 18 hours (Kasai, 1971) and the infecting dose was seen to be approximately 10^6 organisms.

It is difficult to ascertain the incubation period in the 7 patients for although in Japan and in other places Vibrio parahaemolyticus gastroenteritis is associated with eating of raw fish or other sea food, none of our 7 patients gave a history of having eaten raw fish. Three of our patients were Indian and one was a Malay and both races under normal circumtances never eat raw fish or even lightly cooked sea food. The rest of the patients were Chinese and they too denied having taken raw fish or sea-food, prior to the onset of symptoms.

Although in Japan gastroenteritis due to Vibrio parahaemolyticus is associated with eating raw fish, in other parts of the world Vibrio parahaemolyticus has been isolated from cases of gastroenteritis after eating sea-food that had been inadequately cooked (Peffers, 1973).

In India Vibrio parahaemolyticus gastroenteritis is not associated with the consumption of raw fish (Zakazaki et al., 1971). It is possible that in Malaya, food, not necessarily sea-food, gets contaminated with this organism which is of marine origin. Since the generation time of the organism is very short (at 37°C it is 12-15 min.) few organisms can multiply quickly to give adequate numbers to produce the pathogenic effect especially if the food is not kept refrigerated.

It is obvious that Vibrio parahaemolyticus is one of the causes of food-poisoning in Malaya and hence it is important that selective methods for its isolation are included when stool samples are cultured for the usual intestinal and food-poisoning pathogens. Vibrio cholerae (i.e. Classical or el Tor) if present can also be isolated on the same media as Vibrio parahaemolyticus.

Nothing is known about the epidemiology of Vibrio parahaemolyticus in Malaysia. So far we we have not examined any sea-food for its presence but we hope to do so in the near future.

Summary

7 strains of Vibrio parahaemolyticus were siolated throughout 1972 from patients with gastroenteritis. Predominant symptoms were diarrhoea and vomiting with the mean duration of illness being 24-48 hours. Methods of isolation and identification of the organisms are described and the importance of looking for Vibrio parahaemolyticus stressed.

Acknowledgement

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Assessing the Role of Anti-Viper Serum in the Management of Viper Bites

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Introduction

VIPER BITES are very common amongst the inhabitants of the Northern State of Perlis. In fact, snake bites on the whole are a common medical emergency in our hospital. Many of these bites are by the Malaysian Viper, *Ancistrodon rhodostoma*. We have attempted in this paper to study the usefulness of Anti-Viper Serum (AVS) in the management of Viper bites.

Material and Methods:

The patients selected for study were those admitted to the male and female medical wards of our hospital from 15th October, 1972, to the end of February, 1973. Excluding known and proven cases of Cobra bites, 62 cases of snake-bite were admitted to our wards during this period. Of these, 29 cases were of viper bite with systemic manifestations of toxicity; the most important systemic manifestation of toxicity was prolongation of the clotting time. Out of these 29 cases, 21 were males and 8 were females. In addition to these 29 cases, there were 3 males and 3 females who had severe local swelling after viper bites, but no prolongation of clotting time.

Upon admission, a clotting time was performed on the patients. Since admissions often occurred late in the night, a simple ward method was devised to measure clotting time. 2 c.c. of venous blood were drawn into a plain, empty test-tube and the blood allowed to stand. Normally, blood would clot in 10-12 minutes; in cases of severe viper bites, the blood would not clot at all. If a patient was admitted before a period of 6 hours after a bite, a repeat clotting time was done after 6 hours had elapsed (from the time of the bite). If the clotting time was still normal, then repeat clotting times were done once every morning thereafter.

All patients were given an injection of ATT and analgesic like panadol; pethidine was reserved for the more severe cases. In those with a prolonged clotting time, diuretics, sodium bicarbonate (5 Grams 6 hourly) and plenty of oral fluids were routinely given to flush the kidneys and obviates any effects of haemolysis upon them. Injection Vit. K 10 mgm. daily was given to all patients of prolonged clotting time. In a few cases with severe bleeding and shock, blood transfusions were also given.

Locally, the wounds were dressed daily with plain, dry dressings. Antibiotics were not given routinely, except when there was infection. Any vesicles that formed were left alone. In severe cases, Papase was given to hasten the resolution of the swelling. The administration of AVS is dealt with in detail, below.

Patients were discharged from the ward when the clotting time had returned to normal (and stayed normal for 2 days) and the local swelling had subsided.

Administration of AVS:

AVS was not given to all patients with prolonged clotting time. It was reserved for the following:

(1) Those patients in shock.

(2) Patients with severe bleeding manifestations like gross haemoptysis and bleeding from gums.

(3) Patients with prolonged clotting time and marked local reaction who came soon after being bitten.

In our hospital, it is not uncommon for patients to seek admission 1-2 days after being bitten. Such patients were not given AVS even if they had prolonged clotting times if their general condition was good. In other instances, patients developed a prolonged clotting time after a couple of days in the ward; they, too, were not given AVS. All patients to be given AVS were first given a test-dose. If not sensitive, then 2 ampoules of AVS were given in 200 c.c. of Normal Saline over 45 minutes. The dose was repeated twice at 6 hourly intervals if the patients' condition did not improve.

Results:

Total Number of Patients with Prolonged Clotting Time: 29

Males .. 21
Females .. 8

Number of Patients given AVS:

Males .. 11
Females .. 5

Number of Patients not given AVS:
Males .. 10
Females .. 3

Period of Stay in Hospital:

(A) For Patients given AVS: Average: 11 days. (Table 1)

Patient No.	1	2*	3	7	8	9	10	11	12	13	14	15	16	17	26	27
Duaration of Stay (Days)	8	2	8	17	11	3	16	15	5	5	14	13	22	11	10	15

*Died.

Table 1

(B) For Patients **not** given AVS: Average: 10 days (Table II)

Patient No.	4	5	6	18	19	20	21	22	23	24	25	28	29
Duration of Stay (Days)	8	10	12	9	7	14	11	7	8	9	15	6	12

Table II

Time taken for clotting time to return to normal:

(A) With AVS: Average: 8.4 days (Table III)

Patient No.	1	2	3	7	8	9	10	11	12	13	14	15	16	17	27	26
Time for C T to become normal (Days)	AOR	Died	3	16	10	1	15	AOR	3	1	1	13	19	8	12	9

CT: Clotting Time
AOR Discharged at own risk

Table III

(B) Without AVS: Average: 7 days (Table IV)

Patient No.	4	5	6	18	19	20	21	22	23	24	25	28	29
Time for C T to become normal (Days)	1	7	12	6	5	13	8	ab	1	7	11	7	4

ab: Absconded

Table IV

MORTALITY OF SERIES: 1

Side effects of AVS:

3 male patients showed a local reaction to the test-dose of AVS. None of them was given a therapeutic dose of AVS and there was no mortality in any of them. 5 male patients showed no local reaction to a test-dose but all 5 collapsed after the AVS drip had been given. These patients developed urticaria, starting at the site of the drip and spreading all over the body. They also developed tightness of the chest and hypotension. None of these patients died and they responded well to the usual methods of treating anaphylactic shock.

Amongst the female patients, 2 were definitely sensitive to AVS and were not given therapeutic doses. One had equivocal local sensitivity, but was successfully given AVS. Another case was also sensitive to AVS; she had severe systemic toxicity. After desensitization, AVS was given under steroid cover, but the patient died. One female patient collapsed after the AVS drip had run for sometime, although she was not sensitive to the test-dose. She responded well to anti-anaphylatic treatment. It must be noted that all AVS used in these patients was well within its expiry period — 1970 and 1972 stock was used; AVS has an expiry period of 5 years.

Conclusion:

Our study tends to indicate that we must re-appraise the use of AVS. It seems that the benefits of AVS in the majority of cases are not very clear; neither the patients' stay in hospital nor the clotting time being very favourably affected in either case. On the other hand, toxicity of the AVS can be severe, and its use must be tempered with care. It seems, therefore, that AVS should perhaps be reserved for patients with shock or those who are bleeding profusely from the gums or other sites. In all other cases re-assurance and symptomatic measures suffice, even though the clotting time is prolonged and there is a severe local reaction.

Acknowledgement:

We are grateful to the Director-General of Medical and Health Services for granting us permission to publish this paper.

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A case of yaws in Kelantan State and the value of VDRL and FTA – ABS in Family Studies

by Dr. T. Ganesapillai
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Introduction:

THE YAWS ELIMINATION CAMPAIGN was launched in Malaysia in 1954 with the assistance of WHO and UNICEF. By 1960, the incidence of infectious yaws in the States of Kelantan and Trengganu was less than 0.5%. The recrudesences that we now see are probably the result of lack of surveillance and absence of control programmes in Ulu Kelantan and North of the border of Kelantan.

Before I present this case it would be useful to recapitulate some of the basic points about this disease:

(1) Yaw is one of the Treponematoses.
(2) Yaws is caused by **Treponema pertenue**, a spirochaetale which resembles **T. pallidium** and **T. carateum**.
(3) It occurs mainly in wet tropical regions.
(4) It is largely a rural disease.
(5) Transmission of the disease is usually skin to skin.
(6) Indirect transmission by flies is possible.
(7) Reservoir of infection is only man.

The Natural History of Yaws

(1) The incubation period is from 2 weeks to 6 months. After 3-9 months the lesions heal spontaneously without treatment.

(2) After an interval of several weeks to several months, there is generalised eruption of early skin lesions and involvement of bone. After a variable period of 6 months to 3 years lesions involute.

(3) During the next 5-10 years, the most frequent lesions are hyperkeratosis of the soles and palms. Healing occurs usually sponteneously.

(4) After this period usually 3 to 4 years, late lesions appear. These are non-infectious but destructive leaving scars on healing.

Therapy i/m P.A.M. — below 12 years: 0.6 mega.
— above 12 years: 1.2 mega.

The case:

A 10 year old boy from Kampong Telok Kitam, 7 miles from Kota Bharu was first seen on 11th January 1973 at the skin department. He was brought by his father, who had "puru" infection on his right leg many years ago. On examination there was a large oval ulcer at the anterior tibial region of his leg and secondary papillomata on his limbs. The ulcer was about six months old and the secondary papillomata developed two weeks later. In both father and son there was no evidence of bone involvement. The other two members of the family, the mother and the sister did not give the history of "puru" infection.

The diagnosis was confirmed by a positive FTA — ABS test (with a VDRL titre reactive at 64 dilutions). The boy was given a single injection of PAM, but unfortunately absconded on the 16th January 1973.

However, on 11th February 1973, we managed to trace the boy and his family. The boy's skin lesions had disappeared. Blood samples taken for the VDRL and FTA-ABS spt. tests gave the following results amongst members of the family:

Case	VDRL	FTA-ABS
10 year old boy	16 dilut	+ tve
48 year old father	4 dilut	+
10 year old sister	8 dilut	+
40 year old mother	2 dilut	+

Discussion:

Yaws as a disease will seldom be seen again and perhaps eradicated in the next decade if control programmes are well coordinated in neighbouring countries. Sad to say this sort of cooperation is still lacking and recrudescence of yaws can be expected if the socio-economic status of society comes tubling down with a rapidly rising populations.

This case is presented firstly to familiarise yaws to the younger generation of doctors and secondly to discuss the value of the VDRL and FTA-Absorption tests. Both these tests have become standard tests for the investigation and management of patients suffering from syphilis. The FTA-ABS test as a test of confirmation. The VDRL for response to therapy and also as a screening test. From the results of the young boy's family, it is obvious that this is also applicable to yaws both in managementand epidemiological surveillance.

However in a tropical environment especially so in the State of Kelantan, one has to be cautious with the VDRL test because of the high incidence of chronic false biologic positives associated with the high prevalence of infectious diseases such as Malaria and Leprosy. Though at the moment these tests are available only in Kuala Lumpur at the Institute for Medical Research, it is hoped that they will soon be introduced to all other clinical laboratories in Malaysia for accurate diagnosis and better management of chronic infectious diseases of the group treponematoses.

(I am indebted to Dr. S. Y. Tow (Ministry of Health) for his notes, Dr. M. Jegathesan (I.M.R.) for the laboratory investigation and Hospital Assistant Syed for tracing the family of the boy.)

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Rubber Cast of Stomach Produced by Latex Ingestion

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Introduction

FOREIGN BODIES found in the stomach are swallowed by accident or design by patients who may be children, the mentally retarded, the insane, the intoxicated or by the exhibitionists who swallow glass, knives or other objects. Of the numerous types of foreign bodies reported in the literature, bezoars are interesting in that they form when fully developed perfect casts of the stomach and require surgical removal. We believe this case of "Rubber cast of stomach produced by latex ingestion" is probably the first recorded in the literature.

Case Report

The patient, K, an 8 year old mentally retarded Indian boy was referred from a district hospital to the General Hospital Johore Baru, on 4 July 1972 with an history of drinking latex 3 days prior to the day of admission. The parents had noticed that the child appeared to be distressed and that he would not eat. They also noticed a hard lump in the child's upper abdomen and it was this discovery which made them seek medical help.

Clinical examination revealed a child of grossly subnormal intelligence. Although 8 years old he could not speak coherently but would scream sporadically without provocation. He was mildly dehydrated. Palpation revealed a rather large firm freely movable mass in the epigastrium. (Fig 1) A plain X-ray of the abdomen (Fig. 2) showed a mass in the upper abdomen corresponding in shape and site to that of the stomach.

We performed a laporotomy on the patient 3 hours after admission and removed a perfect rubber cast of the stomach via a gastrotomy incision 5cm

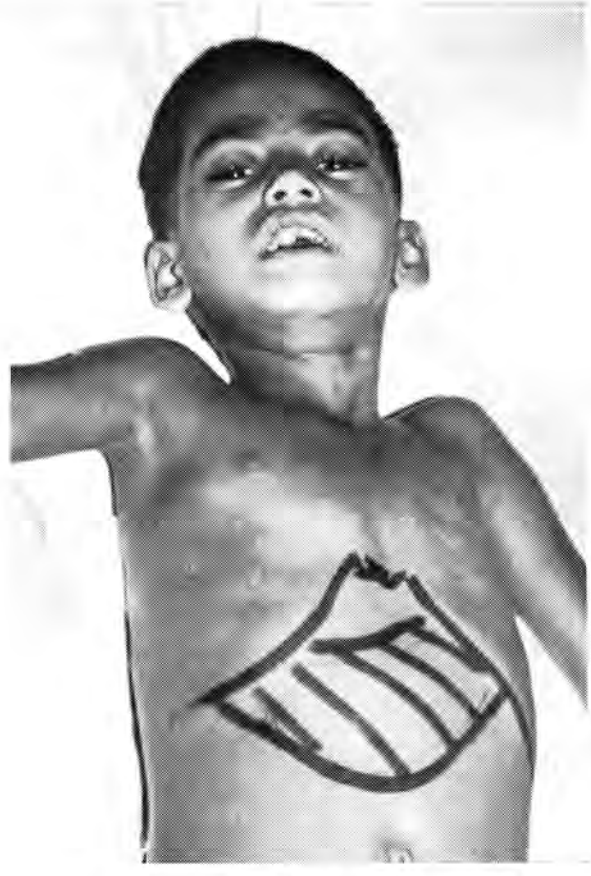

Fig. 1
The patient with Epigastric Mass outlined.

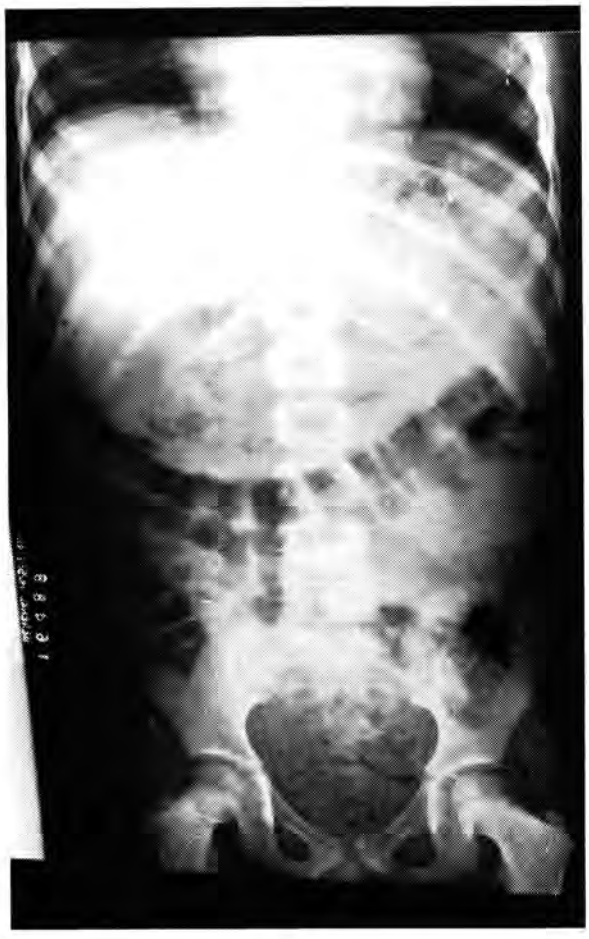

Fig. 2
Plain X-ray of abdomen showing a mass in the upper abdomen corresponding in site and shape to that of the stomach.

long made on the anterior wall of the stomach in the longitudinal axis. (Fig. 3 & 4). During the period of convalescence in the ward the patient tried to drink a bowl of white 'dettol' solution but was prevented from doing so. We referred him to the consultant psychiatrist who thought that nothing useful could be done for the patient anymore. He was discharged well and at subsequent follow-up on 25 July 1972 he was found to have made a complete recovery and was eating normally.

Family History

Both the patient's parents are apparently normal. The sisters are normal, married with normal children. An elder brother of the patient has been an inmate of Tampoi Mental Hospital the past 4 years. We were not able to ascertain the mental disease for which this sibling was institutionalised.

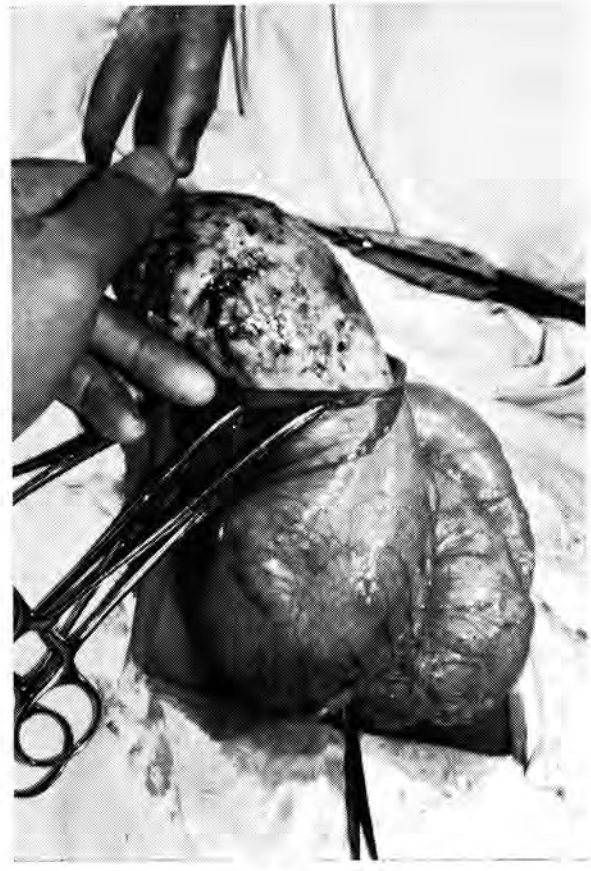

Fig. 3
Rubber cast of stomach being removed via a Gastrotomy incision.

Discussion

Numerous types of swallowed foreign bodies in the stomach have been reported in the literature. For the most part, they cause no symptoms and progress down the alimentary tract to be passed spontaneously without any discomfort. The treatment depends upon the nature and type of object swallowed and the occurence of complications. Since spontaneous passage may be expected in most cases, conservative management with close periodic observation of the patient is usually adequate. Thus, Clerf (Surg Clin N Amer 14: 77, 1934) reported spontaneous passage of the foreign bodies in 827 of a series of 834 patients, and Ladd and Gross (Abdominal Surgery of Infancy and Childhood, 1941) reported this occurrence in 323 of 337 patients.

Becoar, believed to be derived from the Arabic "badzehr" or Persian "padzahr" meaning counter-poison, is applied to concretions of various foreign or intrinsic substances found in the stomach and intestine of both men and animals. Although

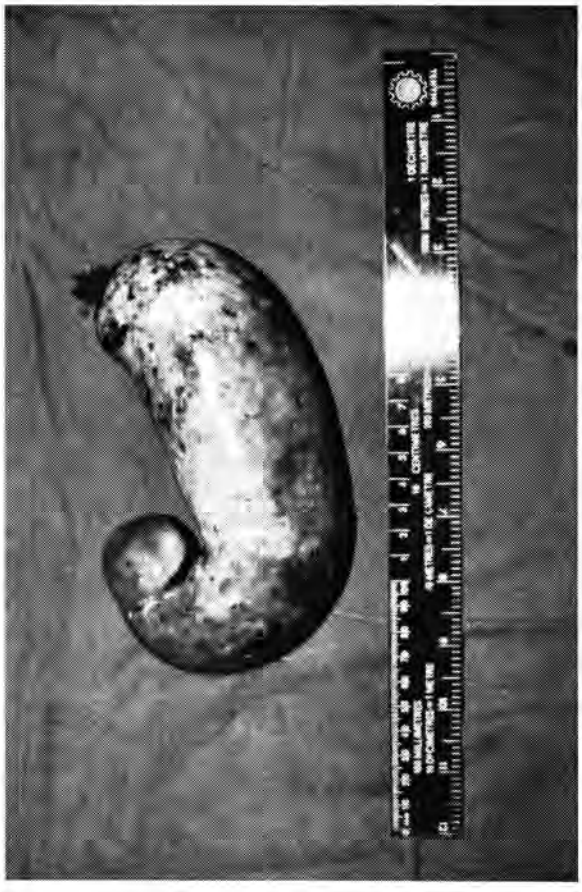

Fig. 4
Perfect rubber cast of stomach.

bezoars are encountered relatively infrequently, their occurrence cannot be considered rare. Up to 1938 De Bakey and Ochsner (Surgery 4 : 934, 1938; 5 : 132, 1939) in a comprehensive review of the literature on this subject were able to find 303 recorded cases and since then, according to Tondreau and Kirklin (Surg Clin N Amer 30 : 1097, 1950), about 100 additional cases have been cited. Trichobezoar (hairball) the commonest variety usually forms in the stomach and duodenum of psychoneurotic young women who bite off and swallow the ends of their hair. It forms a complete cast of the stomach and part of the duodenum. The striking similarities between bezoars and the present case are the formation of casts of the stomach in patients who showed psychic or mental disturbances and that the treatment is essentially surgical.

In rubber producing countries formic acid is commonly employed to convert tree latex into a coagulum for processing into sheets. In this connexion it is interesting to note that a case of pyloric obstruction due to formic acid ingestion was reported by J. Lambeth and K. Somasundaram in the Medical Journal of Malaya, XXIV, No. 3 March, 1970. In our present case the swallowed latex must have been acted upon by the hydrochloric acid in the gastric juice, converting it into a perfect cast of the stomach. This caused an obstruction which required surgical removal.

Summary

A rare case of rubber cast of stomach produced by latex ingestion is reported. A brief review of foreign bodies in the stomach is made and the similarities of bezoars and the present case are noted.

Acknowledgements

We wish to thank Mr. Mohan Lal, State Surgeon Johore, for the advise in the writing of this report and Datuk Dr. Majid the Director General of the Malaysian Medical Services for permission to publish it.

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Congenital Epulis – A Case Report

by *K. Ramanathan*
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and
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Summary
THE CONGENITAL EPULIS, first reported over 100 years ago, is a rare lesion whose nature and origin still remains an enigma. Only about 80 cases have been reported in the literature and case reports of Asians are even fewer. A Chinese baby girl with congenital epulis of the maxillary incisor region is reported. The authors give reasons to support their view that the congenital epulis is an odontogenic anomaly. Hormones may also play a contributory role in causing the lesion.

Congenital Epulis — A Case Report

The congenital epulis, first reported over 100 years ago, is a rare lesion whose nature and origin still remains an enigma. Neumann is credited to have described the first case in 1871 and was responsible for the term "congenital epulis". This name is apt for epulis means "a growth of the gingivae" and the growths are invariably present at birth.

The present case is the only one to be reported by the Division of Oral Medicine and Oral Pathology, Institute for Medical Research, Kuala Lumpur for the past 6 years. Kay et al (1971) in reporting a case of congenital epulis state that the Surgical Pathology Department reported one earlier case during the previous 21 years and the Oral Pathology Department of the Dental School in the same Medical College of Virginia also one earlier case during the previous 18 years. On the contrary, Campbell (1955) in reporting six cases claims that the congenital epulis may not be that rare as it appears. Only about 80 cases have been reported in the literature (Birman et al, 1972), and case reports of Asians are even fewer. There is a need therefore to report these rather unusual and obscure congenital lesions so as to enable a better understanding of the condition.

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Case Report

A 5-day-old, healthy-looking Chinese baby girl was referred to one of us (K.S.) for a swelling over the maxillary incisor region since birth. On examination an oval, pedunculated, smooth surface, soft tissue growth was present on the maxillary right incisor region. It measured approximately 1.0 x 0.8 cm. and was of the same colour as the oral mucosa (Fig. 1).

This baby girl at birth weighed 7 lbs. 8 ozs. and she was the fourth sibling. The mother did not have any complications during pregnancy and all the other three children were born normal.

The clinical diagnosis of congenital epulis was made and the lesion was exicsed under ketamine anaesthesia. The histopathology report was also congenital epulis. (Figs. 2, 3, and 4).

Discussion

Congenital epulis occurs at least 10 times more frequently in females than in males (Lucas, 1964). It occurs as a smooth swelling, generally round or oval but sometimes showing irregular lobulation. It may vary in size from about 5 mm. in diameter to 9.0 x 6.0 x 4.0 cm. (Custer and Fust, 1952). It

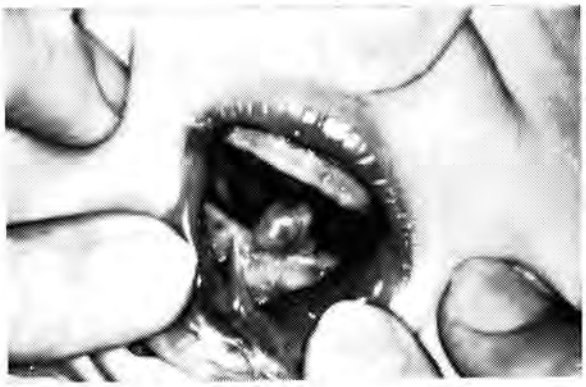

Figure 1
Shows the oval, pedunculated, smooth surface congenital epulis on the maxillary right incisor region. (Orig. Mag. x).

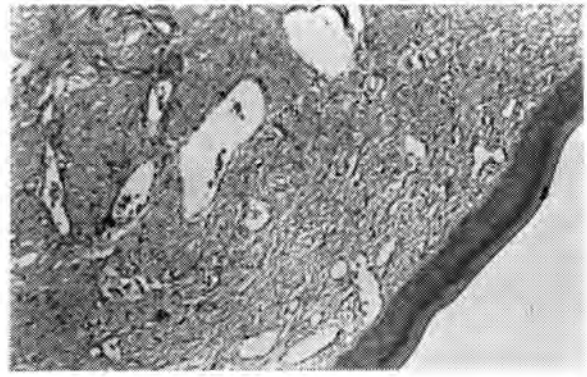

Figure 2
Photomicrograph shows dilated vascular channels lined by a single layer of endothelial cells and closely arranged eosinophilic-staining granular cells separated from the overlying epithelium by a zone of connective tissue. (Orig. mag. x 25).

Figure 3
Photomicrograph shows the granular cells separated from the overlying epithelium by a zone of connective tissue which, however, does not form a definite capsule. (Orig. mag. x106).

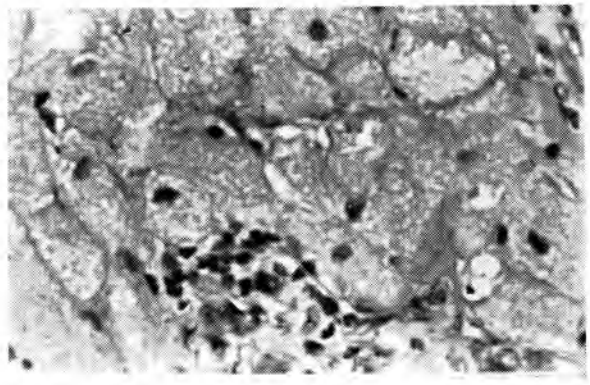

Figure 4
Photomicrograph shows the large and closely packed mostly round or oval granular cells with abundant finely granular cytoplasm and usually distinct cell membrances. The large cells rather dwarf their nuclei, which often eccentric, are vesicular in type and have a clearly defined central nucleolus. PAS. (Orig. mag. x 160).

is usually pedunculated, but may be sessile. The maxilla is more often affected than the mandible, the incisor region being the usual location. Occasionally more than one growth may be present.

Custer and Fust (1952) have made a comprhensive review of the literature. Microscopically, the congenital epulis is very similar to the granular cell myoblastoma. However, the overlying epithelium does not show the pseudoepitheliomatous hyperplasia that is often so prominent a feature of the granular cell myoblastoma.

The origin of congenital epulis is unknown. It has been claimed to originate from: (1) odontogenic epithelium, (2) dental papilla, (3) as a malformation of the developing tooth, (4) to have a relationship with the granular cell ameloblastoma and (5) to be indentical to the also little understood and controversial granular cell myoblastoma. Recently Kay et al (1970) in an electron microscopic examination of the congenital epulis found junctional complexes between some of the granular cells suggesting that these cells may be of eputhelial origin. But, their studies were not entirely conclusive.

The following features of congenital epulis need special consideration: (1) It has been reported exclusively in the oral cavity; (2) all the lesions have been in the alveolar region; (3) their most frequent occurrence is in the maxillary incisor region, the commonest site for supernumerary teeth, and (4) odontogenic epithelium has been found in some of these lesions. We consider the congenital epulis to be an odontogenic anomaly.

The overwhelming preponderance of female babies with congenital epulis is rather striking. Custer and Fust (1952) have remarked that this high female sex ratio could occur by chance alone about once in 10 million times. One can speculate hormones may probably play a contributory role in causing congenital epulis, possibly in a manner that may be similar to that in pregnancy gingivitis and pregnancy tumour. The lesion, however, in this case being in the foetus. The prominent vascular channels often seen in congenital epulis would also seem to lend some credence for such speculation.

The treatment of congenital epulis is simple for it is easily removed and does not recur.

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Book Reviews

"ANAESTHESIA IN JAMAICA" — Report of a Conference. Edited by Drs. M. Hedden, J.W. Sandison, J. Homi.

THE DEVELOPMENT OF Anaesthesia in developing countries has always lagged behind the development of surgical facilities. The choice to specialise in this discipline has not been particularly encouraging and a developing country like Jamaica is no exception. In a carefully organised study by the editors, assisted by two internationally known autho: rities in Education in Anaesthesiology, M.H. Son Holmdahl and W.D. Wylie, the problems revolving around the development of the speciality were identified. Starting off by doing a "Jamaica Anaesthetic Survey" the major investigation into facilities, personnel and practices of anaesthesia in the island was conducted for a period of six months in 1969-1970. The computerised results showed that non-medical personnel gave more than 50% of the total anaesthetics, a situation that could have existed in this country only a decade ago. Many details have been gone into and the conclusion reached, which could have been arrived at, without computerisation was that help outside Jamaica was essential to maintain or improve the anaesthetic services.

While it can be said that we face a similar situation in this country, the methodology used is unique, in evaluation the actual situation for the need of specialists and trained personnel in the less 'popular' disciplines.

This book is not only highly recommenedd but I consider it essential for the planners in our own Ministry of Health to grasp the integrated and scientific way studies should be made to evaluate the needs of doctors in specialities. The Jamaica Anaesthetic Survey had provided factual information which should help any government in the planning of future health services. It is available from the Chief Editor, M.H. from the University of Pittsburgh.

(PROF. A. GANENDRAN)
M.B., Ch.B; F.F.A.R.C.S.; M.R.C.P.; F.F.A.R.A.C.S.; F.I.C.S.

THE MECHANISM AND MANAGEMENT OF HEADACHE by James W. Lance, Butterworths, Lond. 1969, pp 167 £2.25

THIS BOOK is the result of an intensive study of the problems of tension headache and migraine. Other forms of headache such as those which arise from eye-strain or sinusitis as well as those which cause serious intracrainal conditions are described.

The descriptions are designed to assist in diagnosis, and the treatment of these conditions is emphasised.

The book is meant for easy reading by general practitioners, senior medical students and others who may be interested in the mechanism of headache or be concerned with the practical management of headache problems.

RECONSTRUCTIVE SURGERY IN LEPROSY by Ernest P. Fritschi, John Wright & Sons, Bristol. 240 pp. 200 illus - $3.25

IN MANY TROPICAL COUNTRIES LEPROSY has left more deformity and disability than any other disease. This is a practical text on reconstructive surgery in leprosy to which a surgeon in a leprosy institution could refer for guidance. It is emphasized that these cases need preparation and post-operative care and the surgeon should link himself to a team consisting of an experienced physician and physiotherapist.

This book will be useful not only to surgeons in a leprosy hospital but will be of interest to ortho-orthopaedic and plastic surgeons as well as physiotherapists, occupational therapists and nurses.

CATAPRES IN HYPERTENSION. Edited by Mathew E. Conolly, Butterworths, Lond. 1970 pp. 245

DR. CONOLLY has done good service to the medical profession by bringing together under one cover the papers and discussions that took place at a symposium held at the Royal College of Surgeons of England in 1969.

Catapres is the name under which the drug 2-(2, 6-dichlorphenylamino - 2 - imidazoline hydrochloride is known in UK and USA. It is also referred to as Catapresan and Clonidine in other countries.

The parmacology, clinical pharmacology and clinical experiences are dealt with by some 60 participants. It is felt that Catapres is an effective hypotensive agent in many patients but sedation and dry month may limit its usefulness in some. Its final role in the treatment of hypertension cannot be settled until larger numbers of patients are treated over longer periods.

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Correspondence

Dear Sir,

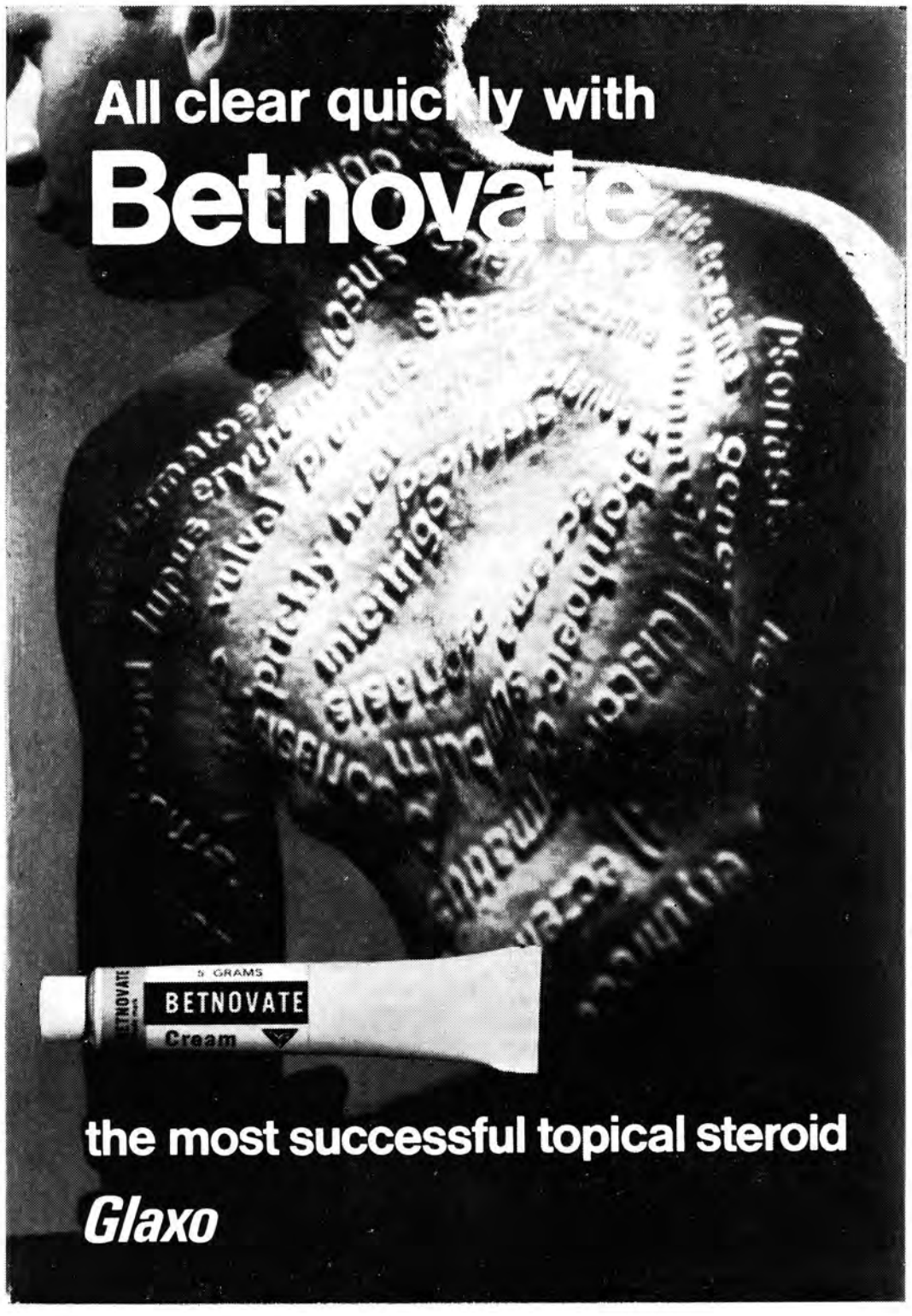
In my article 'Treatment of Skin Diseases: Recent Trend', Med. J. Malaysia (1973) 27, 193, 'Vitamin A.....' should read 'Vitamin A acid.....'.

I would like to thank Dr. J.H.S. Pettit for bringing this error to your notice.

Thank you,

Yours sincerely,

Dr. B.A. Adam
Lecturer in Dermatology,
Department of Medicine.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