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JAFFNA MEDICAL JOURNAL

Volume XVI No. 2 September 1981

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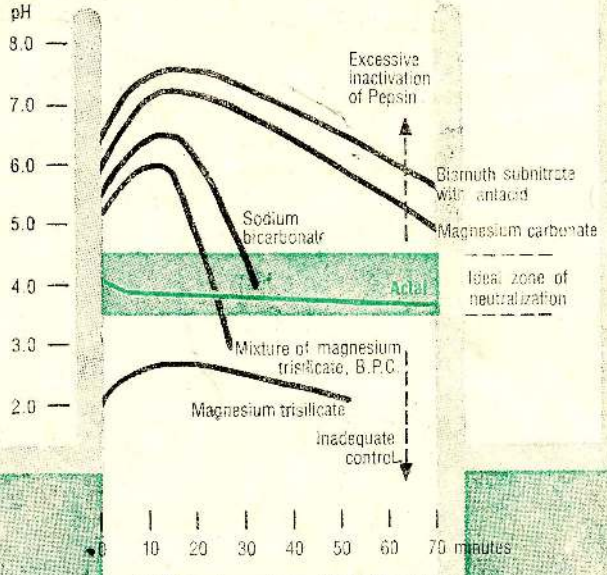

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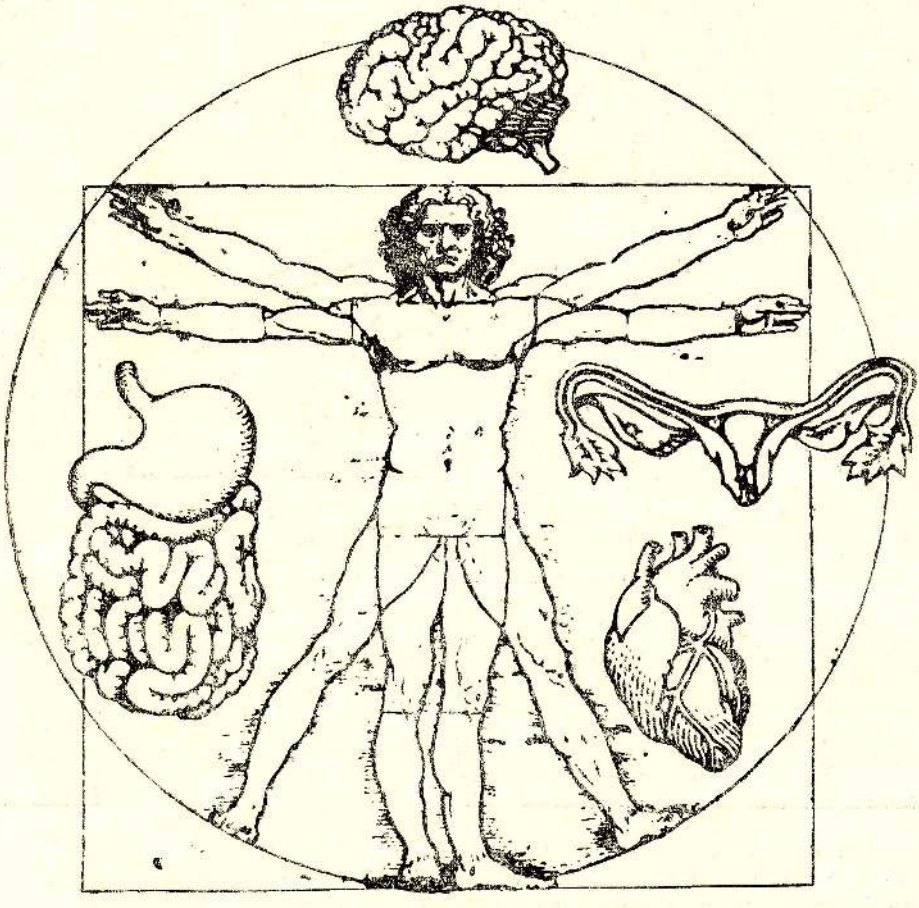

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CODIS FOR STRONGER PAIN RELIEF IN CARCINOMATOUS LESIONS

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References :

1 Proceeding of Symposium on Agonist and Antagonist actions of Narcotic Analgesic drugs, Aberdeen, 12—13 July 1971 (In press)

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Editorial

Some thoughts for improvement of our Hospitals

The exodus of doctors to countries more developed and less developed continues. The reasons for this are varied. At the same time a few are returning to their homeland, even with the full knowledge of the opportunities abroad, to serve the country and hoping for a better job satisfaction. Even though there is definitely better job satisfaction here, one sees many deficiencies in practice at home, most of which can be rectified with minimum effort to make it congenial to the doctor, patient and administration.

Firstly there is a sad lack of communication with the patient. Many patients are completely unaware of the investigations that are being carried out or of the nature of the disease and treatment. As a result, the patients lose confidence and fail to co-operate. The most important thing that one learns abroad is the necessity to explain to the patients and relatives about the patient's illness, details of investigations, treatment and prognosis. Sometimes in some research projects, the patients are subjected to tests which have no relevance to their ailment without explaining the need for such research and seeking their voluntary co-operation. Perhaps this may be the symptom of state domination in health.

Secondly, patients after investgation and treatment in hospitals are not always given a diagnosis card with relevant details of findings, treatment and after care. It is not unusual for a patient to be completely ignorant of his disease and treatment. This usually results in the repetition of procedures in another institution with much inconvenience to the patients and extra expenditure to the state. Even if no definite diagnosis is made, the documentation of the clinical findings, results of the investigations and the treatment given, will be of great help on a later occasion. Further it is vital that in every hospital medical records should be maintained properly. A system has to be developed whereby the past records can be traced whenever necessary.

While in other countries advances in medicine are intergrated into practice in a short time, we apper to make such changes very slowly. The drugs that were in vogue years ago are still the only ones available for treatment, even though many of these have been discarded in other countries. One of the reasons for this is that when drugs are requisitoned by various hospitals, the officers who are responsible for pruning down these requisitions appear to concentrate more on the price of the drugs rather than the current usage of drugs. Doctors trained abroad and those in close contact with the advance in medicine through journals are frustrated by their inability to use better and safe drugs which are in use elsewhere.

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Lastly most junior doctors are not conversant with emergency procedures. They are not tuned to recognising or re-acting actively to emergency situations. Facilities for emergency resuscitation procedures are not available in many of our leading hospitals including some teaching hospitals. It is depressing to see the house officers still continuing the age old practice of prescribing coramine and hydrocortisone just before or after death in such circumstances. An intensive care unit is an absolute necessity for a teaching hospital.

In the past people feared to live in villages without temples as there would be a lack of discipline in such places. To-day the fear is to live in places where there are no intensive care units. Lack of funds is a common excuse for such deficiencies, The lack of funds can be augmented with the public participation. At this juncture. I welcome the idea of Medical Exhibition in Jaffna. In addition to educating the public, this also serves as a good means of collecting funds for the cause of medical education. Let us not put the burden of improving the hospitals only on doctors. Let us make every citizen to realise and support this good cause. After all it is they who are going to benefit,

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Minilaparotomy and Peritoneal lavage in the Diagnosis of Abdominal Trauma

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Summary :

In a Study involving 40 patients with abdominal injury 22 patients underwent Direct laparotomy on clinical and radiological grounds, with significant injuries (requiring Surgery) in all patients. The other 18 patients were subjected to minilaparotomy, and peritoneal lavage (when minilaparotomy did not demonstrate blood in the peritoneal cavity) with 15 patients having demonstrable haemoperitoneum. The demonstration of haemoperitoneum was 100% accurate, but 2 of the 15 patients who underwent laparotomy did not have injuries requiring surgical intervention. (5·4% of all laparotomies). A minilaparotomy (with peritoneal lavage when required) is recommended for all patients where doubt of intra-abdominal bleeding exists, but a direct laparotomy is advocated when a confident diagnosis can be made on Clinical and Radiological grounds.

Introduction :

Statistics of patients dying following blunt abdominal trauma show that in upto 44% of the cases the death would have been prevented if timely Surgery was done (1,2). Unrecognised haemorrhage into the abdominal cavity was the cause of death in most patients, and in one series 2/3rds of the patients, who died after admission died while undergoing investigations in the Xray room despite evidence of hypovolemia (2). It has been also reported that of patients who had no specific complaints or symptoms relating to the abdomen at the time of admission, 43% were found to have significant intra-abdominal injuries needing laparotomy (3,4).

In order to detect silent intra-abdominal bleeding needle aspiration of the abdomen was introduced, but it was soon realised that this method, although useful, had its failures due to negative taps in the presence of significant intra-abdominal bleeding (2,5). Root et al described the peritoneal lavage in 1965 with good results and this method gained widespread acceptance, and became a routine proceedure in many hospitals(5,6,7). In many Units peritoneal lavage was done soon after admission for all patients suspected of having an abdominal injury(5,6,7). With large series of lavages done several shortcomings were noted and overcome. Thus accidental injury to the bladder, bowel and vicera, and false positive lavages due to bleeding from the lavage site (in about 2-5% of patients) are avoided now by refined technique of introducing the lavage catheter under direct vision. (2,6,7). Recently selective use of peritoneal lavage, where petitoneal lavage was done only when the diagnosis was in doubt, was reported with very good results (2).

Materiais and methods :

A study was undertaken by the Author to detemine the usefulness of minilaparotomy and peritoneal lavage in the diagnosis of intra-abdominal injuries.

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For the period of I year from March 1980 to February 1981, 40 patients with abdominal injury underwent either direct laparotomy or minilaparotomy with or without peritoneal lavage. Some patients were observed for abdominal injury during this period by the Author and had improved without any surgical interference. This group of patients were not included in the study.

There were 35 males and 5 females, and their ages ranged from 12 to 83 years. 11 of the 40 patients had multiple injuries. 35 patients were operated within 24 hours of admission (85%), 4 patients within 48 hours and one patient was operated 6 days after the injury.

22 of the 40 patients were diagnosed as having intra-abdominal injuries on clinical and Radiological grounds, and were subjected to direct laparotomy. (see table 1). The other 18 patients were subjected to minilaparotomy, and peritoneal lavage was performed in 3 of these patients, in whom minilaparotomy did not demonstrate blood in the peritoneal cavity. The above investigaion (minilaparotomy) was performed when indicated, irrespective of the time after injury (see table II).

Table I

INDICATIONS FOR DIRECT LAPAROTOMY

1. **Uncorrectable Hypotension.**
2. **Classical Picture of Specific Intra-Abdominal Injury.**
   Eg: Splenic rupture, Diaphragmatic rupture, Bowel perforation, Bladder rupture.
3. **Abdominal Rigidity.**
4. **Radiological Findings.**
5. **Abdominal Wall Defects.**

Table II

INDICATIONS FOR PERITONEAL LAVAGE.

Doubt of Intra-Abdominal Injury Where A Decision Cannot be Made on Clinical Grounds.

Particularly those with

1. Inadequate response to resuscitative measures, or change in stability without any detectable cause.
2. Abdominal signs in those with injuries to the Chest, Spine or Pelvis.
3. Head Injury, with suspicion of intra-abdominal injury.

For minilaparotomy and peritoneal lavage, a modification of the method described by Gill et al was used.[6] A vertical incision 2 to 4 cms was made just above the umbilicus, under local or General Anasthesia, and all layers including the posterior rectus sheath were incised upto the peritoneum, with meticulous haemostasis. Once peritoneum was reached, the wound edges were retracted and evidence of blood under the peritoneum was looked for, without opening the peritoneum. If blood was visible an immediate laparotomy was performed. When blood was not visible the peritoneum was opened, and a peritoneal lavage catheter without the trocar was introduced towards the site of injury, or in the midline, and a purse string suture was inserted in the peritoneum around the catheter, and about

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1 litre of normal Saline was introduced into the abdominal cavity. The fluid was drained or aspirated after tilting the patient from side to side, and evidense of blood in the fluid was looked for. The lavage would be positive if fine print cannot be read through a test tube containing this fluid. In 3 patients where the lavage was done, it was negative and these patients were observed without further Surgery.

Results :

All patients who underwent Direct laparotomy had significant injuries needing Surgery (Table I,J). Two of the 15 patients who had demonstrable haemoperitoneum at minilaparotomy, were found to have insignificant injuries at laparotomy, needing no Surgical intervention (13·3%). Both of them had mild bleeds from the liver which had ceased. A patient who had a minilaparotomy done 6 days after the injury due to deterioration of his general condition was found to have a ruptured splenic haematoma, needing splenectomy. Of the 13 patients with bowel perforations 12 were subjected to direct laparotomy whereas for bleeding from liver lacerations, 8 of 9 laparotomies were after diagnostic minilaparotomy. (Table III)

Table III

Accident Service, General Hospital, Colombo.

SUSPECTED INTRA-ABDOMINAL INJURIES FROM MARCH 1980 to FEB. 1981 (One Year.)

40 Patients (Personal series)

Direct Laparotomy (22 Patients)

100% Significant Injuries. (22 Pts.)

Bowel perforations	12
Splenic ruptures	9
Liver lacerations	1
Kidney lacerations (Nephrectomy)	2
Bladder perforation	1

Minilaparotomy and Peritoneal Lavage (18 Patients)

Postive (15 pts.) **Laporotomy**

86.6% Significant Injuries. (13 Pts.)

Liver lacerations	8.
Splenic ruptures	5.
Bowel perforations	1.
Pancreatic injury	1.

Negative (3Pts.)

Death (Other Causes) 3 Pts,

Post Mortem No intra-abdominal injury.

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Three patients were observed, as no blood was demonstrable in the peritoneal cavity after minilaparotomy and peritoneal lavage. All three of them died within 48 hrs of the lavage, and Post-mortem examination in all three patients excluded any intra-abdominal injury. One died of Respiratory failure, (due to bilateral lung constusions). another due to fat embolism, and the other due to acute Bronchial Asthma.

Discussion :

Peritoneal lavage was introduced in order to diagnose occult intra-abdminal bleeding ([2], [3], [7]). However when peritoneal lavage was made a routine proceedure for all patients with suspected intraabdominal injury, it was found that upto 30% of patients with haemoperitoneum did not have injuries requiring Surgery ([3],[7],[8]). Rigid criteria were introduced to weed out unnecessary laparotomies following peritoneal lavage (such as analysis of the lavage fluid) but these procedures made the lavage more difficult ([3],[7]) Even when all patients with haemoperitoneum were operated (without adhering to these criteria) patients with a negative lavage had to be observed, since retroperitoneal injuries as well as ruptured diaphragm and bladder were often missed ([3],[6],[7]). When the criteria for a proper peritoneal lavage was adhered to, the unnecessary laparotomy rate was reduced to about 8% but about 9% of the patients oberved after the lavage needed laparotomy on clinical grounds. Due to the above facts, with a proper peritoneal lavage taking upto 30 mins, this procedure although followed to a good extent, is shunned by many surgeons([9]).

The above facts also indicate that peritoneal lavage is not a foolproof investigation when used routinely, and some re-thinking is necessary to make the best use of it under conditions existing in Sri Lanka, where peritoneal lavage is not popular. It would be worthless, and is a wastage of time, in patients in whom a confident clinical diagnosis of intra-abdominal injury could be made. In this series 22 direct laparotomis were done (55% of all cases) on clinical and radiological grounds with 100% accuracy as regards intra-abdominal injuries requiring Surgery. In the series reported by Bagwel et al (advocating selective peritoneal lavage) of 16 patients who underwent direct laparotomy without lavage, only one patient was found to have had un unnecessary laparotomy([2]). A confident diagnosis of intra-abdominl injury could be made clinically in patients who have the classical symptoms and signs which fit into definite clinical pictures. (Eg: Ruptured spleen, Bowel perforation, ruptured diaphragm, ruptured urinary bladder, renal injury) However every Surgeon is made painfully aware of his failures when he relies only on clinical and radiological grounds for the diagnosis of all abdominal injuries ([2], [3]).

The indications for selective minilaparotomy and peritoneal lavage fall into two main catagories. (see table II)

1.) A group where without any identifiable cause, the patient's condition deteriorates, or where the patients does not respond adequately to proper resuscitative measures. (? silent intra-abdominal bleeding)

2.) The second group where the abdominal symptoms and signs may be the result of injuries to adjacent organs (chest, spine, or pelvis) or due to intra-

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abdominal injury together with an injury to an adjacent organ. (Eg: Haemothorax with ruptured spleen)

In this series minilaparotomy and peritoneal lavage were performed only in patients selected in the above manner. It was assumed that by selecting the patients, a good proportion of patients with mild haemoperitoneum without any clinical deterioration were not brought in for Surgery. Therefore when haemoperitoneum was demonstrated in these selected patients, laparotomy was performed. This method of selection of patients is an alternative to the selection after peritoneal lavage. (In the seleetion of patients for Surgery after routine peritoneal lavage, criteria are followed so that laparotomy is done only when the haemoperitoneum is significant, so that unnecessary laparotomies are avoided)([2,7]).

Of the 18 patients selected for minilaparotomy and lavage, haemoperitoneum was demonstrated in 15 patients at minilaparotomy, and laparotomy was performed without lavage. Two of these patients were found to have injuries not requiring Surgery (5·4% of all laparotomies). This compares favourably with results obtained in other series where routine peritoneal lavages were done([3,7]). (8% and 6% unnecessary laparotomies)

In this series only 3 patients needed the time consuming procedure of peritoneal lavage and it was time well spent, as unnecessary laparotomies were avoided in ill patients. A proper peritoneal lavage was indicated in these three patients as blood was not visible during minilaparotomy. Selective minilaparotomy and peritoneal lavage is an alternative to routine peritoneal lavage in the diagnosis of intra-abdominal injuries. This method makes use of clinical methods as well as investigative procedure to supplement each other, and the results confirm this view. This method is easily followed in a busy General Surgical Unit, where peritoneal lavage cannot be performed in all patients with suspected abdominal injury.

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R-Plasmids : Threat to Antibiotic Therapy

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Abstract

Resistance to antibiotic is also borne by extra-chromosomal DNA known as R-plasmids, which thrive under the selection pressure of antibiotics. Since they are independent of the host genome and have no species barrier they are found in most of the bacteria in a variety of ecological niche. Their presence in pathogenic species brings about a limitation in antibiotic therapy. Lowering the antibiotic load on the community will bring about a decrease in the incidene of R-plasmids.

With the discovery of penicillin and the synthesis of sulphonamide a revolution in the treatment of infections occurred. Many lives were saved and a sense of security prevailed. But this was to be short lived. Organisms became resistant and newer antibiotics were discovered, to which also the organisms started to develop resistance. One very important reason for the emergence of resistance, is the indiscriminate use of antibiotics often without bacteriological report.

How do these organisms develop resistance ? Pioneering study was made in Japan in 1950's following an interesting observation where they isolated sulphonamide resistant **Shigella** during an out-break of bacillary dysentry. Since the frequency with which the sensitive organisms became resistant was so high, mutation was ruled out as the only cause. Subsequently Akiba **et al** (1) established that sensitive strains became resistant on receiving R-plasmids from a resistant donor. What are R-plasmids? Following the discovery of sexuality in bacteria in early 1950's Lederberg named all extra-chromosomal genetic elements as plasmids, which are made of double stranded circular DNA and found in most individual bacteria. They are non-essential part of bacteria which replicate indepndently of the host genome, and are inherited in a regular manner. No bacterium can regenerate a lost plasmid but can only acquire it from another bacterium. Plasmids vary in size from 1-megadalton to 300-megadalton and they carry genetical determinats for various diseases of plants and animals, to utilize an alternative substance as nutrient and enable the host cell to resist a wider variety of toxic agents including antibiotics. They also carry genes for 'mating' (conjugation) between bacteria. Those plasmids which carry resistance genes for various antibiotics are known as R - plasmids or R - factors. There could be more than one type of plasmid in a bacterium provided they are compatible. The smaller ones are found in several copies whereas the larger ones are few in number. Unlike other plasmids R - plasmids do not undergo intergration into main bacterial chromosome. Antibiotic resistance could also be borne by the main bacterial chromosome but majoriiy of the plasmid borne resistance exhibit very high resistance compared to the corresponding one on the main chromosome.

R - plasmids are transferred among members of the same species and among

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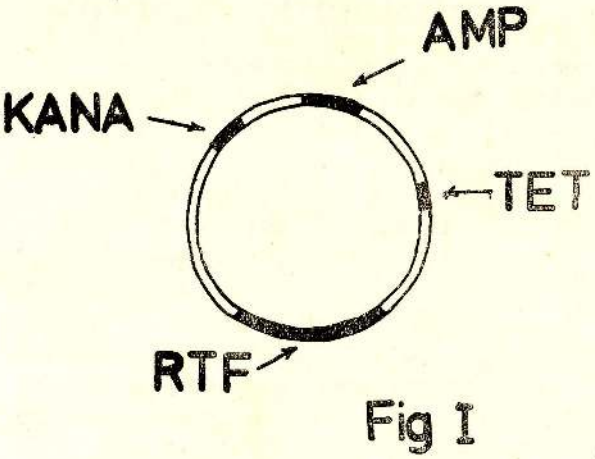

Fig 1

PLASMID

KANA — Kanamycin; AMP — Ampicillin;
TET — Tetracycline;
RTF — Resistance transfer factor.

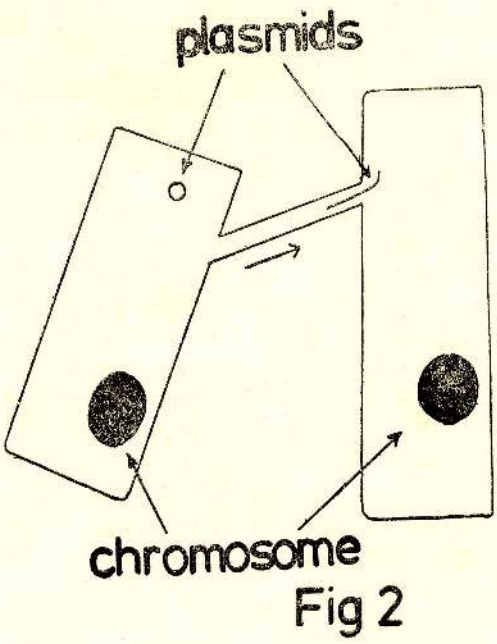

Fig 2

different species by any of the following three phenomena.

(a) **Conjugation:** Plasmids are transferred during mating where single strand of the plasmid DNA passes along the conjugation tube into the other bacterium and the complementary strands are formed in the respective cells. In such cases, part of the plasmid DNA is involved in mobilising the plasmid DNA during conjugation and this region is known as RTF (resistance transfer factor) which usually occupies 1/3 of the plasmid.

(b) **Transduction:** Plasmids are transferred by a vector (bacteriophage). Plasmid transfer involving Gram positive organism is mostly by transdution. Since the vector has a size limitation for picking, only small plasmids or portion of the large plasmids are transferred.

(c) **Transformation:** Plasmid DNA are found to be taken up by Gram negative bacteria from cell free media.

There are three main ways by which plasmid borne genes bring about resistance to antibiotics.

(a) By specific enzymes that break down or modify the antibiotics. e.g: B - lactam group, (penicillin group) chloramphenicol, aminoglycoside, such as streptomycin and mercury compounds.

(b) By interrupting protein synthesis, by altering the ribosomal RNA. e.g: macrolide antibiotics such as erythromycin are prevented from attaching themselves to the ribosomal RNA.

(c) By changing the transport system brought by plasmid borne plasmid proteins. Tetracycline is prevented from entering the bacteria whereas

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certain toxic ions such as arsenate are sent out of the cell by active pumping.

Resistance to antibacterial agents such as sulphonamide, trimethoprim are brought by the alternative routes for the processes inhibited by these agents.

How do resistance genes appear on these R - plasmids? One of the explanation is that the spontaneous mutation which occur naturally on the main chromosome renders the strain resistant to antibiotics. If these resistant genes are borne on a transposon, (non homologous part of the chromosome which could undergo recombination) then these resistant genes are mobilized to plasmids. Once they are found on a plasmid it could spread among other bacterial strains by the phenomenon mentioned above. Another school of thought claims that episomes (those extra - chromosomal DNA which could integrate with the bacterial chromosome) when they are segregated from the main bacterial chromosomes, remove part of it which might include genes for antibiotis resistance, bacterial, virulence or genec responsible for specific enzyme production such as lactase. Studies carried out in Borneo (2) and in Soloman Island (3) of an "antibiotic virgin" population suggest that R-plasmids evolved even before the use of antibiotics and they could be recovered from natural conditions without the selection force of antimicrobial drugs. This was further proved when 30 strains of lypholized strains prior to 1950 were found to posses R-plasmids (4).

R-plasmids have a wide host range and have been isolated from members of **Enterobacteriaeceae, Staphylococcus, Gonococcus, Haemophilus** and other anaerobes such as **Bacteriods**. R-plasmids have been found to be more stable in **Escherichia** followed by **Shigella, Salmonella, Serratia,** and **Vibrio** (5).

The structure, the ecologicai niche, their independant mode of existance, and the spread among different bacterial strains makes them to be considered as a living entity where they form a symbiotic association with the bacterial cell. The R-plasmid renders more survival value to the bacterial cell under seletive pressure of antibiotic therapy, and at the same time making use of some of the bacterial nutrients, and protein synthesizing machinery of the host bacterium.

One of the major implication of R-plasmid is that they carry genes for antibiotic resistance which impose a limitation on antibiotic therapy. The number of resistance genes they carry vary and R-plasmids carrying resistance genes for more than nine antibiotics have been isolated. Under the selection pressure of antibibiotic therapy the bacterial strains carrying these R-plasmids thrive. Thus antibiotic therapy selects strains harbouring R-plasmids. Since the transfer of R-plasmid do not have any species barrier, the resistant strains serve as prospective donors. Because R-plasmids carry resistance genes for more than one antibiotic, single antibiotic could select resistance to more than one antibiotic.

Use of antibiotics knocks off the sensitive pathogens, and their place could become occupied by drug resistance organisms that are normally harmless. Infection caused by "opportunist organisms" such as **Klebsiella, Proteus,** and **Pseudomones**

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in patients suffering especially from leukaemia, tumor, those which are treated with radiotherapy of immuno suppresive drugs or recovering from burns or from major surgery becomes difficult to treat (6). Clinical isolates from various district hospitals in Sri Lanka were screened for the presence of R-plasmid and it was found that 25-30% harbour transmissible R-plasmid, though a higher percentage exhibited multiple resistance (7). These isolates included pathogens such as **Shigella, Salmonella** and other "opportunist organisms" which are the common causual organisms in urinary tract infections and in pus. The transmissible resistance traits includes, ampicillin, tetracycline, sulphamethoxazole, trimethoprim and chloramphenicol. Similar studies carried out in Norway (8) show a high percentage (45.5%) of transmissible R-plasmids. Typhoid and bacillary dysentry are two of the commonest waterborne diseases prevailing in most of the tropical countries. Due to long term indiscriminate use of chloramphenicol in Mexico, India, Vietnam and Thailand plasmids carrying chloramphenicol resistance traits have been common in typhoid bacillus (9). Intestinal bacteria of human and animals are often subjet cted to antibiotic which brings abouselection of resistant strains and these form a reservoir from which sensitive strains could receive plasmids. Studies carried out in Sweden (10) show that 15% of normal healthy adults carry aerobic gram negative intestinal bacteria that harbour R-plasmids. The transferred resistance traits included ampicillin, tetracycline, chloramphenicol sulphamethoxazole, streptomycin and furantoin. Linton (11) demonstrated that 61% of the healthy adults and children carried transmissible R-plamids in their intestine. Similar studies carried by the author in Sri Lanka shows a still higher incidence 25%) with similar resistance traits (to be) published) indicating a higher antibiotic load in Sri Lanka. Corresponding studies carried out in healthy farm animals shows that out of the 134 multiple resistance strains of **E.coli**, isolated from feces of healthy farm animals, 99 transfered their resistance traits to sensitive **Salmonella typhimurium** (12). They further points out that there is a direct correlation of the incidence of resistance strains and the type of drug used. Discontinuence of drug allows sensitive strains to overcome resistant strains. Drugs that are absorbed will cause less resistant strains in the intestine.

Polluted water is one of the main avenues by which R-plasmids could spread in the community especially in places where there is no proper sanitary facilities. Smith (13), isolated **E. coli** from some rivers in England in which resistance traits were found to be transmissible to pathogenic organism . In our studies carried out in Jaffna, we found that the wells which are the main source of drinking water were contaminated with resistant "opportunist" organisms. Though some of them were carrying R-plasmids none of them were found to be transmissible. In addition to polluted water untreated sewage is also a channel by which R-plasmids could spread in the community. Isolation and characterization of these R-plasmids from water and sewage could be an important parameter in assessing the prevalence and the spread of resistance traits in the community. In raw and treated sewage 50% of the samples carrying lactose fermenting

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bacteria were able to transfer their resistant traits to several strains inducing significant drug resistance among intestinal bacteria of urban population (14).

R-plasmid which are selected in the intestine of patients have a possibility of transferring to normal intestinal flora of non-infective pateints as well as hospital staff. Studies carried at Roslagstall hospital Sweden (15) reveals that patients infected with **Salmonella** or **Shigella** carried antibiotic resistant **E. coli** or **Klebsiella** strains exhibiting resistance patterns similar to that carried by nursing staff. Since all hospitals are daily visited by patients and by visitors there could be a dynamic flow of plasmids in and out of hospital. Isolation of R-plasmids with different transferable patterns, and the different influence of the R-plasmid on the sensivitity of their host to phages indicate that the R-plasmid found in hospitals are of multiple origin (16). Medical Institutions like hospitals and nursing homes where antibiotic therapy is intense, plasmids are selected in pathogenic vectors and they could spread by "opportunist organisms" as well as by other intestinal organisms. Datta 1979 (17), reported that **Klebsiella aerogenes** type K-16 isolated from an out-break of infection carried multiple resistance (65-megadalton) plasmid of incompatible group M which was very much similar to enviornmentally related strains of **Citrobacter koseri** and **E. coli**.

Finally bacterial strains such as **Salmonella typhi** infect both cattle and man and R-plasmids are spread via these pathogens in either direction. As normal human intestinal flora such as **E. coli** from human, pigs, poultry, and calves fall into O-serotype and there is substantial amount of contamination, of beef, veal, pork and chicken with **E. coli**. R-plasmids are easily mobilized between man and animals (5). This is still further supported by the work done by Anderson 1975 (cited by 3) which indicates a common pool of R-plasmids in commensals of man and animals. Compared to medical practice, antibiotic therapy is widely and freely used in veterinary practice where a low dosage of antibiotic is included as prophylactic agent in animal feed. This practice renders a wider selection pressure than in medical practice. Countries like Great Britain, Sweden have passed legislations to curb the use of antibiotics in animal feed. Bacterial strains resistant to furazolidone (which is used only in veterinary practice) being isolated from human infection which clearly shows the mobilization of resistant traits from animals to man. Survey carried in England before the implementation of Swan's Commission's report shows incidence of drug resistant strains in persons whose occupation involves close contact with farm animals was much higher (69%) compared with other occupations (29%). This further suggests the flow of resistant traits from animals to man (18).

Simultaneous isolation of R-plasmid in different parts of the world suggests that R-plasmids appeared independently in many places which was amplified by the wide use of antibiotics. Though there was simultaneous isolation of R-plasmids in many parts of the world, their frequency and resistant traits varied. Since antibiotics have been used as animal feed additives and there is a flow of bacterial strains between human

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and animals, R-plasmid would have appeared in animals, at the same time as in human.

Though R-plasmid could be eliminated from the bacterium by acroflavin or acridine orange (19) it is not feasible population wise. R-plasmids are burden under non-selective conditions and do not render survival value to the bacterium and it becomes a subcelluar parasite. Under such condition the R-plasmid will be diluted out in bacterial population and finally eliminated. Thus the only possibility of decreasing the incidence of R-plasmids is by creating such non-selcetive environment for the baterium by lowering the selective pressure of antibiotic usage.

Sri Lanka imports a substantial amount of antibiotics and it is reflected as a high incidence of multiple drug resistance (20). How to reduce the antibiotic load on the community?

(a) Strict measures should be adopted for the distribution of antibiotics both in the state as well as in the private sectors. These drugs should only be sold by registered pharmacist and also only on a prescription.

(b) Rational prescription of antibiotics ;

(i) Selection of appropriate antibiotic based on clinical condition and common causual organisms.

(ii) Switching to antibiotic based on bacteriological report and sensitivity test.

(iii) Administration in adequate dosage and frequency for adequate period of time.

(iv) Appreciation of proper surgical techniques and avoidance of prophylactic antibiotics wherever possible.

(c) Antibiotics should be totally banned from animal feed.

(d) High hygenic condition should be maintained in medical institutions such as hospitals, nursing homes and surgery to prevent the spread of R-plasmids from these enviroment to the open community.

(e) Drinking water sources should be free of bacterial pollution which will have a check on the spread of these R-plasmids in the community. Lastly all public places like eating house, public toilets should be kept clean to check on the spread of these R-plasmids.

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Preliminary Survey of Bacterial Contamination of Hospital Environment in a General Hospital

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Abstract

Survey carried out in a General hospital revealed that in addition to the in-animate objects in the ward, operating theatres, and kitchen articles were contaminated with "opportunistic organisms". Some of the antibiotic resistance patterns of these organisms were same as the ones isolated from in-patients. This cleary shows that there is a free transfer of R-plasmids among these organisms which acts as a vehicle for the spread of these plasmids within the hospital environment. This could lead to limited choice in antibiotic therapy. Since hospitals are subjected to a heavy load of micro-organisms including pathogens, basic hospital hygiene should be maintained to prevent nosocomial infection and to prevent the spread of R-plasmids.

Introduction

The state owned General Hospitals in Sri Lanka render free health services to the public. These are visited daily by large proportion of the population, either as patients or as visitors. Stokes (1) claims, most of the patients have infected wounds, septicaemia or harbour virulent bacteria in their skin and respiratory tract. Unless proper care is taken to control the spread of these pathogens, the staff and the non-infected patients run greater risk of infection. As such all medical and nursing staff should have clear knowledge of the risk of the hospital infection and they must take adequate preventive measures to safe guard patients and themselves against such infections. **Mendis et al**, (2) observed **Staphylococcus** infections of new-borns in maternity units; and **Escherichia** species in pre-mature baby units, indicating that the causal organisms of these infections are from the hospital environment itself.

The causes of pollution of hospital environment may be listed as follows:-

(a) Air contamination (b) Failure to maintain aseptic techniques in dressing rooms (c) Improper handling of infected dressings and their disposal (d) Faulty sterilization of instruments, dressings and linen (e) Failure in keeping the wards and environment clean (f) Shortage of staff which results in employing even the "carriers" to nurse the patients (g) Visitors.

It is necessary to adopt measures to keep the hospital environment free

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from pathogens. Care should be taken to keep the in-amimate objects like instruments, furniture, air, floor, walls free from pathogenic bacteria. They also serve as sources for dessimination of microbes.

The present study was carried out to asses the extent of bacterial contamination in the hospital environment and to identify the agents.

Materials and Methods

This study was carried out in a General Hospital in Sri Lanka with a bed strength of 1100 and daily turn-over of about 250 patients.

(a) Collection of samples

Following articles were swabbed randomly from each ward. (i) Water tap handles (ii) Examination and dressing beds (iii) Medicine and injetion trolleys (iv) Saline solutions (used for dressing) (v) Savlon and (vi) Telephone receivers. In addition, delivery sets, oxygen delivery tubes, oxygen masks and sucker tubes were also swabbed when available in some wards. Apart from the wards, out-patients department, blood bank, sterilization room, dental clinic, operating theatres and kitchen were also swabbed. Moist swabs were used in sampling and were immediately put into sterile peptone water and incubated for five hours at 37°C before they were plated.

(b) Identification and Antibiotic Sensitivity Test

Each sample was streaked on Mac Conkey and a blood agar plates, incubated at 37°C for 24 hours. The colonies appearing on these plates were identified by routine analysis (3). Antibiotic sensitivity tests were done on PD medium against ampicillin, nalidixic acid, tetracycline, penicillin, erythromycin, chloramphenicol, nitrofurantoin, trimethoprim and sulphamethoxazole obtained from AB Biodisk, Solna, Sweden by the impregnated paper disk method (4).

Results

The survey was done on two different days between 8-30 a. m. and 11-30 a. m.

48 out of 106 articles swabbed showed bacterial contamination (Table I). Contamination was mainly observed in medicine trolley (34%) injection trolley (32%), water tap handles (58%), and dressing beds (57%).

58 strains were isolated from these contaminated articles. Nine of them had more than one strain. Out of the isolated, majority were **Klebsiella aerogenes** (48%), **Proteus rettgeri** (19%) and **Pseudomonas aeruginosa** (16%), (Table II). Apart from these, there were **Staphylococcus aureus** and **Escherichia coli.**

It was found that the **Staph.aureus** isolated was sensitive to all the antibiotics tested (Table II). Most of the gram negative bacilli isolated were resistant to ampicillin (95%). sulphamethoxazole (71%), nitrofurantom (88%), and trimethoprim (96%). However (38%), and (52%) were sensitive to tetracycline and chloramphenicol respectively.

The common resistance pattern exhibited by these organisms is given in (Table III). 95% of organisms

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Table I

No.	Sites	Tested	Contamination
1.	Medicine Trolley	19	6
2.	Taps	26	15
3.	Dressing bed	14	8
4.	Saline solution	8	4
5.	Savlon	3	0
6.	Oxygen delivery tube	5	1
7.	Sucker tube	2	1
8.	Delivery set	3	2
9.	Sterilizer handle	14	3
10.	Telephone	11	3
11.	Sterilized equipment	6	1
12.	Drums	3	2
13.	Dressing equipment	3	2
	Total:	106	48

Incidence of pathogens in common articles used in the wards.

Table II

No.	Organisms	No. Tested	NA	AM	TC	SX	EM	CL	NI	TR
			R	R	R	R	R	R	R	R
1.	**Proteus rettgeri**	11	1	11	4	8	5	9	10	11
2,	**Proteus morgani**	3	0	3	1	3	3	1	2	3
3.	**Pseudomonas aeruginosa**	9	9	9	6	9	9	7	9	9
4.	**Alkaligenes faecalis**	4	2	4	1	2	2	0	4	4
5.	**Klebsiella aerogenes**	28	0	27	9	17	17	13	26	27
6.	**Escherichia**	2	0	2	1	2	2	0	0	2
7.	**Staphylococcus aureus**	1	0	0	0	0	0	0	0	0
	Total:	58	12	56	22	41	38	30	51	56

Frequency of antibiotic resistant organisms isolated from hospital environment.

NA - Nalidixan; AM - Ampicillin; TC - Tetracycline; SX - Sulphamethoxazole; EM - Erythromycin; CL - chloramphenicol; NI - Nitrofurantoin; TR - Trimethoprim.

R - Resistant.

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Table III

	Frequency
1. Klebsiella aerogenes	
AM — TC — SX — EM — CL — NI — TR	= 5
AM ——— SX — EM — CL — NI — TR	= 1
AM — TC — SX ——— CL — NI — TR	= 1
AM — TC — SX — EM ——— NI — TR	= 1
AM — TC — SX ——————— NI — TR	= 1
AM ——————— EM — CL — NI — TR	= 1
AM ——— SX — EM ——— NI — TR	= 6
AM ——— SX — EM ——————— TR	= 2
AM ——————— EM ——— NI — TR	= 1
AM ——————————— CL — NI — TR	= 5
AM ——————————————— NI — TR	= 3
2. Pseudomonas aeruginosa	
NA — AM — TC — SX — EM — CL — NI — TR	= 4
NA — AM — TC — SX — EM ——— NI — TR	= 2
NA — AM ——— SX — EM — CL — NI — TR	= 2
NA — AM ——— SX — EM ——— NI — TR	= 2
3. Alcaligenes faecalis	
NA — AM — SX EM — NI — TR	= 1
——— AM — SX ——— NI — TR	= 1
NA — AM ——— EM — NI — TR	= 1
——— AM ——————— NI — TR	= 1
4. Proteus rettgeri	
NA — AM — TC — SX — EM — CL — NI — TR	= 1
——— AM — TC — SX — EM — CL — NI — TR	= 3
——— AM ——— SX — EM ——— NI — TR	= 1
——— AM ——— SX ——— CL — NI — TR	= 1
——— AM ——— SX ——————— NI — TR	= 1
——— AM ——————————— CL — NI — TR	= 3
——— AM ——— SX ——— CL ——— TR	= 1
5. Proteus morgani	
AM — SX — EM — CL — TR	= 1
AM — SX — EM ——— NI — TR	= 2
6. E.coli	
AM — SX — EM — TR	= 1

Antibiotic resistant patterns of organisms isolated from hospital environment,

NA — Nalidixan; AM — Ampicillin; TC — Tetracycline; SX — Sulphamethoxazole; EM — Erythromycin; CL — Chloramphenicol; N — Nitrofurantoin; TR — Trimethoprim.

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isolated were resistant to more than one (commonly used) antibiotic. Some of the antibiotic resistant patterns exhibited by **Klebsiella aerogenes** were similar to that of **Proteus rettgeri** and **E. coli** whereas **Pseudomonas aeruginosa, Alcaligenes fecalis** and **Proteus rettgeri** had common antibiotic resistant patterns.

Discussion

46% of the samples showed contamination which is a reflection of the hygenic condition prevailing in the hospital environment. Even though allowance could be made for "contamination" of certain articles such as dressing beds, water tap handles and telephone receivers, strict aseptic condition should be maintained on rest of the articles mentioned in Table I. Two, out of three delivery sets were found to be contaminated where one was with **Staph.aureus** which is unsatisfactory. Saline solution (normal and hypertonic) used for dressing lesions, showed the presence of **Pseudomonas aeruginosa.** This could have caused a severe out break of wound sepsis. One of the oxygen delivery tube and a sucker tube were contaminated with **Pseudomonas aeruginosa** and **Proteus morgani** respectively. Apart from this, water tap handle in the operating theatre showed presence of **Klebsiella-aerogenes,** which is one of the causes in post operative wound infection. This clearly shows beyond any doubt, that there is a breakdown in the organisation in keeping these places aseptic. Compared to the studies by **Mendis et al** (2), there was a high incidence of **Klebsiella aerogenes,** and **Pseudomonas aeruginosa** which necessitates an immediate rectification.

Majority of the antibiotic resistance are borne by extrachromosomal elements, R-plasmid (5), Fact that some of the resistance pattern found among different bacterial strains were the same, points out the possibility of these strains harbouring R-plasmids. In addition these resistant strains shared some common patterns with the ones isolated from in-patients, healthy adults and drinking water (6). These plasmids which carries antibiotic resistance genes could make use of these bacterial strains as vehicle for their spread. The poor hygeinc condition prevailing in hospitals not only makes the environment infectious, but also facilitiates the spread of R-plasmids which brings about a limitation on antibiotic therapy, In addition, they (R-plasmids) are carried back to the community by visitors or by the discharged patients. Hence the hospital becomes a "factory" where R-plasmids are increased under the pressure of antibiotic therapy. Though antibiotic therapy is in-evitable at hospitals, steps have to be taken to prevent the spread of these plasmids by maintaining the environment hygenic.

Samples collected from the kitchen showed a very high degree of contamination. Out of the 10 samples two had **Proteus rettgeri** and seven samples showed presence of **Klebsiella aerogenes.** Though they are common saprophytic organisms found in water and soil, their presence in "hospital environment" is not permitted. We have also isolated **Klebsiella aerogenes** from autoclave handles and from out-side of the drum which was ready to be taken to the operation theatre. This is a clear evidence of the spread of organisms within the hospital environment. However dental clinic and part of the out-patient department did not show any contamination.

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We recommend that adequate steps should be taken to keep hospital environment clean, specially the ones which have to be maintained absolutely sterile, and there should be periodical check on these articles for contamination. The hospital employees should be trained adequately on bacterial contamination with practical demonstrations.

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Tuberculosis of The Skin Over The Sternum

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Summary

Tuberculosis of the skin over the sternum occurring in five adults —three females and two males— is reported. All five had lesions suggestive of scrofuloderma. Two of them in addition had lesions suggestive of lupus vulgaris. Diagnosis was confirmed by histological examination of biopsy specimen in all five cases. Acid fast bacilli were isolated by culture of the discharge in one case. The skin infection was the result of extension from tuberculosis of the cervical lymph nodes in two cases, from tuberculosis of the sternum in one case, from tuberculosis of the left pleura in one case. In one case the skin infection was haematogenous in origin. Response to antituberculosis chemotherapy was remarkable in all five cases.

Introduction

Pulmonary tuberculosis is a common disease in Sri Lanka. But tuberculosis of the skin is uncommon and that involving the skin over the sternum is rare. We report five cases of cutaneous tuberculosis over the sternum seen at the Chest Clinic, Kandy over a five year period from 1976 to 1980.

Case Report

Case 1

A 32 year old Tamil housewife was seen at the Chest Clinic Kandy on 2-9-1976 complaining of painless discharging sinuses over the sternum: one over the upper third of sternum of 6 years duration, another over the lower third of the sternum of 3 years duration.

On examination: there were two sinuses 5 mm in diameter each surrounded by an area of induration 3 cm in diameter - one over the upper third of the sternum and the other over the lower third of the sternum. There was marked scarring between the two indurated areas.

Respiratory, cardiovascular, gastrointestinal, genitourinary and nervous systems were clinically normal. There was nothing abnormal seen in the postero-anterior (PA) chest Xray. The lateral Xray of the chest showed patchy erosion of the lower end of the sternum with a soft tissue mass (Fig. 1). White blood cell count (WBC) was 10,200/mm^3 polymorphs forming 62% and lymphocytes 33%. Erythrocyte sedimentation rate (ESR) was 60 mm first hour. Blood for venereal disease reference laboratory (V. D. R. L.) test was negative. Mantoux reaction was 28 mm. Discharge from the sinus was negative for acid fast bacilli (AFB) by direct smear examination and by culture. Biopsy of the sinus tract showed histological evidence of tuberculosis.

She was treated with daily streptomycin 750 mg, isoniazid 300 mg and para-aminosalicylic acid (PAS) 5 G bd for 3 months. Thereafter she was given

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streptomycin 1 G and isoniazid 700 mg twice a week for 1 year and 3 months. The sinuses healed in 4 months of starting antituberculosis chemotherapy.

Case 2

A 72 year old Sinhalese male agricultural worker was seen at the Chest Clinic, Kandy on 27-12-78 complaining of discharging ulcers: one over the sternum of two months duration and the other over the perineum of 7 months duration

On examination: over the lower end of the sternum there was an ulcer 2 cm by 1 cm with a bluish undermined edge (Fig. 2). There was a serous discharge at the base. The ulcer was not attached to deeper structures. Over the perineum the ulcer was 3 cm x 0·5 cm with a bluish undermined edge and serous discharge, That ulcer too was not attached to deeper structures. There was no abnormality detected in the respiratory, cardiovascular, gastro-intestinal, genito-urinary, nervous and skeletal systems. Postero-anterior chest Xray was clear. There was no abnormality in the sternum in the lateral Xray of the chest. WBC was 14,600/mm^3 with polymorphs 78% and lymphocytes 22%. ESR was 70 mm I st hour. Blood for VDRL test was negative. Urine examination showed nothing abnormal. Mantoux reaction was 14 mm. Discharge from the sternal ulcer was negative for AFB by direct smear examination and by culture. Biopsy of the ulcer over the sternum showed histological evidence of tuberculosis.

He was started on streptomycin 750 mg, isoniazed 300 mg and thioacetazone 150 mg daily. After two months of this regimen the ulcers over the sternum and perineum healed complectely. Thereafter he was given twice weekly streptomycin 1 G and isoniazid 700 mg for 1 year and 4 months.

Case 3.

A 65 year old Sinhalese housewife was seen at the Chest Clinic, Kandy on 16-3-1979 complaining of a skin eruption over the right side of the neck and front of chest of 2 years duratlon. It started with a lump 1 cm in diameter in right side of the neck. A month later skin eruption appeared below the lump and started spreading gradually down to the skin of the chest and sternum.

On examination: the skin lesion occupied an area 20 cm by 9 cm extending from the angle of the jaw on the rigbt side down to the chest and upper part of the sternum (Fig. 3). The right upper and lower deep cervical lymph nodes were enlarged the size being 2 cm in diameter. There were two discharging sinuses 1 cm in diameter - one over the neck and the other over the upper part of the sternum. There were two scaling and crusty areas in the posterior triangle of the neck and over the upper part of the sternum. Between and below these two areas was a large pink smooth area of the skin.

Respiratory, cardiovascular, gastro-intestinal, genitourinary, nervous and skeletal systems were clinically normal. Xrays of the chest PA and lateral showed no abnormality. Mantoux reaction was 22 mm. Discharge from the sinus was negative for AFB by direct smear examination and by culture.. WBC was 9600/mm^3 with neutrophils 75% and lymphocytes 25%. Blood foor VDRL test was negative. Biopsy of the skin lesion was done. The histology report was lupus vulgaris.

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Fig. 1 (case 1) X'ray showing patchy erosion of the sternum and soft tissue mass.

Fig. 2 (case 2) Ulcer at the lower end of sternum - after excision biopsy.

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Fig. 3 (case 3) Enlarged cervical lymph nodes and skin lesions over neck and sternum.

Fig. 4 (case 4) Healed ulcer over the upper part of sternum.

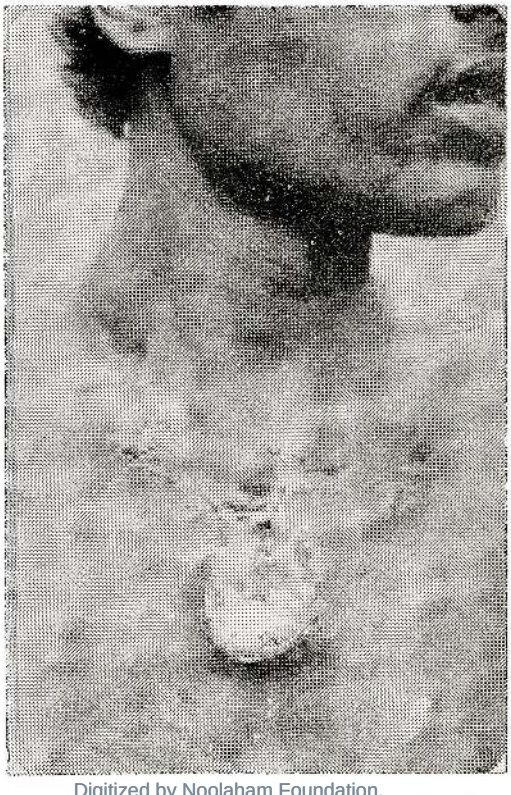

Fig. 5 (case 5) Scar in the neck and skin lesion over the upper part of sternum.

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She was given streptomycin 750 mg, isoniazid 300 mg daily and PAS 5 G bd for 3 months. Thereafter she is on streptomycin 1 G and isoniazid 700 mg given twice weekly. Complete healing of the skin lesion occurred after 6 months of anti tuberculosis chemotherapy.

Case 4.

A 30 year old female Tamil tea estate worker was seen at the Chest Clinic, Kandy on 17-9-1980 complaining of a discharging ulcer over the sternum of 1 month duration. One month earlier she had a warm tender fluctuant lump 5 cm in diameter at that site. That lump had been incised and "plenty of cream coloured pus" was drained at a nearby hospital. She had no cough. She had fever on and off and pain over the sternum and left side of the chest for 2 months. The pain was worse on deep inspiration.

On examination: there was no enlargement of the cervical lymph nodes. There was an ulcer —2 cm in diameter, the base reddened and oozing; the margin was bluish with undermined edges—situated 3 cm below the suprasternal notch. The discharge was purulent. Percussion note was dull and breath sounds diminished over the lower half of the left side of the chest. Cardiovascular, gastrointestinal and nervous systems were clinically normal. Xray of the chest showed evidence of pleural fluid on the left side - more mediastinal than costal. There was no radiological abnormality in the sternum. WBC was 10500/mm^3 with 60% polymorphs, 34% lymphocytes and 6% eosinophils. ESR was 90 mm 1 st hour. Mantoux reaction was 18 mm. Blood for VDRL test was negative. Biopsy of the ulcer showed histological evidence of tuberculosis. Examination of the purulent discharge for AFB was negative on direct smear examination but positive by culture.

She was started on Rifampicin 450 mg daily, isoniazid 300 mg daily, pyrazinamide 500 mg tds and streptomycin 750 mg daily from 24-10-1980. By 29-1-1981 the ulcer had healed completely (Fig. 4). She is now being treated with ethambutol 800 mg and isoniazid 300 mg daily.

Case 5

A 40 year old Tamil male tea estate worker was seen at the Chest Clinic, Kandy on 7-10-1980 complaining of a skin eruption over the front of the upper part of the chest of 6 months duration. One year and two months earlier he was admitted to a hospital near his home for treatment of a lump —3 cm in diameter in the right side of the neck—of 6 months duration. The lump was aspirated and blood stained fluid was withdrawn. The lesion healed in 20 days and he was discharged from hospital. Within 6 months of going home he noticed induration extending from the site of aspiration downwards and inwards to the front of the chest.

On examination: there was no enlargement of the cervical lymph nodes. There was a scar of healed ulcer over the right side of the neck. Over the upper half of the sternum there was a rectangular shallow pink patch 7 cm × 5 cm. The surface was moist, the margin bluish and edges undermined (Fig 5). All round the patch there were irregular areas of pigmentation and thickening. Respiratory, cardiovascular, gastrointestinal, nervous and skeletal systems were clinically normal. Xray of the chest showed clear lung fields. Lateral Xray

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of the sternum showed no abnormality. WBC was 12,200/mm³ with 66% polymorphs, 34% lymphocytes. ESR was 110 mm 1 st hour. Mantoux reaction was 14 mm. Blood for VDRL test was negative. Discharge from the ulcer was negative for AFB by direct smear examination and by culture. Histological report on biopsy of the skin lesion was "lupus vulgaris".

He was started on streptomycin 750 mg, isoniazid 300 mg and ethambutol 800 mg daily. After 3 months of this regimen the ulcer healed completely. He is now on twice weekly streptomycin 1 G and isoniazid 700 mg.

Discussion

There were 3 females and 2 males among the five patients reported here. Their age range was 30 to 72 years. Three of them were Tamils and two were Sinhalese.

All five cases had tuberculosis of the skin over the sternum-confirmed by biopsy and histological examination. The discharge ftom these lesions was negative for acid-fast bacilli by direct smear examination. Acid-fast bacilli were isolated by culture of the discharge in only one case-thus illustrating the difficulty in demonstrating acid-fast bacilli in the discharge from these lesions.

The lesions were those of scrofuloderma in all five cases. In two cases there was in addition, clinical and histological evidence of lupus vulgaris. The appearances suggestive of scrofuloderma were chronic painless discharging sinuses in cases 1 and 3; and ulcers with bluish margin and undermined edges in cases 2, 4 and 5. The appearance suggestive of lupus vulgaris was large pink area of the skin as in cases 3 and 5. Lupus vulgaris in these two cases was really an extention of scrofuloderma[1].

Cases 3 and 5 had clinical evidence of preceding tuberculous involvement ef lymph nodes and skin of the neck on the right side. The cutaneous tuberculous lesion over the sternum in these two cases was an extension downwards of the infection from right-sided tuberculous cervical lymph adenitis. Case 1 had radiological evidence of tuberculosis of the sternum, The skin lesion in this case was an extension outwards of tuberculosis of the sternum. Case 4 had clinical and radiological evidence of tuberculosis of the left pleura - more mediastinal than eostal. The lump she developed over the sternum was an empyema fluid which was drained. The empyema necessitatis led to the development of scrofuloderma. Case 2 had a cutaneous lesion in a distant place like the perineum similar to the lesion over the sternum. There was no evidence of tuberculosis of any adjoining tissue. The occurrence of such multiple cutaneous lesions each far remote from the other suggested a haematogenous origin of these lesions[1].

There was no evidence of active or arrested chronic pulmonary tuberculosis in any of these cases.

Acknowledgement

We wish to thank Dr. R. M. R. S. Ratnayake of the Department of Pathology, Faculty of Medicine, University of Peradeniya for the histology reports.

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Torsion and Haemorrhage in A Malignant Ovarian Tumour

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P. Thayalasekaran MBBS (Cey.).**

Summary

A case of malignant ovarian tumour in a 65 year old post menopausal woman complicated by torsion and haemorrhage is reported. Uneventful recovery followed total abdominal hysterectomy and bilateral salpingo-oophorectomy and adjuvant cyclophosphamide (Endoxana) therapy.

Introduction

Although torsion of an ovarian tumour is a fairly frequent occurence found in about 12% of ovarian tumours which are operated upon, this complication is rare with malignant tumours (1,2). Of course torsion causes haemorrhage into an ovarian tumour but occasionally a massive haemorrhage complicates an ovarian cyst particularly a malignant one(3).

Case Report

Mrs. M. V. a 65 year old woman was referred to us on 10 January 1981 from a Surgical Unit 'to exclude a gynaecological cause for her acute abdomen'. She complained of sudden onset of severe lower abdominal pain, colicky in nature of one day's duration and also gave a history of knowledge of a lower abdominal lump that had been increasing in size over the past one year. Her pregnancies, six in all, were uneventful and since her menopause 18 years ago she had no vaginal bleeding. On examination the patient was in acute pain and very pale. The pulse rate was 108 per minute and the B. P. 80/40mm Hg. The abdomen was distended and very tender. There was a lump arising from the pelvis, corresponding in size to a uterus of about 20—22 weeks gestation, the surface of which was irregular. Vaginal examination confirmed a pelvic lump, ovarian in origin. On a clinical diagnosis of torsion and/or haemorrhage of an ovarian cyst, possibly malignant, an immediate laparotomy was decided upon after initial resuscitation which included blood tranfusion. Laparotomy revealed the presence of free blood, about 750 ml, in the peritoneal cavity, haemorrhage into the cyst and on its surface together with torsion of the tumour which involved the left ovary. The tumour measured about 15 cm × 15 cm × 7 cm had an irregular surface and a hard consistency. The pedicle, which had undergone a twist of about 2½ turns, was clamped without untwisting and the tumour removed. A total abdominal hysterectomy and salpingo-oophorectomy of the opposite side was then performed. Clinically the tumour appeared to be Stage I, with no evidence of secondaries in the pelvis, omentum or the liver. A total of 3 pints of Group 'O' blood was transfused and the patient made an uneventful recovery after surgery. The Pathologist confirmed the tumour as a serous cyst adenocarcinoma with

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the right ovary showing a serous cystadenoma. The uterine endometrium was reported as showing senile cystic change. Adjuvant chemotherapy was given to the patient, according to the following regime. Cyclophosphamide (Endoxana) was administered intravenously in a dose of 200 mg. daily, monitored by daily white cell count and platelet count, until the patient showed signs of 'toxicity', viz, leucopenia below 4000 per cu.mm and / or a thrombocytopenia below 100,000 per cu.mm. She was discharged from Hospital on recovery from the 'toxicity' on a maintenance dose of 50 mg cyclophosphamide (Endoxana) three times a day, orally, bi-weekly. Although she attended our Clinic for follow up regularly for the first few months, she defaulted thereafter.

Discussion

The interesting features of this case are the occurence in the same patitent **three** well known complications of ovarian tumours, viz, axial torsion, haemorrhage and malignant change. The other important point that this case illustrates is the fact that in a female presenting with an "acute abdomen" the gynaecological aspects of the acute abdomen should always be considered. In our patient the acute abdomen was due to torsion and haemorrhage of an ovarian cyst. Torsion is most frequent with a fibroma, mucinous cyst, dermoid or broad ligament cyst, being rare in malignant ovarian tumours as they are usually fixed by adhesions.

Ovarian cancer remains the most lethal variety of gynaecological malignancy (4) and accounts for more deaths than cancer of the uterus (cervix and body combined), ranking only behind colon and breast in causing death from malignancy in the female. The extent of primary surgery for ovarian carcinoma varies with the stage of the disease. For tumours readily amenable to complete resection, such as Stage I and II, total hysterectomy with bilateral salpingo-oophorectomy is the surgical procedure of choice. This was what was done in our patient. Because of the risk of involvement of both ovaries, the need for bilateral oophorectomy in all post menopausal patients with malignant ovarian disease must be stressed although the other ovary may look normal. One of the most important features of endometroid ovarian cancer is its association with concommitant endometrial carcinoma (5). It is suggested that the logical explanation in such cases is multifocal simultaneous primary tumour formation in a common Mullerian derived field (4). Although in our patient the malignant ovarian tumour did not histologically prove to be an endometroid carcinoma, involvement of the endometrium could not have been excluded at the time of laparotomy. Thus considering the fact that our patient was post menopausal, the traditional and uniform hysterectomy and bilateral salpingo-oohorectomy was fully justified.

The need for some adjuvant chemotherapy in early ovarian cancer should be well recognised (4) and today many centres have accepted the routine role of chemotherapy as an adjuvant to surgery in early (Stage I) ovarian carcinoma. On this basis our patient too was given a course of prophylactic cyclophosphamide (Endoxana) but unfortunately our patient defaulted regular follow up.

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Correction

Therapy amoebiasis—Recent advances March 1981 issue (Vol. XVI - No. 1) on page 35, Left Colum, bottomn line.....2·0 G of ORNIDAZOLE was 26·3% should read as.....2·0 G of ORNIDAZOLE was 96·3%

Editor

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Acute Osteomyelitis in the Region of the Sacro-Iliac Joint in Children

Dr. Chanaka Wijesekera, M. B., B. S., M. Ch. Orth., F. R. C. S.+

Summary

The clinical features of eight children with acute osteomyelitis in the region of the sacro iliac joint are summarised. Careful clinical examination will ensure early diagnosis and prevent the condition being confused wtth other inflammatory lesions, particularly septic arthritis of the hip Tenderness in the region of the sacroiliac joint with intense pain on the affected side on lateral compression of the pelvis were two important signs present in all cases. Surgical exploration of the region of the sacroiliac joint, and the evacuation of inflammatory material, in association with a combination of erythromyoin and cloxacillin, administered orally, till the ESR returned to normal was the method of treatment in all cases.

Acute osteomyelitis in the region of the sacroiliac joint is rare. It is often difficult to localize the lesion early; and the condition is frequently confused with inflammatory intra-abdominal lesions, hip sepsis and spinal inflammations. For these reasons it was considered appropriate to present the clinical features of eight children with acute osteomyelitis in the region of the sacroiliac joint, and discuss their special features.

Clinical Material

Eight children, seven males and one female, whose ages ranged from 4 years to 14 years, were treated for acute osteomyelitis in the vicinity of the sacroiliac joint at the Orthopaedic unit in Kurunegala. A summary of the clinical details of these patients are shown in Table I.

All eight patients were admitted with fever, had a neutrophil leucocytosis and an elevated ESR, signs which indicated an inflammatory lesion. Cases 1, 2 and 3, were initially diagnosed as having septic arthritis of the hip joint, and they were treated with a combination of Erythromycin and Cloxacillin given orally. The diagnosis was revised in these three patients when pain became localised to the affected sacroiliac region, which was also swollen and tender. The swelling extended to the gluteal region as well. In case 4, the initial diagnosis was a urinary tract infection. This patient was given 250 mg of Ampicillin orally every six hours. Urinalysis and urine culture were negative, and there was no response to treatment. An alternative diagnosis had to be looked for. Both sacroiliac joints became painful and tender. Radiological examination of the pelvis showed irregularity of the margins of both sacroiliac joints associated with radiolucency and sclerosis (Fig. I). These features indicated a diagnosis of bilateral sacroiliac disease. In case 2, a pelvic X-ray taken four weeks after admission to hospital, showed similar changes in the affected sacroiliac region (Fig 2).

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In cases 1 to 4, at the time of diagnosis, lateral pelvic compression produced pain in the sacroiliac region on the affected side (bilaterally in the fourth case). In cases 5 to 8 too, (in whom the correct diagnosis was made soon after admission) this was a positive finding.

Blood cultures grew no organisms. Penicillin resistant Staphylococcous aureus was isolated from the pus drained at operation in only three cases.

In seven cases pus was drained from the vicinity of the sacroiliac joint. In case 2, the correct diagnosis was made after a delay of over two months, and soft grannulation tissue, which was histologically shown to be inflammatory (non-tuberculous). was removed from the region of the affected sacroiliac joint.

Discussion

Gilmour (1962)[1] cited one example of acute osteomyelitis in the region of the sacroiliac joint out of 328 patients with acute osteomyelitis, while Morgan and Yates (1966)[2] reported on patient in 616. More recently, Beaupre and Carroll (1979)[3] reported an incidence of 2·3% (20 patients) in 867 children with haematogenous osteomyelitis. They also described three syndromes of iliac osteomyelitis in children. They are :

(1) **Lumbar disc syndrome :** Pain in the lower part of the back and hip with difficulty in walking was the presenting symptom. These children were often investigated for a presumed spinal lesion, or suspected septic arthritis of the hip joint.

(2) **Gluteal syndrome :** The chief features were pain in the buttock with a palpable mass.

(3) **Abdominal syndrome :** Symptoms and signs suggested an inflammatory lesion within the abdomen.

Seven of the eight cases reported here had the features of the lumbar disc syndrome, which was also the largest group in Beaupre and Carroll's series In the present series, three patients with the lumbar disc syndrome (ie the first three in the series), had on admission clinical features resembling this syndrome, but when they were diagnosed as having acute osteomyelitis in the region of the sacroiliac joint, their clinical featnres had changed to resemble the gluteal syndrome. Hence it is possible that the gluteal syndrome is merely a later stage of the lumbar disc syndrome.

One patient had features of the abdominal syndrome.

In the first four cases of this series there was a significant delay before the correct diagnosis was made. An awareness of the condition eliminated any delay in the remaining cases,

In all at the time of diagnosis, careful clinical examination revealed tenderness adjacent to the sacroiliac joint involved and intense pain on the affected side when the pelvis was laterally compressed. The latter sign is eonsidered a specific clinical test.

Radiological examination of the pelvis in the early stages of the disease is not of any help. It has been observed to be so in most reported cases [3&4].

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Table — I Showing a summary of the clinical de

Case No.	Sex	Age in Yrs	Date of Admission	Presenting Complaints	Positive Clinical Findings on Admission	ESR mm/hr
1	M	5	1-2-1979	Fever. difficulty in walking.	Painful limitation of all hip movements on the left side.	130
2	M	14	16-8-1979	Fever, pain in the right hip, limp.	Flexion deformity and limitation of all movements of right hip.	103
3	M	8	18-1-1980	Fever, pain in right groin.	Painful limitation of all hlp movements on the right side.	28
4	M	13	17-8-1980	Fever, generalised abdominal pain, Vomiting.	Tenderness in both lumbar regions.	70
5	F	4	21-11-1980	Fever, pain in the left hip and limp.	Limitation of all hip movements on the left side, Tenderness in left sacroiliac region & pain on lateral pelvic compression.	60
6	M	4	27-11-1980	Fever, pain in left hip	Limitation of all hip (L) movements, Tenderness in (L) S I region, pain on lateral pelvic compression.	85
7	M	11	22-12-1980	Fever, low baekpain.	Redueed spinal movements, tenderness (L) SI region pain on lateral compression of pelvis.	88
8	M	5	26-3-1981	Fever painful limp.	Limitation of all hip movements (L), Tender (L) S I region, pain on lateral, pelvic compression.	64

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mary of the clinical details of the eight patients

Findings on on	ESR mm/hr	White cell count	X-Ray Finding	Initial Diagnosis	Date of Final Diagnos	Findings at Surgery	Pus Culture	Discharge
l hip movements	130	16,400 N-84%	Nil	Septic Arthritis of left Hip	15-2-79	Pus	No growth	15-3-79
d limitation of t hip.	103	14,800 N-60%	Earlynil Late-yes (fig 1)	Septic arthritis right hip	20-10-79	Grann: tissue.	do	14-11-79
ll hlp movements	28	16,200 N-76%	Nil	Septic arthritis right hip	2-2-80	Pus	do	4-3-80
mbar regions.	70	18,600 N-66%	yes (fig 2)	Urinary Tract Infection.	2-9-80	Pus	do	18-10-80
o movements on ess in left sacroi- on lateral pelvic	60	14,200 N-74%	Nil	Sacroilitis - L/S	21-11-80	Pus	S. aureus	29-12-80
o (L) movements, region, pain on sion.	85	14,800 N-81%	Nil	Sacroiltis - L/S	27-11-80	Pus	S. aureus	29-12-80
nents, tenderness lateral compress-	88	12,400 N-59%	Nil	Sacroilitis - L/S	22-12-80	Pus	No growth	14-1-81
o movements (L), , pain on lateral,	64	12,000 N-73%	Nil	Sacroilitis - L/S	26-3-81	Pus	S. aureus	2-5-81

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Fig. 1 "Acute osteomyelitis of the SI region in Children"

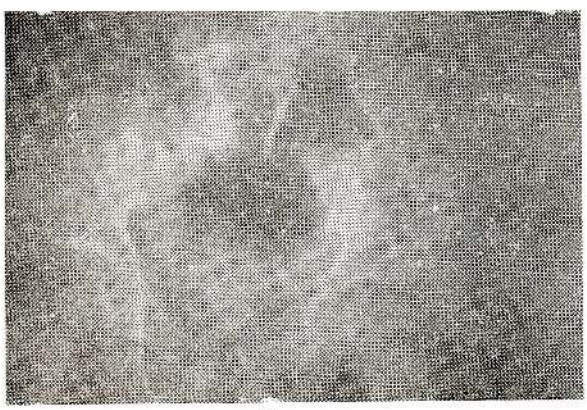

Fig. 2 "Acute osteomyelitis of the SI region in Children"

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Most of the patients in this series had been given antibiotics before admission to hospital, and is probably the reason for the high proportion of negative cultures.

In all the sacroiliac joint region was surgically explored and inflammatory material evacuated. Sherrard (1971)[5], recommends exploration of both the inner and outer side of the joint region. In this series except in case 3, exploration was from the outer side. in case 3. the sacroiliac joint was explored from the inner side only, because it followed a negative arthrotomy of the hip, and was technically the easier approach.

As treatment, Beaupre and Carroll[3] recommends 400mgm of Methicillin per Kg of body weight per day or 70 mgm of Cephaloridine per Kg of body weight per day given intra venously in four divided doses for three weeks, followed by Cloxacillin 1-4 gms per day according to body weight, orally in four divided doses till the ESR returns to normal. The regime adopted in this series was, surgical drainage with an antibiotic combination of Erythromycin (50mg/Kg body wt/day) and Cloxacillin (100mg/Kg body wt/day) orally in divided doses till the ESR returned to normal.

Acknowledgements

I am grateful to Dr. Maxie Fernandopulle, MRCP., DCH., Consultant Paediatrician, Kurunegala, for referring three of the patients in this series.

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A Study of Certain Epidemiological Aspects of Sexually Transmitted Diseases in Patients Attending Anti-V. D. Clinic, Jaffna, Sri Lanka from June 1980 to August 1980

Dr. T. Arulanandam, D. P. H. (U. K.)*

Summary

Retrospective study of certain aspects of the epidemiology of Sexually Transmitted Diseases (STD) in the Division of the Superintendent of Health Services, Jaffna is made. The study includes an attempt to define the role played by Medical Practitioners (private) in the control of the diseases. The "high risk" group in the population under study is determined in respect to age, sex, marital status, employment, educational level and awarenes of Sexually Transmitted Diseases. Their role in the prevalance of the disease is also studied.

In the discussion reference is made to similar studies elswhere. In the light of all these findings certain recommendations are suggested to improve methods of clinical services, contact tracing, and Health Education.

Introduction

The Anti-Venereal Diseases Clinic situated in the premises of the Government General Hospital, Jaffna, covers the area of the Supdt. of Health Services, Jaffna. Geographically it involves the whole of the Peninsula and area extending up to Kilinochchy and the surrounding Islands.

According to the latest census figures the total population is 803,000(1). Two thirds of this is rural. Age distribution of the population is such that approximately half the people are between 15—54 years of age. In the rural areas cultivation is the commonest form of employment followed by fishing and working in various skilled trade. Traders form 12% of the rural population. An actual estimate of the extent of Education in the population was not possible, but records of studies done in unemployed persons show that 4% of the general population has passed G. C. E. Advanced Level, 20% has passed G. C. E. Ordinary Level and little less than 30% had studied up to standard 8.

In all these catagories males predominate whereas in those who have had no formal schooling, females prodominate. Literates form 36% of those who have had no formal schooling.

Venereal Diseases Control work is the responsibility of the Campaign and assistance is given in this field by other Health Agencies whenever necessary; specially in the field of Epidemiology and Health Education.

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In this study an attempt is made to detemine the extent of Sexually Transmitted Diseases in the population of Jaffna and its Epidemiology. "Repeaters" as defined by W. H. O. in 1977(2) are those who have had more than three infections within one year or those who have been reinfected within three months. The role played by this group in maintaining the incidence of the disease in the population, is discussed.

Materials and Methods :

One hundred patients, who had attended this clinic for the treatment of various Sexually Transmitted Diseases from 16th June 1980 to 6th August 1980 were interviewed for the necessary information required in this study, The interview was done by the Public Health Inspector first at the time of registration and again after the diagnosis of the condition for purposes of contact tracing.

Thirty one Western Medical Practitioners (private) were contacted by letter requesting for information on the number of patients treated for Sexually Transmitted Diseases during this period.

The results were recorded according to a previously prepared sehedule and are recorded in the body of the paper.

Information Recorded for Studies :

Schedule (1) Age :
0—2, 3—9, 10—14, 15—19, 20—24, 25—29, 30—34, 35—39, 40—49, 50—59, and above.

Schedule (2) Sex : Male, Female.

Schedule (3) Address of patient and locality of the contact., by M. O. H. area.

Schedule (4) Occupation :

A. Unemployed
B. Prostitutes (Female)
C. Labourers (Unskilled)
D. Labourers (Skilled)
Dl. Seafarers (Fisherman, Sea man etc.)
E. Professional Drivers (Trucks, Taxi cabs etc.)
F. Clerical Officers.
G. Traders.
Gl. Business men (Brokers, Contractors etc.)
H. Farmers
I. Members of Armed forces.
J. Staff Officers.
K. Housewives.
L. Students.

Schedule (5) Educatinal Status :

A. Illiterate,
B. Literate in mother tongue and formal schooling up to primary school level.
C. From primary to secondary school level (G. C. E. Ord. Level)
D. G. C. E. (Adv. Level) and above.

Schedule (6) Civil Status :

A. Married and living with family.
B. Married and living away from family for limited periods only.
C. Seperated legally and visits the family.
D. Living with partner, not legally married,
E. Single.
F. Widow or widower.
G. Divorced.

Schedule (7) Extent of knowledge of Sexually Transmitted Diseases.:

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A. Knows about methods of transmission, basic signs and symptoms of STD its complications and services available for its treatment.

B. Knows about methods of transmission basic signs and symptoms and treatment facilities available.

C. Knows about methods of transmission and basic signs and symptoms only.

D. Heard about STD.

E. Not aware of STD at all.

Schedule (8) Source of knowledge of STD.

A. Anti - V. D. Clinics.

B. Other Health Dept Agencies.

C. V. D, Literature issued by the Campaign.

D. Mass Media (News papers Magazines etc.,)

E. Friends and Associates.

Schedule (9) Source of referal of paietnts.

A. Law courts.

B. Voluntary.

C. By friends.

D. Follow up of old patients.

E. Referred from O. P. D., G. H., Jaffna.

F. From wards, Clinics, and other Govt. Hospitals.

G. Surveys.

H. Private practitioners.

I. Contact investigations.

Schedule (10) Source of Infection.

A. Prostitutes.

B. Casual acquintance.

C. Friends and neighbours.

D. Relations other than married partners.

E. Marital partners.

The diagnosis of the diseases was made on Internationally accepted criteria. Early infectious Syphilis was diagnosed clinically and confirmed by microscopy and Serology. Latent Syphilis was diagnosed on Serology using in addition to V. D. R. L. more specific tests such as fluorescent antibody for Treponema test and Treponemal Heamagglutination Test.

Gonorrhoea was diagnosed clinically and confirmed microscopically and by culture on Thayer-Martin medium. Non-gonococcal Urethritis was diagnosed after eliminating Gonorrhoea as a cause. Other known causes of Urethritis like Tricomonas and Candida were diagnosed on the detection of the organism on microscopy.

The detection of Chlamydia Trachomonitis and Herpes Genitalis was done only clinically as facilities were not available for the detection of this virus. Chancroid was diaganosed clinically and confirmed by the detection of the Haemophyllus Bacillus on Grams Stain smear or Una Pappenhiem stain. The diaganosis of presumptive Gonorrhoea was made on known contacts of patients with Gonorrhoea after negative clinical and Laboratory findings.

Observations and Discussion :

Morton in 1971 [3] has advised that any baseline study in Sexually Transmitted Diseases (STD) should be carried out at the local level taking into account the demography, geography and social behavioural pattern of people. The problem should be assessed in the light of the services already available for this in the public and the private sectors.

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The observations and discussions of the results of this study will therefore be done on the following pattern. :-

1. Extent of the problem, i. e. the prevalence of the disease and epidemiology in terms of age, sex, social status etc., and study of specific problem groups, e. g. the repeaters.
2. Factors affecting the maintanance of STD as a problem with reference to Internationally known factors and others peculiar to the District.
3. Existing services for the control of STD. i. e. extent and nature of clinic or Pathological services, epidemiological services and services available for Health Education.

Observation

Of the 31 Practitioners contacted, 17 replied and only 7 admitted to seeing patients with Sexually Transmitted Diseases during this period. The total number of patients with genital sores seen was two and those with Urethral discharge 22. These figures give a mean of 1·2 patients seen per practitioner during this period.

Of the one hundred patients seen in the clinic, the ratio of female to male patients was 1 : 2.7. This approximates with similar distribution seen in other developing countries. The complete absence of patients with late Syphilis is a notable feature. The ratio of patients with infectious syphilis to those with Gonorrhoea was (males) 1 : 3, and (females) 1 : 8. Finally a relatively large number of patients were seen with nonvenereal lesions affecting the genitalia.

The peak distribution of patients is in the 20 to 29 age group tailing off on either side towards 15 years and 34 years. In Gonorrhoea the distribution extends up to the 50 to 59 age group. This is also seen for nongonococcal urethritis, Herpes genitalis and non venereal conditions.

The distributions of patients as regards civil status reveals that those married and living with their families were equally at risk of getting STD as those who are single. However in the case of early infectious syphilis, single persons were more at risk and in latent syphilis and nongonococcal urethritis married persons living with their families were more at risk. Similarly in those diagonosed as having presumptive gonorrhoea and non venereal conditions, married persons living with their families were seen in higher numbers.

This study showed that 55% of patients had completed schooling up to G. C. E. (Ord. level) and 22% have had only their primary education. In those with infectious syphilis 18·1% were illiterate and 55% were educated up to G. C. E. (ord. level). In other words 14·2% of illiterate persons in this sample were at risk of getting infecttious syphilis and 56·8% were at risk of getting gonorrhoea.

27.2% of the patients with early syphilis had attended voluntarily and an equal number as a result of routine follow up by the clinic staff. 9.09% of the patients were referred by their friends. Among those with gonorroea 18·42% had attended voluntarily and 13·13% were referred by their friends, Only 1% was referred by the Private Practitioner

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and another 1% detected on screening. Law Courts referred 3% of our patiens.

Of those who attended voluntarily 25 2% were totally ingnorant about STD at the time of exposure, while of the total number 45% were ignorant of STD and had attended the clinic as a result of being referred by the O. P. D. of the Hospital or as a result of contact investigations. 47·3% of the patients who were aware of the disease at the time of exposure had got the information from their friends, while 26·3% had got their knowledge from Anti-V. D. Clinics through literature distributed by the clinic staff.

59·3% of the total patient group had been infected by casual acquintance and 17·23% by their marital partners. Prostitutes had been a source of infections to only 11·1% of the patients.

Of those infected by casual acquintance, 75% had been aware of the mode of transmission of the disease, while 77% of those infected by their marital partners were totally ignorant of the disease. This percentage was composed of wives of infected patients.

Traders form 30% of those infected by prostitutes. Of the house wives 75% had been infected by the marital partners. Wives had been the source of infection to 30% of our male patients who were in the unemployed (30%) unskilled labourers (30%) and professional drivers (25%) catagorie, Of those infected by casual acquintance, farmers and armed service personnel form the main group and house wives (12·5%).

Of the 73 males who were questioned on the effect of liquor and friends, 19% were infuenced by friends and 16% were under the influence of liquor at the time of exposure to infection.

35% of the contacts named were out side the S. H. S. Jaffna division, while 30% of the patients were from the Jaffna M. O. H. division. M. O. H. Kankesanturai area was the address given by 13% of the patients, and 6% came from M. O. H., Kilinochchi area.

45·45% of the patients from the Jaffna M. O. H. division had named their contacts from out side the Jaffna S. H. S. division. Patients from Kilinochchi area had named all their contacts from within the area itself.

Repeaters :

40% of the prostitutes, 18·5% of the skilled labourers, 33% of the professional drivers, 14·28% of the traders, and 13·3% of the house wives were classified as repeaters. Of the total number of patients 73% had got infected only on one occasion.

Among the repeaters the ratio of the female patient to the male patient was 1 : 1·5. Skilled labourers form 25% of the group, followed by house wives and farmers each forming 18·5% of the group. 50% of the patients in this catagory were married and 37·5% were single.

Among the repeaters 37·5% were educated up to secnndary school level and the same fraction wes also sufficiently aware of the Sexually Transmitted Diseases. Casual acquintances were the main source of infection in this group and only two out of the total group of 27 had been influenced by their friends into getting infected. One

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person was under the influence of liquor at the time of contacting infection.

Discussion :

The interpretation of the results of this study should take in to account the following factors :-

1. The small number involoved in the study.
2. The lack of facilities for diagnosing conditions like Herpes Genitalis and nongonococcal infection due to Chlamydia.
3. The poor response of the private medical practitioner in the estimation of the extent of the problem in the area.

Extent of the problem :-

The rate of syphilis for 1979 in the Jaffna S. H. S. division was 4·6 per 100,000 poulation and that of gonorrhoea was 21·7 per 100,000 population. The estimated population for that year was 790,000. At the time of the study the estimated population of the area was 803,000, and the rate of syphillis and gonorrhaea for the same period was 13·3 per 100,000 population nnd 25·3 per 100,000 population respectively. The possible reason for this rise in the clinic attendance could be attributed to the fact that the clinic had been in charge of a non Specialist officer and as such the full use of the facilities already available for case detection were not utilised. To estimate the full extent of the disease in the area not only attendance at the Govt. health agencies should be taken in to account, but also the number of patients seen by theprivate Medical Practitioners.

It should be bourne in mind that most Govt. Medical Institutions do not as a rule report cases of STD detected in their out-door and in-door patients, except those referred to the Vencreologists for speeialised diagnosis and treatment. Possible reasons for the poor response by private practitioners could be :-

1. Most private practitioners do not maintain proper records of their patients and hence unable to contribute towards stastistical estimation of the problem.
2. Diagonosis is usually clinical and therefore not accurate.
3. Most private practitioners are reluctant to disclose their source and extent of income.

As regards Govt. Health Agencics very few officers in charge of Institutions are aware of the legal responsibility of reporting these cases to the Medical Officer of Health for stastistical and epidemiological purposes. In most instances even the Medical Officer of Health is not aware of this legal requirement.

In most parts of the world more than 4/5 ths of the infected population seek relief from private practitioners. In Sri Lanka, Fernando(6) on an Island wide survey done in 1975 by questionairo method estimated that private practitioners saw at least three times the number of patients seen in Govt. clinics.

The ratio of male to female in this study is 2·17 : 1. This approximates to the figures found for the Island and for other developing countries. The larger number of males to females could be due to:-

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1. Jaffna is yet a man's world as stated by Holmes(7) in 1980, and so the male is in a position to be more promiscuous than the female.
2. Female fight shy more than males to disclose complaints affecting their genito urinary tracts.
3. Lesions in the genitalia of the females are easily missed due to the anatomical nature and in woman who are not particular about personnal hygiene, symptoms such as discharge P. V. can be ignored.

The male female ratio for early syphilis is 10 : 1, while that for latent syphilis is 1·3 : 1. This clearly indicates the extent of the number of females with early infectious syphilis missed out and also the part played by the screening of Ante-natal women and pre employment persons.

While young people from 20 to 21 years old formed the bulk of our patients, infectious syphilis appeared to be affecting the younger age group and Herpes, gonorrhoea and nongonococcal urethritis appeared more in the older age groups. A possible reason for this is that the younger people were more ready to attend the clinic for treatment while the older age group were constrained by social reasons for clinic attendance. In conditions such as gonorrhoea, non gonococcal urethritis and herpes, symptomes are severe enough to counter even these social constraints. Besides, treatment for gonorrhoea, nongonococcal urethritis and herpes as given by general practitioners is either inadequate or incorrect, while in the case of early syphilis the very fact that symptom subsides with or without treatment encourages the patients to feel that he is safe.

Being married and living with ones family did not seem to have provided any protection from the risk of getting STD in our patients. However in the case of Infectious Syphilis greater number of single patients were seen while married persons were seen in greater numbers for Latent Syphilis. The screening procedures (VDRL test) used in ante-natal and Pre-employment medical examinations seem to have some effect on this. Contact investigations are also helpful in detecting patients with Latent Syphilis.

22% of the study group had been educated up to Primary School level at the time of infection. Compared with the general population (Primary School level 30%) this appears to be a representative sample of the population of the area, as far is education is concerned. Infectious Syphilis and Gonorrhoea were seen more in illiterate persons (18·1% and 21·6% respectively). In the general population 14% was recorded as illiterate. It is also significant that no illiterate person was detected to have Latent Syphilis. A possible interpretation could be that illiterate persons were less aware of the presence of a genital sore in their sex partners and it's significance as regards the transmission of STD. Another reason could be that they were not bothered by the soeial implications of being seen in a V. D. Clinic and thus would attend the clinic for necessary help. Others in the other educational group could be seeking the help of private practitioners and if not treated fully may end up with having Latent Syphilis and be detected only when they

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attend the medical examinations at the ante-natal clinics or pre-employment purposes.

Screening provided only 1% of the cases in this study and this figure compares equally with that of the national figures as given in the Administration Report, 1978(4) of the S/A. V. D. C. The return from the screening could appreciably be increased by widening the extent of the screening programme to encompass the group mentioned in the previous paragraph.

While majority of the patients were those who were refered from the O. P. D. or brought on contact investigation or had attended on follow-up., 17% had attended the clinic direct on their own and 8% had been induced by their friends to seek treatment at the Govt. Clinic. It is significant that 75% of the patients who were refered through the O. P. D. claimed that they were ignorant of the disease at the time of infection. The Health Education on STD as given in the V. D. Clinics seem to have been the only significant source of knowledge for many. This however is "advice after the event". However this advice seem to have helped 73% of the people who did not get fresh infection. Another source of knowledge is friends and this group should be remembered when Health Education programmes are planned. Mass media have played a relatively minor role in Health Education in STD. Knowledge about STD is also seen as a factor in selecting the sexual partner. Prostitutes had been the source of infection for nearly 70% of the male patients in the Island and in certain towns like Anuradhapura as reported in the S/A. V. D. C. report, 1968(4) and in a study of a similar nature done in the Anuradhapura S. H. S. area, 1976 - 77(5). In this study only 11·1% of the patients had been infected by the prostitutes while casual acqaaintance was the chief source. Knowledge about the consequences of associating with known prostitutes had prompted these patients to have liason with casually promiscuous persons. In 1961 the Islands figures show that 61% were infected by the prostitutes. Among male students in the Benares University in 1976, a study had shown that of 1500 persons 57·6% had been infected by the prostitutes. The reasons attributed to the role of casual acqaintances in transmitting these diseases could be the lack of socially recognised brothels, the social repercussions of being seen openly with a known prostitute and the presence of number of cinema halls which provide convenient meeting places for the casually promiscuous male and female. The social attitudes towards extra-marital sex, also seem to be the reason why 35% of the contacts were named outside the division, the chief places being Vavuniya, Anuradhapura and Clombo, and also South India. Willcox in 1979(9) attributes travel as one of the causes for the lack of control of STD. In this study we find that traders, skilled labourers and others like professional drivers, sailors etc. get infected with STD during their travels and on their return infect their wives also, if they had not got satisfactory treatment for their ailments before hand, However in the case of some, house wives themselves (12·5%) had infected these patients on their return. Travel could be either from the village to the Jaffna town or could be within the Island or could be inter national. These groups

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should be specially looked in to when treatment fascilities are arranged.

M. O. H. Jaffna town and M. O. H. Kankesanthuri were noted to have the greater number of eases, while town area with its numerous cinema halls, hotels etc. provided facilities and opportunities for the casually promiscuous people to mix. Promiscuous women from various other places, make use of the town area for this purpose. In Kankesanthurai the presence of the cement factory, the harbour, C. G. R. work shop. the Army Camp etc. is an area where "immigrant" workers are concentrated and these people being out of their normal surroundings change their behaviour patterns. Kankesanturai is also a training area for Family Health Workers (Public Health Midwives) and so the work of all field staff is under constant supervision and case finding and contact tracing is bound to improve. The presence of convenient transport from K. K. S. to town area also encourages patients to attend the V. D. Clinic at the Jaffna Hospital in greater numbers. These factors are mostly reversed in the Kilinochchi area where due to poor transport facilities to the Jaffna town most patients seek treatment locally. As it is a recently colonised area, farmers and traders live there on a semipermanant basis and get infected from casual contacts there itself.

The W. H. O. in 1977 defines the repeater as one who has had more than three fresh infection within an year or one who has been re-infected within three months (2). These patients, both male and female, form a central whirl pool of infection, which is self perpetuating as they frequently infect each other and in to this a large number of outsiders are drawn in. Among the females, the prostitutes run a professional risk of and transmitting STD. The wife of a promiscuous man is the other in this category She gets multiple infections from her promiscuous husband either as a innocent or a ignorant party and she forms a source of re-infection to her partner again, if untreated. Among the house wives 11·1% were infected with Gonorrhoea and 23% with Syphilis. Among the prostitutes, 55·9% were infected with Gonorrhea and 22·7% with Syphilis. These figures could be explained by the fact that at present reliable screening tests are available only for Syphilis in the case of house wives where as in the case of prostitutes as they are subject to mor freqent examinations in the V. D. Clinics. even cases of asymptomatic or ignored symptoms of Gonorrhoea are detected. This brings to light the necessity for routine examination of house wives for Gonorrhoea and other STD in ante-natal, Gynae Clinics etc.

In the males sea farers, traders, skilled workers, long distance professional drivers form the pool. By nature of their employment, they are cut away from their normal responsiblities and also have more opportunities for casual sex. This category of persons due to their poor knowledge of STD usually get improperly or inadequately treated and also fail to get their partners treated. The proportion of females in the repeater group is significantly higher than that in the main group.

The repeater group were also less educated than the study group and the population in the area. However due to

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repeated visits to the V. D. Clinic, their knowledge of STD was adequate, though it did not prevent them from getting repeated infections from casual contacts, who seem to have been the chief source of infection. In this group consumption of liquor and the influence of friends seem to have played a very minor role in getting STD, and their risk of getting STD appear to be part of their Socio Psycho and Economic behaviour pattern.

Recommendations :

Case findings and clinical services :

Improvement of the existing clinical services should be made by increasing the number of inservice training programme of Medical Officers in the Government and private sector. In addition to giving information to these persons on the proper methods of diaganosis and treatment available, they should be informed of the legal responsiblity of reporting these cases to the Medical officer of Health for epidemiological and Stastistical purposes. Para Medical staff such as Assistant Medical practitioners, Nurses, Public Health Inspectors and Family Health workers should also be trained to detect and refer these cases in the normal course of their duty.

Medical Education should include and widen the scope of training Medical students and Para Medical students in the field of STD and more stress should be made on the Epidemiological factors which affect the control of the disease. This should include the role played by the asymptomatic male and female cases.

Screening proceedures which are at present limited only to those Ante-natal clinics which are conducted at the General Hospital, Jaffna should be extended to all the Ante-natal clinics in the area. In the field where a trained nurse may not be available, the Family Health Worker could be trained to use the vacutainer equipment to draw the blood for V. D. R. L. This equipment is designed to eliminate the risk of air embolus during venepuncture. This should be done under the supervision of a Medieal Officer.

Gynaecological clinics. Family planning clinics, should be places where screening of the least suspected patients should be done regularly not only for syphilis (blood for V. D. R. L.) but also for Gonorrhoea Tricomoniasis and other causes for STD. Patients presenting with symptoms of pelvic inflamatory disease should specially be screened for this purpose. The use of Transgrow culture media could be helpful in this respect.

Juvenile delinquents prostitutes and others in the above average risk groups should be screened either voluntarily or with the help of the legal Department under the provisions made in the contagious diseases ordinance of 1867.

Laboratory facilities for the proper diaganosis of STD should be extended to the private sector also for a nominal fee. Rapid tracing and early treatment for contacts has been proved to be one of the essential factors in the control of the disease. At present two systems of tracing contacts are adopted in this area:-

1. Known contacts are brought or referred by the patients themselves through (contacts) slips which are issued to the patient to be handed over to the contact.
2. Casual acquintances are traced through a epidemiological report

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sent to the relevant M. O. H. This report contains details of the contact which are recorded for the purposes of identification, as given by the patient.

Considering the incubation period for Syphilis, Gonorrhoea and other STD these methods are grossly inadequate as a lot of delay is involved in the transmission of the message by post to the area P.H.I.

In Jaffna area Male Officers who are required to trace and advise these female contacts, are reluctant to do so, due to various social repurcussion. The family health Workers in their new role are ideal Officers for making inquiries, advicing patients, specially the female contacts regarding STD. The contact slip method could be utilised by all doctors to refer contacts of their patients for proper treatment. In all cases full examination should be made in both male and female contacts and specimens taken for microscopy and culture even if hey are asymptomatic. Epidemiological ttreatments of these contaets should be done with caution so as not to violate the principle of "diagnosis before treatment". It should be confined to only to admitted contacts of diagnosed patienes with STD. Once given the epidemiological treatment, they should followed up for the full period which should cover the incubation period of Syphilis.

A personal booklet issued to the patients who are always on the move either within the Island or outside, where information regarding treatment facilities available in each Town, and patients' records of previous STD, treatment given etc. is noted, could be of use in those patients in whom long term therapy or follow up is necessary. This has been used for sailors by W. H. O. and adopted for use within the country with some succes in U. K.

Health Education :

Knowledge of STD plays a definite role in forming health directed behaviour pattern in most people. Health Education at present seem to be given in significant amounts only to those who attend the V. D. Clinic for illnesses already contacted and to their friends. The target group should be the 15—30 years age group. That is the school leaver and those in the category of those seeking employment. The Existing facilities could be made use of to increase this knowledge. The school teacher should be considered seriously in this role. Training of these people in the transmission of knowledge should be done to include other health related matters such as the use of tobacco, liquor, drugs and dangers of promiscous behaviour. The Sheffield([10]) experiment in 1959 in this field and its benefits seen in 1964, should be adequate proof for this idea.

Morton in 1966([11]) quotes Lord Cohen committee report of 1964 on this matter. He advices that planning a Health Education programme should take into account the following aspects :-

1. Advice on various aspects of preventions of diseases.
2. Education which leads patients to know when and where to seek proper treatment at the time of need.
3. Advice aimed at attempting changing of habits and attitudes towards promiscuity and STD in the population.
4. Support of the community Health measures.

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Psycho-Organic State In Marfan's Syndrome

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Summary

A case of Marfans syndrome presenting with episodic delirium and full recovery is described. The probable aetiology of the psychiatric symptomatology is discussed.

"Marfan's syndrome is an inherited disorder of the mesenchyme manifested by abnormalities of the skeleton, the eyes and the cardiovascular system and probably due to a defect in the elastic fibres."[1] "Involvement of the connective tissues of the large arteries, cardiac valves and other cardiac connective tissue elements determines the cardiovascular manifestations of these disorders"[2]. Foster and Foster[3] reporting a case of bronchiectasis associated with Marfans syndrome commented that pulmonary abnormalities amounted to about 10% in the disorder. Intracranial aneurysms with cerebral thrombosis have already been reported in association with Marfans syndrome.[4,5] Epenetos and Collis[6] described a case of seminoma with Marfans syndrome. El Defrawi and El Shewi[7] described a family of three siblings two of whom suffered from multiple neurofibromatosis while the third suffered from Marfans syndrome.

Case History

Mr. H, age 49, was admitted to Whittingham Hospital on 26-11-1980 in a state of excitement following hydrocelectomy on 21-11-1980.

Patient was born on 27-1-1931. His father, a basket maker by occupation collapsed suddenly and died six weeks after the birth of the patient. He was six feet four inches in height and was blind in the years before his death. Patient's mother, five feet seven inches in height, is eighty years old. She suffers from rheumatoid arthritis. Patient's paternal grandfather was described to be five feet eight inches tall.

There was no history of epilepsy, mental subnormality or mental illnesses in the family. The patient, an only child to his parents, was full term at birth and his delivery was normal. He reached his milestones at the appropriate ages and started schooling at the usual age of five years, After the death of his father, his mother started work as a waitress. His grandfather, who took an interest in the family, supported patient during his infancy and childhood. Patient's performanee at school was described as average. He failed the II+ examination and left school at the age of fifteen to join a well known engineering firm as a tool setter. Here he attended evening classes to prepare for the National Certificate in engineering examination. Though he passed some of the preliminary examinations, he failed to obtain the diploma.

During his student life at school and later when he started work, he

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became keenly interested in religion. He reported that he first had his spiritual experience when he was still a student at school. The experiences were described as "born again experience", feeling of intense joy and happiness. "God became real and close". etc. He believed that these experiences were divine in origin. At the age of twenty, he passed the local preachers' examination and applied to the Methodist Mission to join as a Parson but he was not selected. As a schoolboy at the age of fourteen, he was friendly with a girl whom he loved. The friendship lasted for about two years, he did not have any sexual relationship with her. He met his present wife at the age of 29 and married her when he was 31 years. They are mutually devoted to each other and the marriage has been a happy one. His two sons, aged 15 years and 14 years suffer from Marfans syndrome. The elder is six feet nine inches tall and has heart and joint disease. The younger of the two is six feet four inches in height and is less handicapped than his brother.

Mr. H. has continued to serve his engineering firm for the past 35 years. He is a teetotaler and a non-smoker. He prefers to live alone and away from company. He is calm aad friendly during conversation and is liked by the family and friends. He has been a devout Christian and an interested preacher.

Previous Illnesses

Mr. H was first admitted to Whittingham Hospital on 25-1-1957. On admission he heard hallucinatory voices telling him "Please write and read" "preach", etc. He spoke about God and said that Jesus has called him to be the loeal preacher. Sometimes he wept and wanted to kill himself; at other times, he became violent and assaultive accusing people of being against him and his principles. He thought that his enemies wanted him to abuse himself by masturbating in hospital. He violently attacked a nurse and was considered a homicidal and a suicidal risk. Red blood cell count, white blood cell count. hemoglobin percentage and erythrocytic sedimentation rate were all within normal limits. Wesserman reaction and sputum for tubercle bacilli were negative. Radiographs of chest and skull showed no abnormality. He was treated with injections of reserpine and deep insulin coma and discharged on 22-8-1957. At the time of discharge, he had recovered completely and was advised to resume work. The patient underwent surgery for right inguinal hernia in 1963 and the recovery was uneventful. Mr. H was readmitted to Whittingham Hospital on 5-12-1970. He was agitated and his speech was partly incoherent. He identified himself as "Joseph" and "Jacob" and believed that he was a great genius. Red blood cell count, white blood cell count, erythrocytic sedimentation rate and radiograph of chest were found to be normal. Fasting blood sugar was 112 mg per 100 ml and serum urea was 25 mg per 100 ml. In Ravens progressive matrices, he scored an IQ of 97 reaching the same level in Mill Hill set A. He was less motivated to complete set B. He was treated with Haloperidol, Chlorpromazine and a eourse of E. C. T. and was discharged on 22-1-1971 to resume work in March 1971.

The hernia on the right side recurred and three surgical repairs were done between years 1970 and 1975. The

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recovery was not complicated by psychtic episodes. The left slded inguinal hernia was repaired in 1976 and the recovery was uneventful.

Present Illness

On his presnt admission to Whittingham Hospital on 26-1I-1980, he was agitated and apprehensive. He complained of voices speaking to him but was unable to elaborate on what was said and admitted that he could not understand the words he heard. He expressed the fear that the operated hydrocoele might in fact be cancer. He was prescribed Chlorpromazine 100 mgm tds and Temazapam 20 mg nocte. On 28-11-80 patient attempted suicide by choking himself with his thumb. He was sedated with Diazepam given intravenously. On I-12-80 he was observed to be withdrawn and thoughtful and talking to himself, on 3-12-80 he became acutely excited and injured his healing operation scar. Injections of Haloperidol and Diazepam were prescribed on this occasion. On 4-12-20 he appeared perplexed. He repeated to himself "What have I done ?", "Why do they keep on sending for me ?". Amytryptiline 50 mg. tds and Ampicillin 500 mg tds was started on 4-12-80. On 5-12-80 he had lucid intervals during which he was quiet, orderly and co-operative. He spoke of his divine experiences in childhood and denied any current perceptual disorders. He was aware of his surroundings but said the date was 27th Jan 1981. He could not recall the period of stay in hospital and found it difficult to recall an address two minutes after hearing it. He was able to recall the name of the Prime Minister and the newly elected leader of the Labour party (election took place before his admission for surgery). On 6-12-80 he slipped into an acute psychotic excitement and injured his operation scar. He said he saw God who appeard like the sun. Temperature recorded on 4th, 8th and 9th of December was 37·5 degrees C, 37 degrees C and 35 degrees C, respectively. He was transferred tc the security unit where he was prescribed large doses of Parenterovite, Haloperidol and Diazepam. He improved gradually and on 9-12-80 all medications were omitted and he was transferred to the open ward. He was discharged from hospital on 19-12-80. The writer interviewed him again on 2-1-81 and 5-1-81. He had recovered completely and was pleasant and co-operative at interview. He could not recall events from 26-11-80 to 9-12-80 There was an almost total gap in memory for this period.

Physical Examination

Mr, H was 6 feet 8 inches tall. Length from crown to pubic sympysis measured 2 feet 10 inches and the length from pubic symphysis to sole of feet measured 4 feet. The arm span was 7 feet 4 inches. The hands showed features of anachnodactgly and pesplanus of feet was observed. Distensae striae were seen on the skin over the shoulderand inguinal region. Mieschers elastoma was not observed. Operation scars were seen in the inguinal region and the scrotum. Patient wore glasses to correct his myopia. Ectopia lentis was not observed. Pulse was 88 per minute and regular. Blood pressure was 130/20. A palpable thrill was felt in the fifth left intercostal space and a pansystolic murmur was maximally heard on the apex and was conducted

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to the axilla. Breath sounds were vesicular and no adventitious sonnds were present. Abdomen was soft. There was no enlargement of liver or spleen. Optic fundus was normal. Cranial nerves, motor and sensory system and the reflexes were all normal.

Investigations

(table I) Table I shows the results of the laboratory investigations carried out on the patient. The radiographs of chest, skull and lumbar spine were normal. Computerized axial tomography showed a mild excess of cerebrospinal fluid over the cerebral hemispheres. The electroencephalograph was dominated by fast activity in the beta range. The random theta activity observed was not excessive. There was no obvious asymmetry in the amplitude of the beta frequency waves. Electrocardiographs showed evidence of recent anterior myocardial infarct and ventricular hypertrophy. On the Wechsler Memory Scale, patient scored a memory quotient of 77. On the Benton Visual Retention test, he reproduced 5 out of 10 designs correctly. The expected score was 7 out of ten. He made 9 errors in the five incorrect designs when the expected number of errors were 5. The memory tests were done on 28-11-80 and 2-12-80. On 14-1-81 he scored verbal IQ of 110, performance IQ of 104 and a full scale IQ of 108 in WAIS.

Discussion

The disgnosis of Marfans syndrome is supported by genetic, clinical, pathological and biochemical features recorded in the report. The psychotic symptoms were characterized by excitement, disturbances in memory with lucid intervels, auditory hallucinations and delusions. Though the clinical picture had a distinct schizophrenic and affective colouring presumably determined by his previous personality, the organic nature of his illness was unmistakable at least during the last admission.

The fragmentation of elastic component of the aortic media and the loss of the parallel orientation of smooth muscle and the appearance of mucoid pools with destruction of medial muscle and connective tissue has been reported in Marfans syndtome.[8] Similar findings have also been reported in the intracranial blood vessels of patients suffering from Marfans syndrome.[9] Such a vascular pathology is likely to be the basis of this patient's symptoms. Thege was no evidence of a generalized pyaemia though culture from the hydrocelectomy scar showed a heavy growth of Ecoli and bacteroides species.

On more than one occasion patient's illness followed surgery under anesthesia. DeBono and Warlow[10] studying 117 patients who had focal cerebral dysfunction lasting for less than 24 hours and diagnosed as transient ischaemic attacks concluded that structural cardiac abnormalities particularly that of mitral valve were etiologically significant in the production of cerebral ischaemic events. 37% of patients who had carotid angiograms had significant arterial lesions and six in the series forming 10% had both carotid disease and structural cardiac disease. Thrombosis, embolism from diseased mitral valve or necrotic endocardium, changes in cerebral haemodynamics during anaesthesia may singly or in combination have contributed to a transient cerebral ischaemia leading to the present illness. No attempt was made

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Table I

LABORATORY INVESTIGATIONS

Blood and Serum		
Hemoglobin g/dl	13·9	
Erythrocytes $10^{12}/l$	4·59	
Leucocytes $10^{9}/l$	5·6	
E. S. R. (mm/hr)	25·0	
PCV	·407	
MCV fl.	090	
MCH pg	30·5	
MCHC g/dl	35·1	
Sodium	146	M. MOL/L
Potassium	4·5	M. MOL/L
Chloride	111·0	M. MOL/L
Bicarbonate	24·0	M. MOL/L
Urea	4·7	M. MOL/L
Creatinine	107·0	μ. MOL/L
Iron	7·5	μ. MOL/L
Ion Gap	15·6	M. MOL/L
Inorganic Phosphate	1·03	M· MOL/L
Urate	0·33	M. MOL/L
Total Bilirubiu	15	μ. MOL/L
Total Protein	68	g/l
Albumin	40	g/l
Globulin	28	g/l
B 12	207	ng/l
Polcacid	332	Micro g/l
Urine - paper chromatography	Normal Aminoacid Pattern.	
Bacterial culture frem the hydrocelectomy scar	Heavy growth of E Coli Heavy growth of bacteroides species	

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to demonstrate the arterial pathology by cerebral angiography. However, the present illness is unlikely to be a chance association with this rare disorder. This is probably the first reported case of a psychotic illness in Marfans syndrome.

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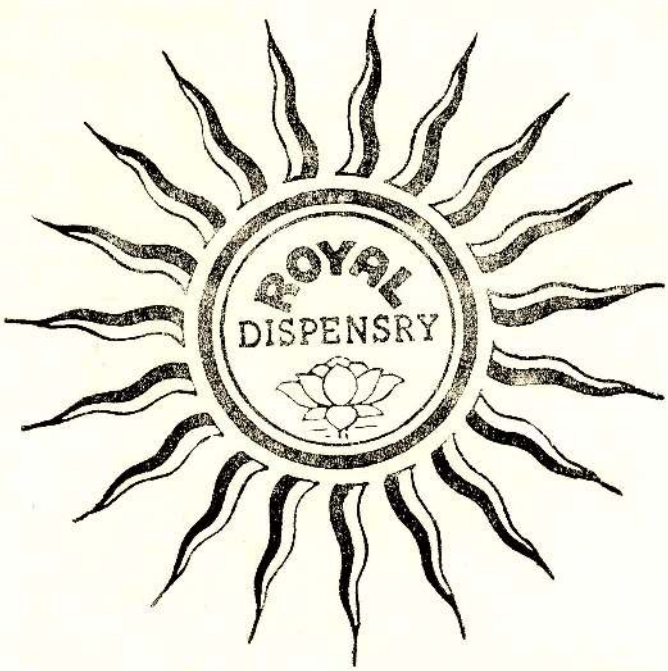

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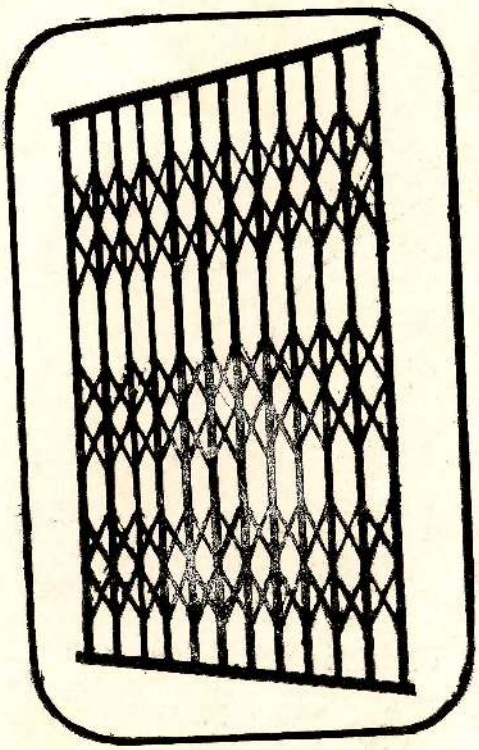

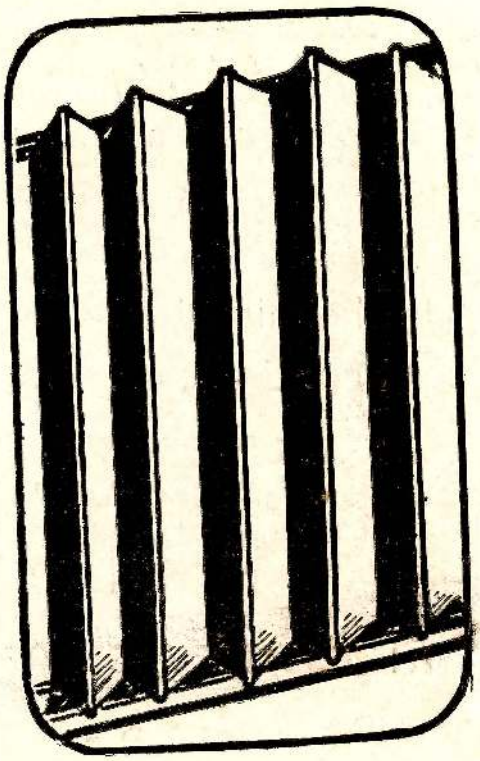

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