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Editorial Board

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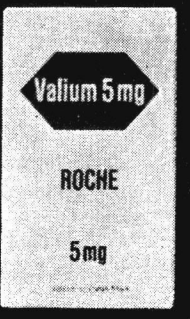

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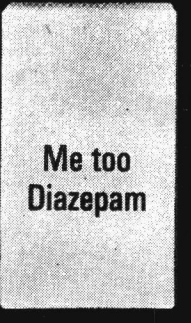

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Editorial

Problems of continuing medical education in a developing nation

by Lim Kee Jin

IT IS A TRUISM that medical men of today have to keep up with the advances of medicine in order to enable them to practise their profession properly. This implies that doctors must be orientated towards the idea of continuing medical education as a permanent feature of their professional life. To a large extent, this is self-education, supplemented at intervals by refresher courses and training courses. Self-education can be visualised as two processes: firstly, the observation and study of phenomena such as disease; secondly, the regular reading of books and journals.

Medical educators have already accepted that students should be trained to continue their education themselves after they leave their medical schools and the implementation of programmes designed to secure this aim should already have taken place in most universities.

While so much lip service has been paid to the need for continuing education, when one looks at the situation from the viewpoint of a young medical graduate working in this country, what are the facilities that are available? He can, and often does, subscribe to one or two medical journals on his own. If he is a member of the Malayan Medical Association, he receives a copy of the Medical Journal of Malaya and also the Singapore Medical Journal through a mutual exchange arrangement. Apart from a few text books which he may purchase now and then, these form the basic reading of most of the general practitioners.

What about the medical officer working in Government service? In the larger hospitals of this country, there are library facilities of some kind, mostly inadequate and poorly organised through lack of funds and staff, except where some dedicated person makes it his personal responsibility. In the smaller district hospitals, library facilities are sadly lacking in most cases. Reference books, if available, are often the cast-offs from some medical officer's collection. Journals that may be found in larger hospitals seldom find their way to district hospitals. Yet, it is in these very hospitals that there is the greatest need for some good journal and up-to-date reference books since the doctors are isolated from professional colleagues and libraries.

Provision of adequate library facilities appears to

be an urgent necessity for the district hospitals to enable the medical officers to keep in touch with medical progress and give of their best. To assist the Government in obtaining the most for its money, members of the medical profession should set up a committee to recommend a basic set of books and journals suitable for a district hospital, another for a general practitioner, with suggestions for expanding the "core" of basic books when funds are available. The assistance of a medical librarian would be extremely useful in this connection.

Quite apart from the problem of inadequate library facilities is the question of adequate leisure for the doctor to read. In this respect, both the hard-worked general practitioner and the overworked medical officer in a small district hospital are in the same situation. They are likely to be too tired and exhausted during their short periods of leisure that the thought of reading a medical text or journal is anathema. We can only hope that the general practitioner will find more time for his reading and that medical officers can get time off occasionally to keep up. The latter situation can only improve when the medical services are adequately staffed.

One method of attempting to overcome the lack of time for reading is to utilise summaries and abstracts. A number of journals of abstracts are available for the busy doctor and enable one to obtain a rapid, though superficial, survey of the medical scene. Some annuals and year books serve the same purpose but are a little more detailed and probably more suitable for the purposes discussed above.

A number of publications put out by large drug firms and also a new type of journal distributed free to members of the medical profession but supported by advertisements have established high standards in design, presentation and formulation of articles. Colourful, made interesting with numerous illustrations and well written, they tempt the doctor away from the often drab and severe appearances of the usual journals. Some offer abstracts of current articles published in scientific journals, others present succinct summaries of common diseases and their management. They also offer articles of wider interest embracing the arts, crafts or literature in their glossy productions. I suspect that a fairly large majority of our members obtain their entire mental sustenance from them, but should we complain if they are presented so attractively and also provide their readers with the information that they should have? The danger lies in the subtle presentation which may sow a bias in the reader's mind, particularly if his reading is solely confined to this kind of literature.

Alas, I do not see any protection against this form of psychological influence except by teaching our medical students and doctors to be more critical and to read more widely among other journals and books in order that they can then have a basis for comparison and critical assessment. We still have a long way to go before we reach that stage but it is an ideal well worth aiming for.

Treatment of thyrotoxicosis with radioactive iodine: A report on 137 cases

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INTRODUCTION

ALTHOUGH RADIOIODINE has been used in the treatment of thyrotoxicosis for the past 27 years, its exact place in the management of thyrotoxicosis is still not clear. The effectiveness of radioactive iodine in treating thyrotoxicosis depends on its localisation and retention in functioning thyroid tissue which is then subjected to radiation by Beta and Gamma rays. The maximum range of the Beta Particle is 2.0 mm and since it contributes 90% of the total dose, there is no significant damage to the extrathyroidal structures, such as the recurrent laryngeal nerve or the trachea. Silver, after experience with 4,000 cases treated over 22 years, feels that every case can be controlled with radioiodine therapy; the difficulty is that although this is possible, it does not necessarily arise that every case should be so treated. One has to consider radioiodine together with surgery and drug therapy. The selection of patients, choice of dosage and dosage schedules, delay in controlling symptoms of toxicity, rising incidence of myxoedema and these are the chief points of discussion.

Goldberg and Chaikoff's work on rats with radioiodine had brought out the question of carcinogenesis. Goolden's report of carcinoma of thyroid in children following external radiation to the neck had further cast doubts on the safety of radioiodine with respect to the remote possibility of carcinogenesis. However, over 200,000 cases of thyrotoxicosis have been treated to-date and there appears to be no risk of carcinoma arising from the use of radioiodine.

Similarly, the risk of leukaemia has been brought forward but Pochin (1960) showed that there was no increase in the risk of leukaemia. Lawrence (1967) has recently confirmed this finding. Sterility and genetic hazards do not arise from radioiodine and there have been reports of normal pregnancy and normal babies following inadvertent use of radioactive iodine treatment in pregnancy (McGuirr 1964: 3 cases – Bloomfield 1959 – Werner 1957). In fact, the total body dose, and the dose to the gonads following a therapy dose of radioactive iodine are comparable to routine procedures in radiology such as a barium meal examination or flouroscopy (Weijer, Duggan and Scott 1960).

METHODS AND MATERIALS

At the Department of Radiotherapy and Nuclear Medicine here, radioiodine therapy for thyrotoxicosis has been offered for the past ten years. As patients are referred by doctors all over the country, the follow-up was inadequate. This report is based on 137

cases who had good follow-up records and who were all reviewed recently. The selection was purely on this basis but one cannot ignore the possibility of a bias towards those who responded well – as those who did not respond may have defaulted. Before treatment was started, all patients had a standard clinical assessment carried out, the therapeutic index (T I) described by Crooks, Wayne and Robb (1960).

In every case, a tracer study with the 4 or 6-hour uptake, 24-hour retention, and the 48-hour PBI 131 was carried out. The size of the thyroid gland was assessed clinically and by means of a thyroid scintigram. Cases were classified as nodular or diffuse. Eye signs were present in 2/3 of the cases and this was noted; also the presence of cardiac signs and symptoms and, where indicated, an ECG was done. All cases were admitted for the treatment, and cardiac patients were hospitalised for a longer period. During the initial period, patients were seen once a month but once symptoms were controlled they were seen at longer periods. Uptake studies and the chemical PBI were done to assess thyroid status during follow-up although the clinical picture was often quite clear. Blood cholesterol was also done to help in detecting cases developing hypothyroidism.

RESULTS

(1) Racial composition of cases studied.

Sex	Malay	Chinese	Indians	Others
Male	9	14	3	4
Female	9	89	4	5
Total	18	103	7	9

It is clear that Chinese are the predominant group involved. There is also the 5-to-1 female predominance, 107 females to 30 males. In all female patients, a careful menstrual history is essential and the therapy dose should be given immediately after a period to avoid giving it inadvertently to a pregnant subject. Lactation should also be a contraindication in the female. Many of the patients in the series had normal pregnancies and normal babies following treatment with radioiodine and this is of course not contraindicated. It appears from the above figures that the female to male ratio is higher among Chinese.

(2) Age groups.

Age	20	20-29	30-39	40-49	50-59	60-69
No	0	1	22	64	38	12

The majority of patients treated have been in the group between 40 and 49. Our youngest patient was 29 years old. There was a very big number over 50 years. It is recommended that the treatment should be reserved for patients over 40 years. Due to the shorter life expectancy and the earlier reproductive ages of local populations, this may be, in fact, lower for this country. In Silver's series, the youngest patient was four years old, with severe diabetes mellitus. One-third of his patients were less than 40 years old. Werner also had a similar number under 40 years. But very few authorities today treat patients less than 20 years. (De Gown 1959 and George Crile at the Mayo Clinic treat children with radioiodine). Hyperthyroidism in the aged, especially the thyrocardiac, is the prime indication for radioiodine therapy – where age is the chief factor.

(3) Size and type of gland.

Diffuse Thyroid	121
Multinodular	3
Solitary Nodule	12
Substernal Goitre	1

The majority of glands were diffuse. Some of the diffuse glands were quite large. There were 12 solitary nodules in the series. Of course, it is possible not all the solitary nodules were true Plummers disease or autonomous nodules and some of them were really areas of increased activity in a diffuse gland. The nodular glands were common in the older patients. One substernal goitre in an elderly lady of 69 was treated with radioiodine with good results. The small diffuse gland is, of course, the ideal one for treating with radioiodine and in almost all, there was significant reduction in the size of the gland. Nodular glands are unsuitable for therapy with radioiodine because of the risk of malignancy (actually less than 5%), also because of difficulties in dose estimation.

The distribution of radioiodine is patchy in a nodular gland; certain areas are radiated more than others although these are, in fact, the active areas; further estimation of gland weight is difficult because of retrotracheal, retrooesophageal and retrosternal gland extensions. Although nodular cases are not easily controlled, the risk of hypothyroidism is lower and McCullagh (1954) and recently Hamburgher (1967) have recommended treating these cases with single large doses of radioiodine. In the series here, all the 12 nodular cases responded well and there were no difficulties or complications.

(4) Recurrence following surgery.

Twelve patients had recurrent thyrotoxicosis following surgery and all of them were easily controlled with radioiodine. One case had two attempts at thyroidectomy. The average dose needed for these cases was 4 mCi and was less than the dosage needed for the rest. Gland size is often difficult to estimate clinically and although the scan helps, an arbitary low dosage is preferable, as the risk of hypothyroidism is higher. Results of a second thyroidectomy in relapsed cases were poor (McLarty et al 1969 100% relapse rate after 2nd operation).

(5) Other indications for therapy include failure of medical treatment due to drug sensitivity, irregular patient, or relapse after medical treatment. This is the largest group (see Table 4). A recent study from Glasgow by McLarty showed that in cases of thyrotoxicosis which relapse after a course of drugs, 77% relapsed if a second course of drugs is given. In contrast, only two of 44 patients who had surgery relapsed. Radioiodine therapy is the other alternative and in this group the chief risk hypothyroidism.

Elective as first treatment		10
90 cases failed medical treatment	Drug sensitivity	11
	Relapse	69
	Irregular treatment	10
Refusal for surgery		
Recurred after surgery (2 after 2 attempts)		12
Co-existing diseases	Carcinoma (Cervix 4)	5
	Heart disease	2
	Diabetes	1
	PTB	1
	Hansons	1
	Other complications	3
Severe Exopthalmos		1

Table 4 – Indications for treatment

It is clear that many of the patients have had a course of antithyroid drugs before radioiodine. Crooks, Buchanan, Wayne and MacDonald (1960) found that Methyl Thiouracil given before radioiodine therapy reduced the number of patients who were cured with a single dose and also the average total dose needed is higher. Bloomfield and others (1959), with a smaller number of patients, did not notice any such difference. It is possible that more patients would have responded to a single dose if radioiodine had been used straightaway. At the same time, our low incidence of hypothyroidism may be related to the pre-treatment with drugs that the majority had.

(6) Dose calculations.

A tracer study was carried out to determine the dose retained, the thyroid weight was estimated with the aid of the scintigram and clinical assessment and a dose calculated to deliver 7,000 rads to the thyroid was administered. In post-thyroidectomy cases, we had to use an arbitary low dose.

Single dose	45
2 doses	27
3 doses	38
4 doses	16
more than 4 doses	11

Table 5 – No. of Doses needed

The majority of patients, 47, received an initial dose of from 4 – 6 millicuries and were controlled. There were no significant side effects. Most patients did not notice any changes during the first week. The earliest response was at the end of three weeks. There were quite a number who reported a sudden improvement at this time. Tenderness over the gland, cyctitis and parotitis were seen infrequently. Nearly all the cases had some improvement after the therapy. Many patients after the initial improvement relapsed.

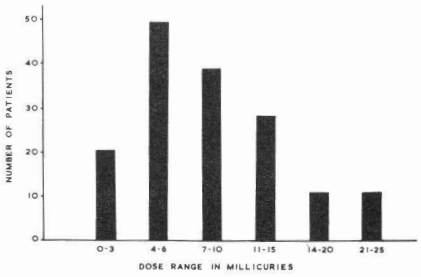

Fig 1: Total dosage needed

As shown, only 1/3 of the patients were cured with a single dose. Rubenfield cured 88% with a single dose, Sheline & Miller cured 59% and Silver quotes a figure of 50%. It is clear that the size of the dose is a critical factor. Thus in Green & Wilson's study of full dose and ½ the dose, 43% were toxic after the full dose at one year, whereas 64% were still toxic at the end of one year after the ½ doze. Apart from the size of the dose, pre-treatment of patients with antithyroid drugs may necessitate more doses and total dosage – this was the case with many of our cases. However, as will be pointed out by the low

incidence of hypothyroidism, there may be other factors at work – racial, dietary, etc. The highest dose needed was 25 millicuries for a nodular gland.

(7) Control of symptoms.

At the end of one year, 16 of 37 patients had persistent toxicity; 21 were euthyroid. Our results confirm reports (Crooks 1963, Green & Wilson 1964) that there is a noteworthy morbidity with radioiodine in the form of persistent toxicity and long periods needed to control the toxicity. MacGregor also gives a figure of up to 40% with persistent symptoms albeit much improved following radioiodine after 6 – 12 months. The problem of management of the patient during this period depends on his condition, especially the cardiovascular situation. Use of antithyroid drugs has been tried but the difficulty in assessing the patient's improvement makes this inadvisable. Giving further doses of radioiodine to the patient who is gradually improving is likely to encourage hypothyroidism. Recently, we have put some of these patients on the Beta adrenergic blockers like Propanalol ("INDERAL") with good results. Most of these patients, having suffered from hyperthyroidism for many years, are prepared to wait, and are thankful for even the limited improvement at this stage.

(8) The Thyrocardiac.

Fifteen of the 137 patients had a trial fibrillation. This corresponds to the 10% incidence reported by Means, De Groot & Stanbury 1964. The majority of the 15 cases needed more than one dose to control the toxicity. In two recent cases, there was severe exacerbation of of cardiac failure after about two weeks following the therapy dose of radioiodine. Three out of the 15 patients reverted to sinus rhythm spontaneously after the toxicity was controlled. The remaining cases were much improved though three of them needed to go on digoxin and diuretics for a prolonged period. Sandler and Wilson (1959) found 1/3 of their series reverted to sinus rhythm. Sandler and Wilson did not mention paroxysmal, a trial fabrillation, which is a very important feature in many of these cases.

The apparent reversion may really be a spontaneous case of sinus rhythm. Staffurth (1965) found ½ of the patients reverted to sinus rhythm following control of the toxicity with radioiodine. Compared to these figures, surgery gives a higher figure of reversion 75% but then patients who undergo surgery are usually younger and are not comparable.

The problem of the patient with persistent atrial fibrillatid following radioiodine therapy is that there are dangers like embolism and cardiac failure if the atrial fibrillation is untreated. In practice, most of the patients are quite well despite persistent fibrillation. A form of persistent heart disease may persist after successful treatment of thyroxicosis (Staffurth Gibberd et al 1965) post-thyrotoxicosis cardiomyopathy. Reversion in this situation may not help much. The possibility of this developing is a good reason why all cases of thyrotoxicosos with heart diseases should be promptly treated (Hudson 1959).

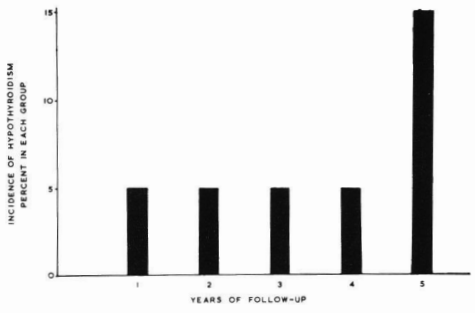

Fig 2: Percent of Hyperthyroid in each group

(9) Hypothyroidism.

The overall incidence of hypothyroidism at the end of five years was 14% in this group. There were no cases of hypothyroidism of 37 treated at the end of the first year. These figures are highly significant compared to results reported elsewhere. Beling and Einhorn had a 7% incidence of hypothyroidism at the end of one year and a rise of 3% per year to a figure of 30% at the end of seven years. Greigs, Crooks & MacGregor show that 25% became hypothyroid after a single dose of radioiodine. In Green & Wilson's study, a dose calculated to deliver 7,000 rads and not repeated led to a 29% incidence of hypothyroidism at the end of five years. The comparable figure for the ½ dose group is 5%.

It is clear that the low incidence of hypothyroidism in our group of patients cannot be explained purely in terms of low dosage. Although the amount of radioiodine dosage administered may be the same the radiation delivered to the thyroid gland is dependent on:-

1. Effective half-life of iodine in the body.
2. Weight of the thyroid gland.
3. Geometry of the thyroid gland.

It is possible that these may be different in our patients – for example, the effective half-life iodine may be shorter than the assumed six days due, for

example, to excess renal loss. The other factor, of course, is the radiation sensitivity of the thyroid. This may be more resistant to radiation in these patients. Lastly, many of our patients have been pre-treated with antithyroid drugs (Crooks et al 1960). It is interesting to note that in a recent study from Japan (Shizume 1968) an incidence of 8.4% at the end of ten years was recorded of hypothyroidism. The author feels that this low figure might be due to the high iodine content of the Japanese diet. It is possible that similar dietetic factors may be at play in this group, too, although racial factors may also be operating.

(10) Eye signs.

Two-thirds of our patients had eye signs. Only one patient had severe exopthalmos and radioiodine was given because of this. The eye signs in this case have regressed. No cases of exacerbation of eye signs have been observed in this group. As Hamilton et al point out, there would appear to be no special advantage from the eye point of view for radioiodine as compared to surgery or drugs. Recently, Koutras et al (1965) have shown in a controlled trial that the choice of treatment in these cases may be radioiodine with L Thyroxine.

SUMMARY

1. 137 patients treated and followed up over the past five years with radioiodine for thyrotoxicosis have been studied.
2. The biggest group of patients was over 45 years.
3. Only 1/3 of patients were controlled with a single dose of radioiodine calculated to deliver 7,000 rads to the thyroid.
4. All the patients were ultimately rendered euthyroid.
5. An incidence of 14% of hypothyroidism at five years was noted.
6. The findings have been discussed with reference to literature on the subject.
7. Radioiodine therapy is an effective treatment for thyroxiticosis. Local factors are important.
8. The low incidence of hypothyroidism and the smaller number of patients who could be controlled with a single dose was observed. In line with similar findings in Japan various racial, dietetic and other possibilities are explained.

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Clinical applications of renal arteriography

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Introduction

THE FIELD OF UROLOGY is unique in that practically every part of the urinary system usually can be adequately visualised, either by direct instrumentation or X-ray contrast studies. Intravenous urography, however, is often limited in that it outlines only the pelvi-calyceal system, and lesions in the renal parenchyma must be inferred from it. When the kidney is not functioning, intravenous urography may contribute little to the precise diagnosis of the lesion. Retrograde pyelography usually does not add much to what can be seen on intravenous urogram and in obstructive conditions may be contraindicated. Renal arteriography is an invaluable addition to the radiodiagnostic techniques in urology, as a study of the vascular pattern in the renal parenchyma may contribute to a more precise and confident diagnosis beyond what is usually possible by intravenous urography.

Technique

The technique used is that of percutaneous transfemoral catheterisation. The procedure is performed under local anaesthesia on the sedated patient. The use of image-intensifier-television control provides the improved visualisation required for selective arteriography, and also minimises total screening time. Rapid serial filming of adequate duration permits detailed sequential study of the entire renal circulation, including the venous phase which is of particular interest in the angiographic evaluation of renal tumours.

In general, two methods are available:

(1) Selective renal arteriography

(2) Aortography.

(1) Selective Renal Arteriography

This provides the best demonstration of the intrarenal vascular pattern, unobscured by overlying branches of the abdominal aorta. It is therefore the preferred method.

(2) Aortography

Preliminary aortography has the following advantages:

(a) Demonstration of multiple renal arteries will require the selective injection of each artery, in turn or simultaneously, for complete visualisation of the intrarenal vascular pattern.

(b) Demonstration of displacement and distortion of the renal artery by a large tumour mass will influence the choice of a suitable catheter shape.

(c) Where doubt exists as to the renal origin of a retroperitoneal tumour, demonstration of its vascular supply by an aortic injection will ascertain the appropriate artery to catheterise.

(d) Demonstration of an unsuspected lesion in the contralateral kidney.

We do not feel, however, that these advantages justify the routine performance of preliminary aortography in all patients. With few exceptions, our own practice has been to proceed with initial selective renal arteriography, followed by aortography only where indicated, or occasionally when attempted selective catheterisation of the renal artery has been unsuccessful.

There is little place for aortography alone.

Arteriographic Findings

The value of arteriography lies in:

(1) demonstrating the presence, or otherwise, of a space-occupying lesion when evidence on plain abdominal film and on excretory urography is inconclusive;

(2) determining whether a tumour, already demonstrated on urography, is benign or malignant;

(3) assessing the operability of an established malignant lesion;

(4) eliciting the nature of a kidney lesion, the diagnosis of which may be totally unexpected, and

(5) delineating a retroperitoneal mass when there is doubt as to whether it is renal or extrarenal.

The following cases are presented to illustrate the applications of renal arteriography.

(1) Tumour Or No Tumour?

Case 1 (Figure 1)

A 33-year-old male Chinese presented with right loin pain, dysuria and hematuria of one week's duration. Physical examination revealed no abnormal findings. Intravenous urography showed a definite bulge of the upper outer quadrant of the left renal contour. The underlying calyces, however, did not appear to be displaced or distorted. A superficial subcapsular tumour was considered. On selective left renal arterio-

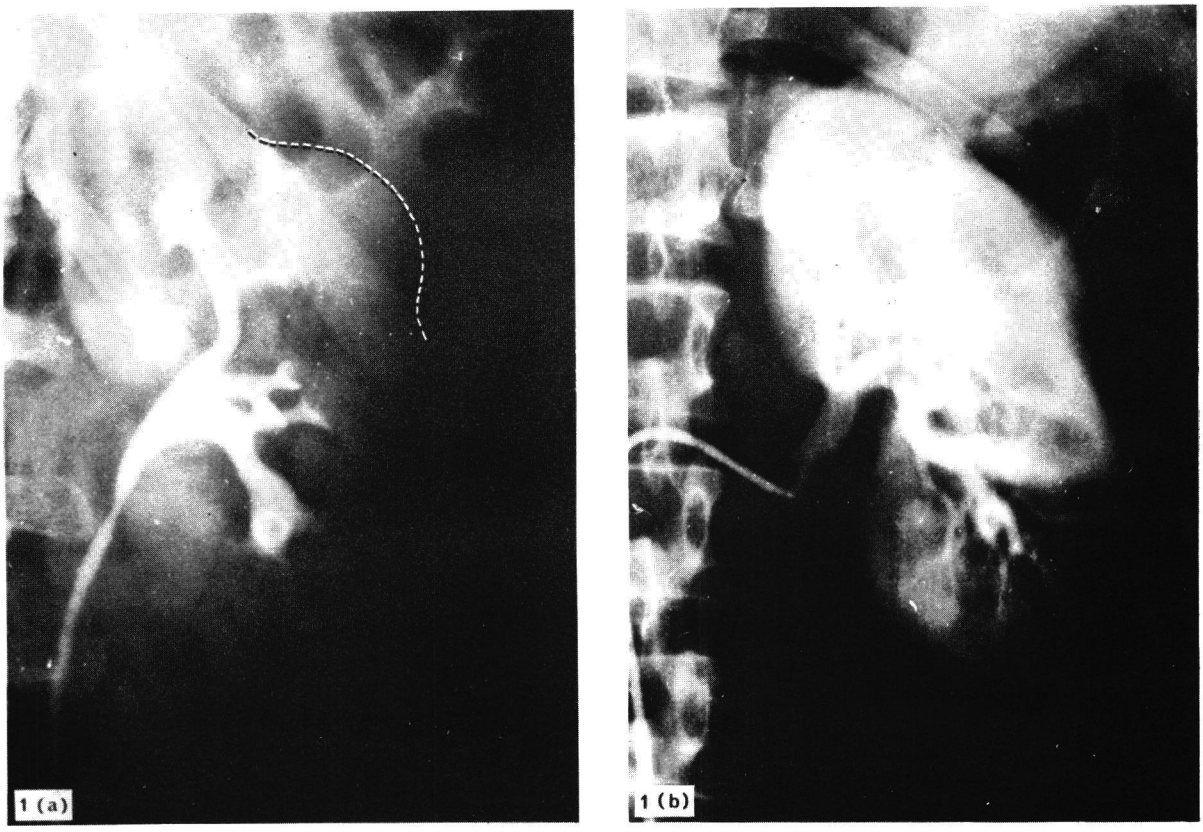

Fig. 1: (a) Intravenous pyelogram shows bulge of upper outer quadrant of left renal contour with normal pelvi-calyceal pattern, suggesting a superficial subcapsular tumour. (b) Renal arteriogram demonstrates normal left kidney with unusually prominent cortical lobulation.

gram, there was no evidence of tumour. The abnormal outline of the left kidney was seen to be due to an unusually prominent cortical lobulation. Subsequently, the patient's urine cleared and his symptoms subsided. The final diagnosis was urinary tract infection. In the absence of renal arteriography, surgical exploration of the right kidney would have had to be undertaken on the basis of his initial symptoms, urinary findings and intravenous pyelogram.

(2) Benign Or Malignant?

Case 2 (Figure 2)

A 69-year-old male patient was admitted with prostatomegaly. An intravenous urogram, carried out as part of his preoperative evaluation, showed stretching and displacement of the upper calyces of the left kidney suggesting the presence of a mass. Selective left renal arteriogram showed an avascular, round mass, measuring 4 cm. in diameter, in the middle third of the left kidney. This was sharply demarcated from the surrounding normal parenchyma and had the typical appearance of a benign renal cyst. A similar lesion was present in the lower pole. No operation on the kidney was required. The management of this patient was thus simplified.

Case 3 (Figure 3)

A 51-year-old male Chinese complained of intermittent left loin pain of seven months' duration, not associated with hematuria. Plain abdominal film and intravenous urography showed a left renal calculus and a mass in the upper pole of the left kidney. Selective left renal arteriogram demonstrated this to be a large avascular mass. The sharp demarcation between the renal parenchyma and the mass gave the 'shoulder' appearance typical of a benign renal cyst. At operation for the left renal calculus, the diagnosis of renal cyst was confirmed. Pyelolithotomy afforded the opportunity to confirm the arteriographic findings. Surgery would not have been undertaken for the mass alone, as the diagnosis of renal cyst was firmly established on arteriography.

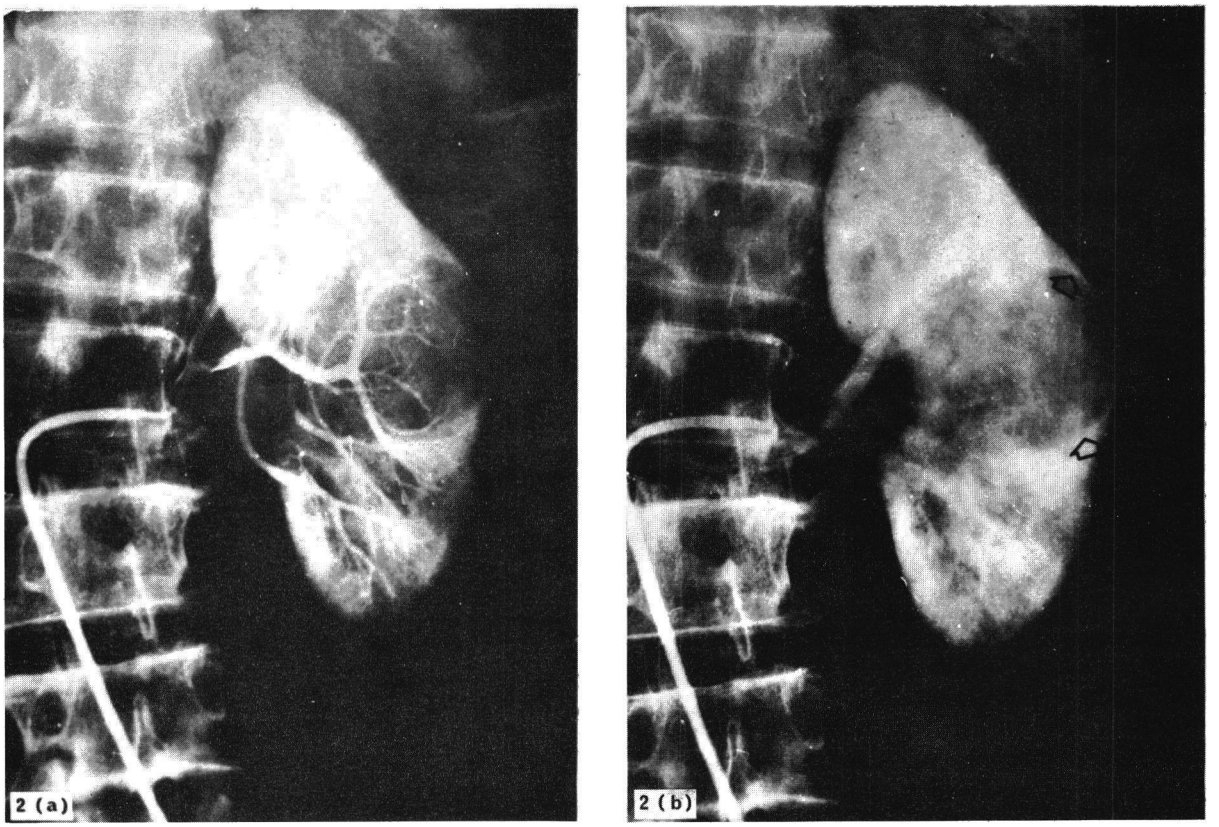

Fig. 2: Left renal arteriogram: (a) arterial, and (b) nephrogram phases showing typical appearance of renal cyst. (arrows)

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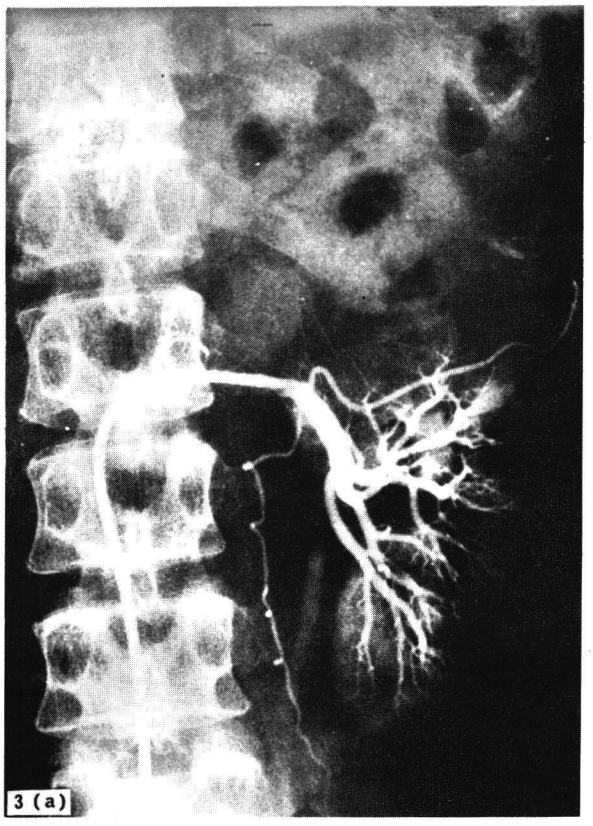


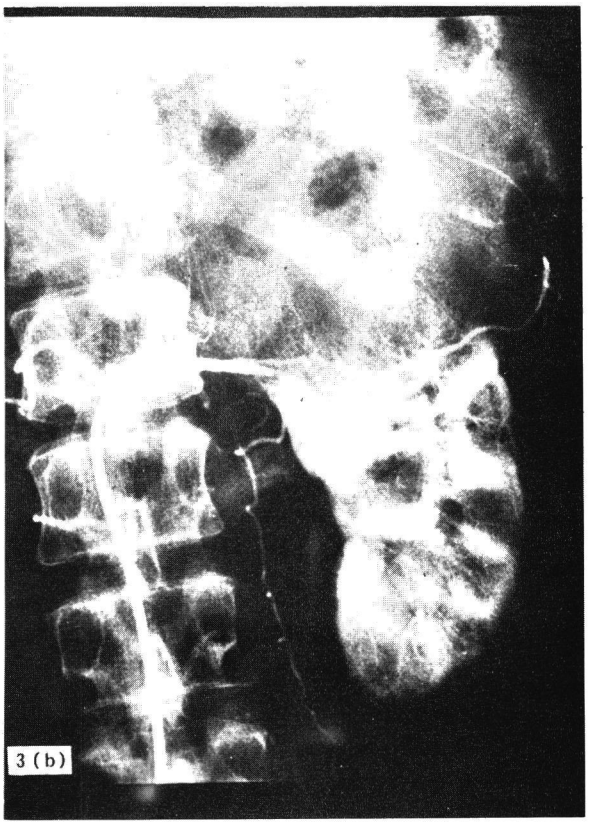


Fig. 3: Left renal arteriogram: (a) arterial, and (b) nephrogram phases showing avascular mass in upper pole of left kidney. Diagnosis of renal cyst was confirmed at pyelo-lithotomy.

Case 4 (Figure 4)

A 16-year-old Indian boy complained of swelling in the left side of his abdomen since childhood and intermittent left loin pain for the past four years. There was no dysuria nor hematuria. Physical examination revealed a smooth, cystic, non-tender mass in the left flank. On intravenous urography, there was a large mass in the lower half of the left kidney causing displacement, deformity and dilatation of the left pelvicalyceal system. Renal arteriography showed this to be an avascular mass, suggestive of a large renal cyst. At laparotomy, a complete duplex left kidney was found. The upper segment was normal, but the lower half consisted of a large hydronephrotic sac, filled with infected urine. The cause of the hydronephrosis was not apparent. Excision of the hydronephrotic portion was carried out. In this case, arteriography did not significantly contribute to the diagnosis or influence the management.

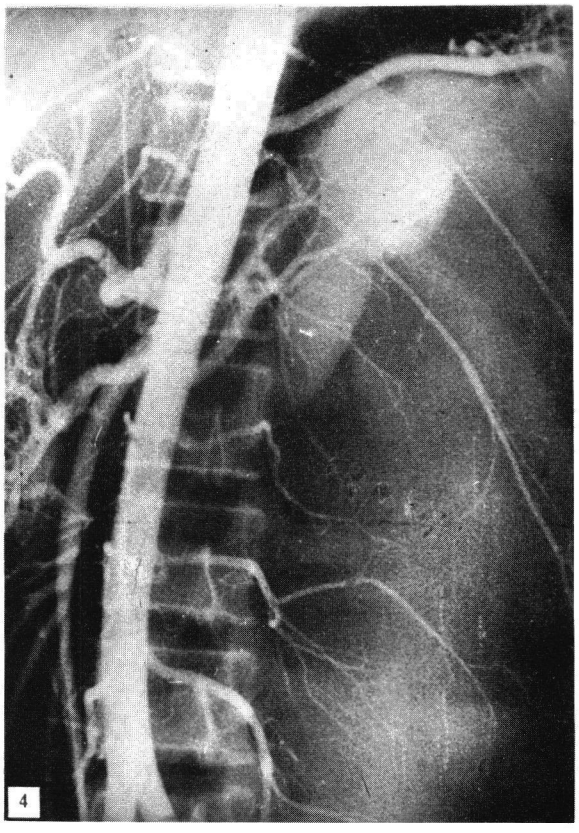


Fig. 4: Aortogram shows large avascular mass in lower pole of left kidney, causing displacement of aorta and left renal artery. Excreted contrast material delineates upper collecting system which is also displaced. Laparotomy revealed duplex left kidney, with normal upper segment and hydronephrotic lower segment.

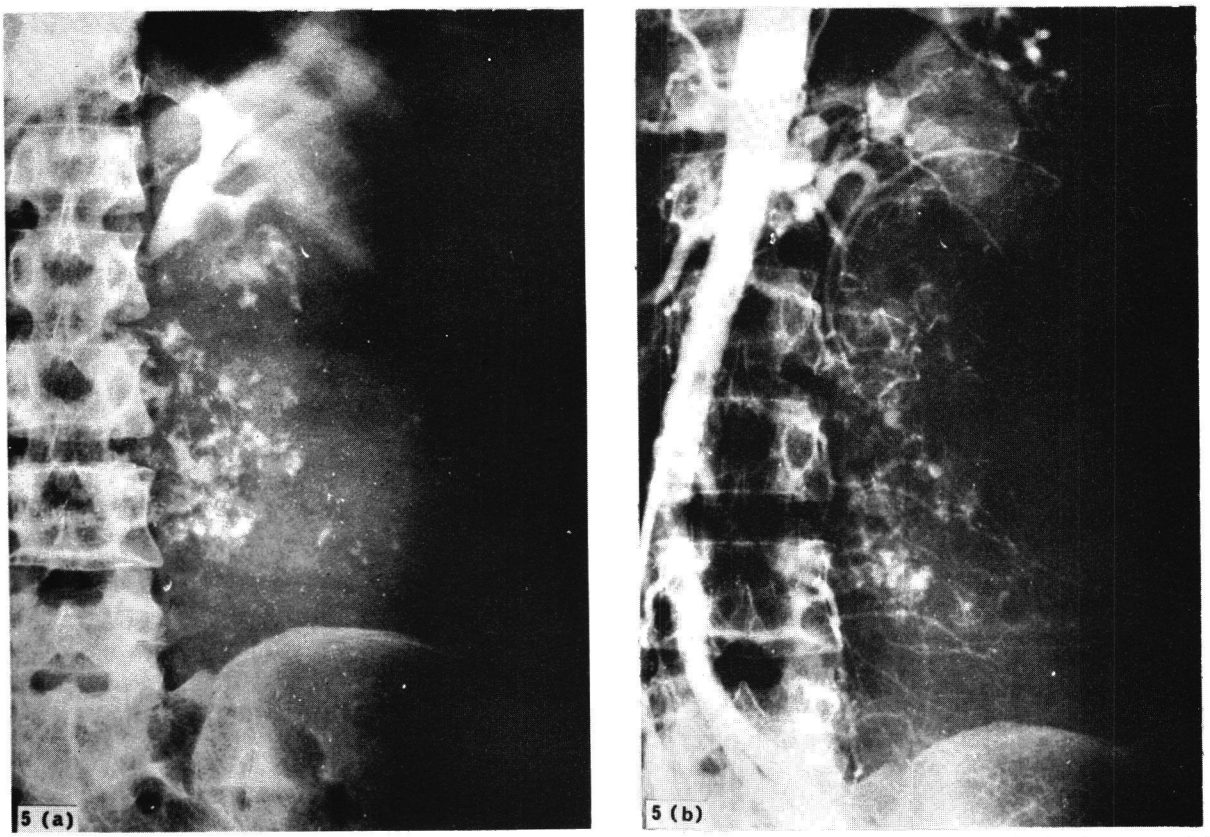


Fig. 5: (a) Intravenous pyelogram shows large mass with irregular calcification occupying lower half of left kidney. (b) Aortogram shows relatively avascular lesion, but presence of numerous abnormal tortuous vessels suggests malignancy. Histopathology of nephrectomy specimen was that of clear cell carcinoma.

Case 5 (Figure 5)

A 41-year-old Malay housewife complained of a mass in the left side of her abdomen for the past 12 years, which had progressively increased in size. In the past four months, she had had four episodes of painless hematuria. Physical examination disclosed a left upper quadrant mass which was hard, non-tender and ballotable. Plain abdominal film and intravenous urogram showed a large mass in the lower half of the left kidney, containing areas of irregular calcification. Aortography showed a large partially calcified mass in the lower pole of the left kidney, displacing the abdominal aorta and its branches across the mid-line and distorting the left renal artery. The intrarenal arterial branches supplying the lower pole were markedly stretched. The mass was relatively avascular and well-demarcated from the adjoining normal parenchyma, but the presence of numerous abnormal tortuous vessels in some areas suggested malignancy. At laparotomy, there was a large tumor of the lower pole of the left kidney, easily separated from the retroperitoneal tissues. Left nephrectomy with partial adrenalectomy was performed. Histological examination showed it was a clear cell carcinoma of the kidney.

(3) Operable or Inoperable?

Case 6 (Figure 6)

A 58-year-old male Chinese presented with pain and swelling of the right flank of one-and-a-half months' duration, not associated with hematuria. He had noticed marked weight loss for the past four months. On physical examination, he was emaciated and ill-looking. There was a firm mass in his right flank, measuring about 8 ins x 4 ins. Intravenous urography showed a non-functioning right kidney, with a mass in its lower pole. Selective renal arteriography showed a vascular tumour, with distinctly abnormal vessels, occupying the upper pole and mid-portion of the right kidney, highly suggestive of a carcinoma.

There was early filling of the inferior vena cava which was occluded at the level of the renal hilum. Collateral flow through the lumbar veins was noted. Aortogram showed tumor vessels in the suprarenal area displacing the aorta towards the left side and stretching the right renal artery. Invasion of the inferior vena cava indicated that the tumor was inoperable. The patient subsequently left the hospital against medical advice.

(4) Unsuspected Diagnosis

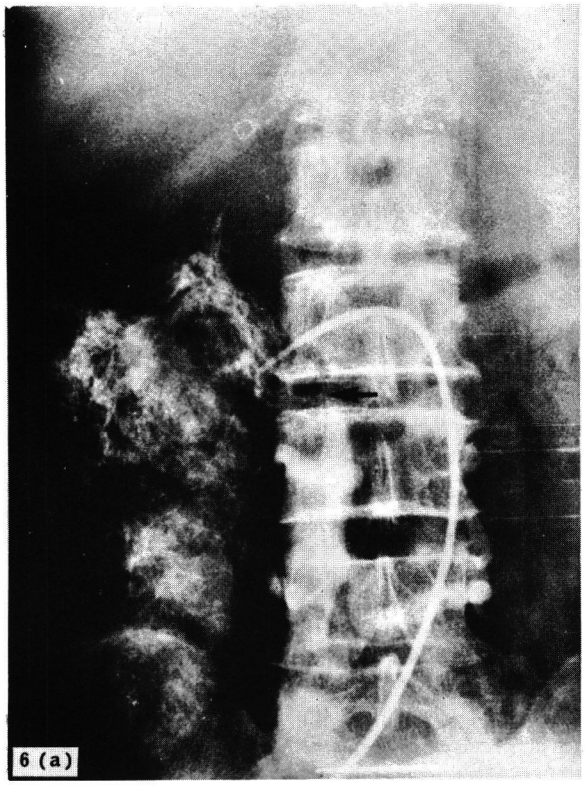
Case 7 (Figure 7)

A 24-year-old Chinese housewife presented with a 4-week history of intermittent right loin pain, not associated with dysuria or hematuria. On physical examination, the right kidney was palpable and markedly tender. Intravenous urography showed enlargement of the right renal contour, with displacement and compression of the pelvi-ureteric junction. Selective renal arteriography was undertaken with the diagnosis of renal tumor in mind. This revealed a fracture of the right renal cortex, extending from the margin of the upper pole to one of the superior minor calyces. There was a large non-opacified mass surrounding the posterior and lateral aspects of the lower half of the right kidney due to a subcapsular hematoma. The renal parenchyma was displaced medially with some kinking at the pelvi-ureteric junction. Direct questioning of the patient elicited the reluctant admission that she had injured her right flank four weeks previously as a result of an accidental fall down a staircase. In view of the localised extent of the renal injury and continuing clinical improvement while being investigated in the ward, conservative management with treatment of urinary tract infection was carried out. The patient was well when discharged.

(5) Renal Or Extrarenal?

Case 8 (Figure 8)

An 18-year-old Chinese girl presented with right upper quadrant pain of two years' duration. There



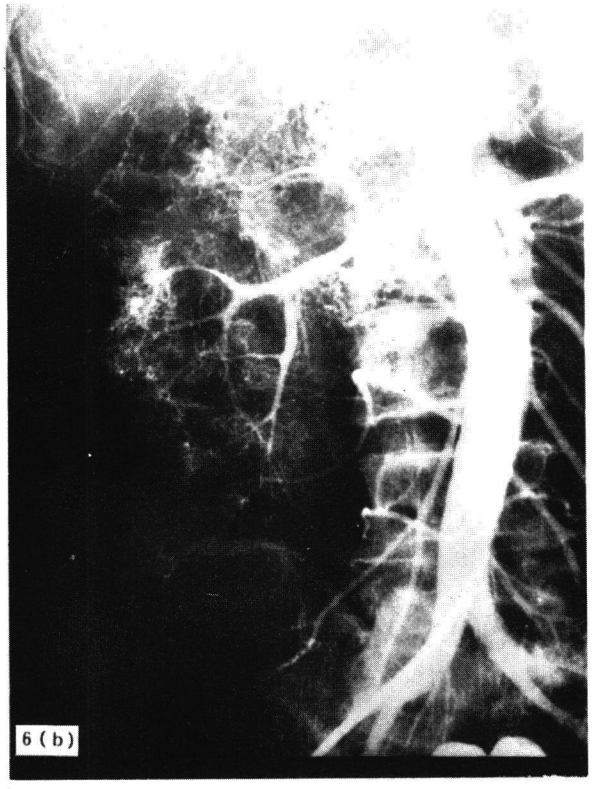


Fig. 6: (a) Selective renal arteriogram shows highly vascular tumour in upper pole and mid-portion of right kidney. Appearances are consistent with renal carcinoma. Invasion of inferior vena cava (arrow) indicates that lesion is inoperable. (b) Aortogram shows extensive involvement of suprarenal area.

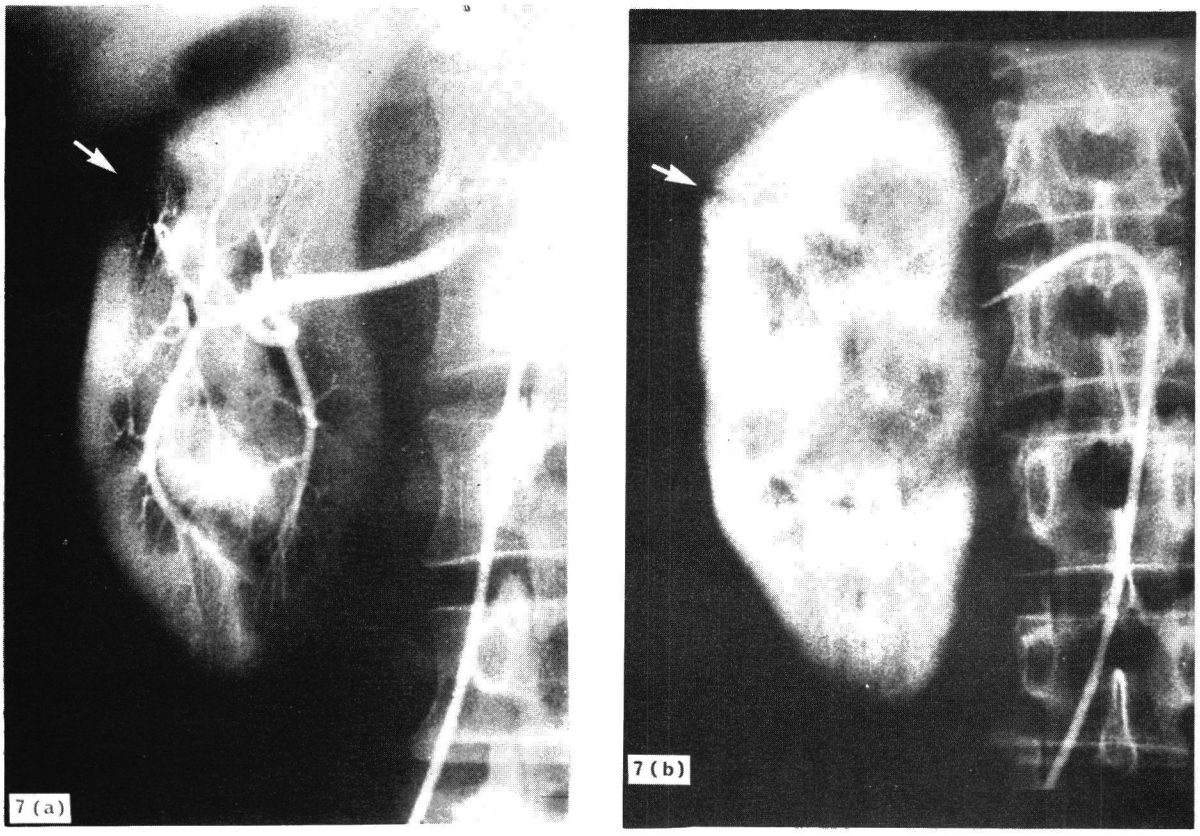


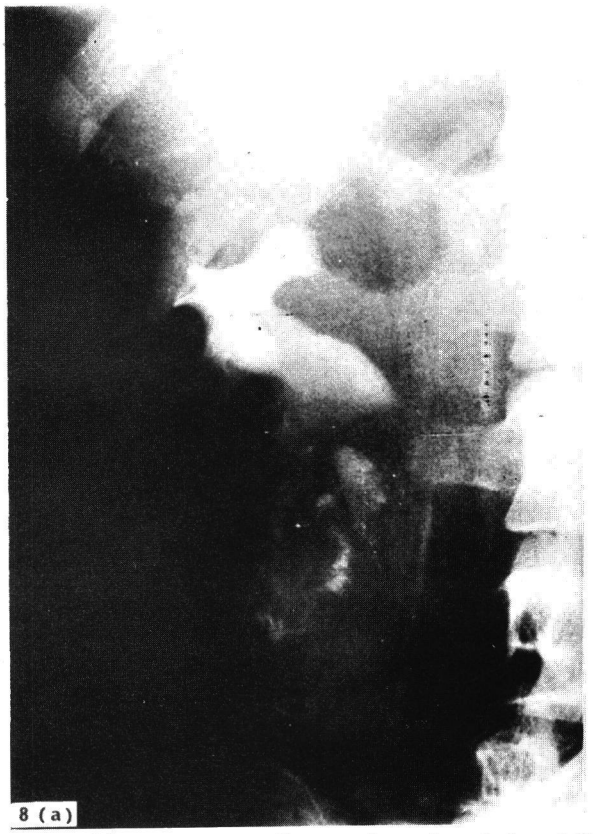
Fig. 7: Right renal arteriogram: (a) arterial and (b) nephrogram phases showing renal fracture (arrow) extending from outer margin of upper pole to superior minor calyx. The diagnosis was not suspected on intravenous pyelography.

was no dysuria or hematuria. Physical examination revealed a tender right abdominal mass. An abdominal film and intravenous urogram showed a mass in relation to the lower pole of the right kidney, containing areas of irregular calcification. A selective right renal arteriogram demonstrated that the mass was extra-parenchymal, and derived its blood supply mainly from tortuous capsular branches of the ventral division of the main renal artery. The aortographic appearance suggested that this was either a capsular tumor or a retroperitoneal tumor, involving the renal capsule. Although no tumor circulation was shown, the vascular pattern was that of a solid lesion, and malignancy could not therefore be excluded. Laparotomy revealed a discoid mass, measuring 8 x 6 x 2 cm., adherent to the posterior abdominal wall and the posterior surface of the right kidney. The renal capsule was involved in the mass, but the kidney itself was normal. The lesion was not resected. A biopsy revealed benign fibrous adipose tissue with focal chronic non-specific inflammatory changes, and no evidence of neoplasia. The histopathology was thought to be consistent with retroperitoneal fibroma or retroperitoneal fasciitis.

Discussion

The majority of urological conditions can be accurately diagnosed on the basis of history, physical examination, common laboratory tests, cystoscopy and the usual radiological studies. In the case of renal lesions, however, in many instances the clinician is left with considerable doubt as to the precise diagnosis or as to whether operative treatment is indicated. It is in these doubtful situations that renal arteriography finds its place. The renal arteries down to the fine branches can normally be outlined, or the renal parenchyma may be rendered opacified so that a non-functioning area, such as might be caused by a cyst, stands out in clear contrast.

The diagnosis of space-occupying lesion in the kidney is usually made with assurance when it is possible to demonstrate enlargement and deformity of the re-



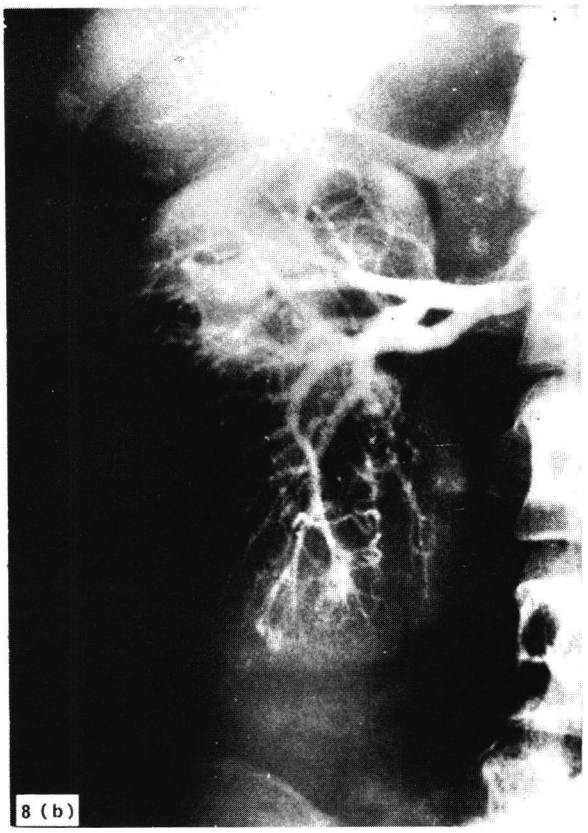
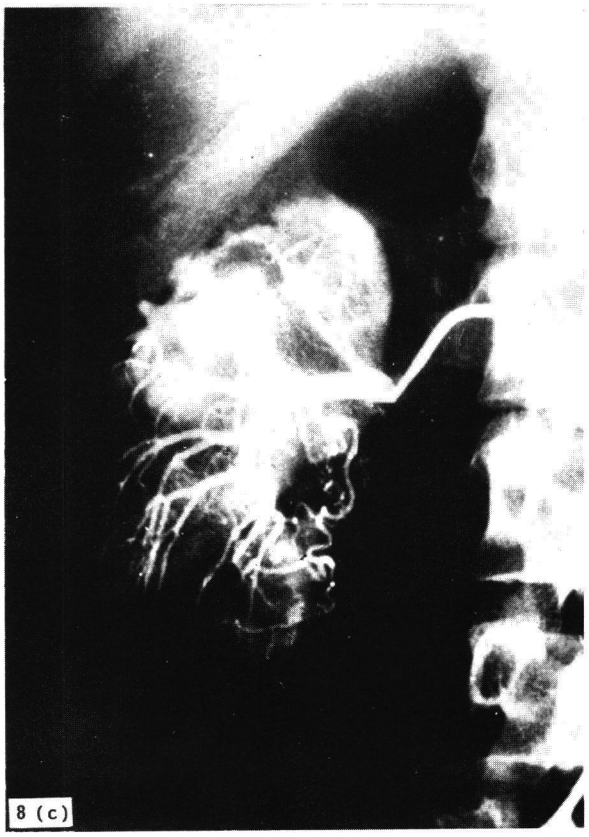


Fig. 8: (a) Intravenous pyelogram shows irregularly calcified mass in relation to lower pole of right kidney. (b) Renal arteriogram demonstrates that tumour is extraparenchymal.

(c) Selective injection of ventral division of main renal artery demonstrates that blood supply of tumour is derived from tortuous capsular branches.

Histopathology was thought to be consistent with retroperitoneal fibroma or retroperitoneal fasciitis.

nal contour in addition to displacement and distortion of the pelvi-calyceal system on intravenous urography. Nevertheless, the pelvi-calyceal system may not be affected by a superficial subcapsular lesion, and on the other hand, a small central lesion may cause no deformity of the renal contour. In these situations, the plaguing question of whether to operate or not to operate can be resolved by arteriography. This point is illustrated by Case 1, where a bulge of the renal contour proved to be a prominent cortical lobulation. Pseudotumours such as this may result from focal hypertrophy of residual tissue in diseased kidneys which have suffered extensive parenchymal damage from trauma, pyelonephritis or in-



farction , or they may be caused by developmental variations.

When the diagnosis of a space-occupying renal lesion is established, the question of immediate concern to both the clinician and the patient is whether it is benign or malignant. There is no difficulty in the differential diagnosis when evidence of calyceal destruction is apparent on intravenous urogram or when metastases are obvious clinically or radiologically. In many instances, however, the diagnosis of malignancy can be established or excluded only by recourse to arteriography. Cases 2, 3, 4 and 5 clearly illustrate this point.

In a recent review of 100 patients with renal carcinoma who had been submitted to arteriography, Watson and his colleagues reported a diagnostic accuracy rate of 97%. High diagnostic accuracy rates by arteriography have previously been reported by Edsman, Boijsen and Folin. The arteriographic diagnosis of renal carcinoma depends upon the finding of abnormal tumor or 'pathological' vessels, in addition to vessel displacement and distortion. These abnormal vessels are dilated, irregular and tortuous, and may be associated with a diffuse tumor 'blush', contrast pooling, microaneurysms, and arterio-venous fistulae resulting in early venous filling. Difficulty in diagnosis may arise in the small group of poorly vascular or avascular lesions, many of which appear to be cystic. Suspicious features include: (1) the presence of poorly defined marginal lips where the mass, if peripheral, protrudes through the cortex, and (2) thickness of the wall which, in benign cysts, is paper-thin. The technique of cyst puncture has been advocated as being of value in these cases. We have had no experience with this procedure.

Occasionally, renal arteriography carried out to further delineate a presumed condition reveals a totally unsuspected diagnosis. This is illustrated in the case of renal fracture (Case 7). A kidney mass adherent to or infiltrating the surrounding retroperitoneal tissues may not move with respiration on physical examination. Where there is doubt as to the exact location of a retroperitoneal mass in the kidney region, renal arteriography can be of help (Case 8).

Summary

(1) The technique of renal arteriography is briefly described. Cases are presented to illustrate the various clinical applications of renal arteriography.

(2) The place of renal arteriography in urological diagnosis is discussed.

Acknowledgements

We wish to thank Professor N.K. Yong for his help and encouragement, the Department of Medical Illustration for the photographs, and Miss Janet Low for typing the manuscript.

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Manual removal of placenta under hypoaesthesia

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INTRODUCTION

THE TERM HYPOAESTHESIA or 'Atarlgesia' was introduced by Hayward-Butt in 1957. It is a technique of relieving pain and distress by the single intravenous injection of a mixture of drugs. The drugs used are a potent analgesic — pethidine, together with a tranquillising agent — a phenothiazine derivative. By this method, generalised analgesia and freedom from anxiety is produced, enabling a variety of simple operative procedures to be performed satisfactorily. The technique has wide application for obstetric procedures and O'Sullivan (1962) described its use for forceps deliveries. Crawford (1965) has highly recommended hypoaesthesia for the operation of manual removal of placenta. In this paper, the suitability of hypoaesthesia for manual removal of placenta is investigated.

MATERIALS AND METHODS

All cases of retained placenta admitted to the Maternity Unit of the General Hospital, Kuala Trengganu during 1969 were included in the study. There was no selection of cases whatsoever and all patients (irrespective of class of admission) were used. A total of 30 cases were obtained. This included eight cases who had their deliveries in hospital while the rest, 22, had their deliveries at home. Most of the latter cases were admitted to hospital a considerable time after the delivery of the baby and usually in a severe state of shock from blood loss. On admission, each case was examined and where necessary resuscitation undertaken first. Fifteen patients were found to be shocked and were resuscitated before the induction of hypoaesthesia.

Technique of inducing hypoaesthesia:

25 mgm of pethidine and 25 mgm of promazine (sparine) were diluted to a 10 ml solution, using distilled water. Each patient received 5 ml of this solution intravenously at a very slow rate of 1 ml per minute.

In no case was more than 5 ml used. Thus all patients received 12.5 mgm of pethidine and 12.5 mgm of sparine each. This dose was found satisfactory for all the women. The average wieght of the patients was 7½ stones (105 lb.) and the dosage works out to approximately 1.7 mgm per stone body weight for each drug.

The blood pressure was checked immediately prior to the injection and at 5-minute intervals for 15 minutes following the injection.

In all patients, the operation of manual removal of placenta was performed after at least 15 minutes had elapsed since the time of injection. All unnecessary movement of the patient was avoided and the

operation was performed with the patient lying on her back with the legs drawn up. In no case was the lithotomy position used. The operation was performed not only by the author but also by the medical officers of this hospital as well.

In each case, the objective assessment of the patient as well as her subjective response was noted and she was asked specifically whether she felt any pain or discomfort during the procedure.

RESULTS

The results of the 30 cases are summarised in the table. It was noted that in all cases, in 15 minutes following the injection, the patient appeared to be in a light sleep but could be aroused, and could respond to commands. No respiratory depression was noted. There was no evidence of nausea of vomitting in any case. In 29 cases, the operative procedure was successfully carried out without any ill effects.

Case	Delivery	Del-MRP Internal	Condition Admission	Subjective Reaction P D N/V	Complication
1	Hospital	1 hr.	Satisf.	— — —	nil
2	Home	2 hrs.	Shocked	— — —	nil
3	Home	5 hrs.	Shocked	— — —	Fall in BP 120/70—70/40
4	Home	2 hrs.	Shocked	— — —	nil
5	Hospital	40 mins.	Satisf.	— — —	nil
6	Home	4 hrs.	Shocked	— — —	nil
7	Hospital	1½ hrs.	Shocked	— — —	nil
8	Home	4 hrs.	Satisf.	— — —	nil
9	Hospital	1 hr.	Shocked	— — —	nil
10	Home	2 hrs.	Shocked	— — —	nil
11	Home	5 hrs.	Satisf.	— — —	nil
12	Home	20 hrs.	Satisf.	+ + —	Failure
13	Home	3 hrs.	Shocked	— — —	Done under GA. Nil
14	Home	7 hrs.	Satisf.	— — —	Nil
15	Home	8 hrs.	Satisf.	— — —	100/70-70/50
16	Home	2 hrs.	Satisf.	— — —	nil
17	Home	3 hrs.	Satisf.	— — —	Fall in BP 120/80-80/60
18	Home	3½ hrs.	Shocked	— — —	nil
19	Hospital	1½ hrs.	Satisf.	— — —	nil
20	Home	2 hrs.	Shocked	— — —	nil
21	Home	3 hrs.	Satisf.	— — —	nil
22	Home	2½ hrs.	Satisf.	— — —	nil
23	Hospital	½ hrs.	Satisf.	— — —	nil
24	Home	6 hrs.	Shocked	— — —	nil
25	Home	2 hrs.	Shocked	— —	nil
26	Home	5 hrs.	Shocked	— — —	nil
27	Home	2 hrs.	Shocked	— — —	nil
28	Home	2½ hrs.	Shocked	— — —	nil
29	Hospital	1¾ hrs.	Shocked	— — —	nil
30	Hospital	45 mins.	Satisf.	— — —	nil

MRP = manual removal of placenta.

P = pain. D = discomfort: N/V = nausea/vomiting.

— = nil

Subjective response:

Twenty-nine out of 30 patients reported that the technique did not cause pain or discomfort. They did not find the procedure unpleasant and were satisfied with the analgesia and sedation offered by the method. A feature of hypoaesthesia was a large proportion who were found to have varying degrees of amnesia of the operative procedure.

One patient (Case 12) complained of pain and discomfort on attempting manual removal. This was a patient who had delivered the baby at home and only came to hospital 20 hours later with a retained placenta. On examination, the cervix had clamped down and could hardly admit two fingers. The attempted manual removal failed and the placenta was subsequently removed with difficulty under a general anaesthetic.

In three patients (Case numbers 3, 15, 17) a fall in blood pressure in the range 30-50 mm Hg. systolic was noted immediately following the injection. In each case, raising the foot of the bed and fluid replacement restored the blood pressure. No vasopressors were used.

DISCUSSION:

Manual removal of placenta is not only one of the commonest emergencies undertaken in obstetric practice, but also potentially the most dangerous as far as the hazard of maternal vomitting is concerned. A general anaesthetic, even in skilled hands, does not lessen this danger. One of the common causes of maternal morbidity and mortality is the inhalation of vomitus following a general anaesthetic.

In most of the smaller hospitals in Malaysia, a skilled anaesthetic service is lacking and often the maternity sister is called upon to administer a general anaesthetic. Even in the large general hospital, there is usually only one fully qualified anaesthetist to cater for the whole hospital. Under these conditions, a general anaesthetic for the common obstetricial emergency of retained placenta becomes impracticable. Further, a few labour rooms are properly equipped to cater for the administration of a **safe** general anaesthetic, i.e., a table which can easily be tilted head down, and proper suction apparatus for the aspiration of vomitus should it occur.

Hypoaesthesia has three outstanding qualities — analgesia, freedom from anxiety and amnesia. The present study showed that in the vast majority of cases (29 out of 30 cases) hypoaesthesia was found to be very suitable for the operation of manual removal of placenta. The procedure is safe and the study revealed that the level of analgesia was sufficient to undertake the operation without causing pain or distress to the patient. Another notable feature was the complete absence of vomitting and its attendant danger of inhalation

The one case of failure in the series was due to a tightly constricted cervix. In such cases, hypoesthesia is unsuitable (Crawford 1965). Cases of such a nature are, however, not common, and the need for a general anaesthetic will arise only occasionally.

The three cases which registered a fall in blood pressure deserve comment. The pethidine and sparine mixture, if injected rapidly and in an undiluted form, will cause maternal hypotension. As emphasised previously, the drugs must be **diluted** and given **very slowly** if a fall in blood pressure is to be avoided. If the technique is correctly followed, as Coxon (1961) remarks, the mother will not be rendered hypotensive, and will suffer no nausea vomitting or 'hangover'. A further very important point is that cases in shock must be adequately resuscitated and blood volume restored before hypoaesthesia is induced. In retrospect, the three cases whose blood pressures fell were hypovolaemic and fluid replacement was inadequate before the injection of drugs. The fall could have been avoided had adequate fluids been given. Thus resuscitation and fluid replacement must be thorough. Fifteen cases out of the series were in oligaemic shock and after resuscitation, none of them showed any fall in blood pressure on giving the injection. Thus, with due precaution, shocked patients are also suitable for hypoaesthesia.

Hypoaesthesia has distinct advantages over general anaesthesia:

1. The risk of vomiting is abolished.
2. The technique is suitable for use by the single — handed obstetrician and also for domiciliary practice.
3. No expensive equipment or drugs are needed.
4. The technique is easy to master.
5. It is suitable for the small rural hospital as well as the large general hospitals.

Hypoaesthesia demands good patient handling. There is no place for roughness in operative technique and gentleness is essential as in all obstetric manipulations.

CONCLUSION

The technique of hypoaesthesia is eminently suitable for the operation of manual removal of placenta. It offers freedom from pain and discomfort for the patient and abolishes the dangers of vomiting. It is an

easy technique to master and it has wide suitability for the small as well as the large maternity unit. The only cases unsuitable for this form of anaesthesia are the ones with a tightly constricted cervix. The method is safe and its use should make a "a general anaesthetic rarely needed for the operation of manual removal placenta." (Crawford 1965).

SUMMARY

In 30 patients, the operation of manual removal of placenta was performed under hypoaesthesia. The drugs used were 12.5 mgm of pethidine and 12.5 mgm of sparine in a dilute solution and given very slowly intravenously. The method was found to be very suitable for the operation, and it can replace the need for a general anaesthetic.

Acknowledgement

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Dubin-Johnson syndrome: A family study

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Kuala Lumpur

INTRODUCTION

IN 1954, Dubin and Johnson described 12 cases with a new form of hepatic disease characterised by chronic intermittent non-haemolytic jaundice since childhood with deposition of lipchrome-like pigment in the liver cells. Four similar cases were described independently by another group of workers, Sprinz and Nelson later in the same year. Since the original description, a number of cases of similar disease has been reported from various parts of the globe and quite a few of these have been found to be occurring in some families among siblings and in the members of two successive generations (Dubin, 1958; Beker & Read, 1958; Mandema, 1960; Arias, 1961; Blank et al, 1966 – Du & Rogers, 1967). Cases have also been reported from Malaysia (Burns-Cox, 1965; Dutt el al, 1968).

Recently, we studied a Malay family from a small locality about 30 miles east of Kuala Lumpur, and out of nine members from three successive generations, three were found to be suffering from this disease. Two of them, who are sibs as well, have the disease with all the features and the history is strongly suggestive that their mother, although not fully affected, is the carrier of the condition.

The Family with Case Reports of the Affected Members

All the nine living members (fig. I) were clinically studied and investigated. The details of the affected ones only are mentioned below.

Case 1: The mother (Member 2 in the family tree), E.b.H.R., aged 70 years. She occasionally suffers from nausea after meals but there is no abdominal pain or discomfort. In the past, she has never had any serious illnesses or operations. However, she had suffered from frequent episodes of painless jaundice all through her life. These bouts had always been mild and lasted for a few days to a few weeks with spontaneous recovery. But the interesting feature here is that these 'attacks' were always precipitated by a "stress" situation, e.g. pregnancy or febrile illnesses. She had altogether 11 pregnancies and was noted to be mildly jaundiced during the later months of eight of these (see pedigree chart). Icterus used to clear spontaneously within a few weeks after the deliveries.

All deliveries were carried out at home and she had never been hospitalised before. The first pregnancy terminated in a stillbirth and the fifth child, who had never been jaundiced, died at the age of 35 of unknown cause. The last four children, two sons and two daughters, died very young, between the ages of four months to five years. However, none of them were noted to be icteric at birth or to be developing icterus later. Her husband, who is dead for many years, had never been "yellow" and so far as she

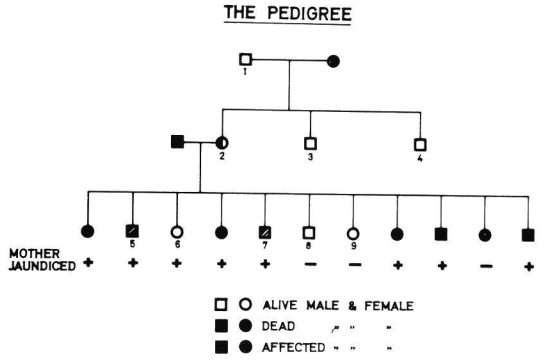

Fig 1

knew, no one in the husband's family had ever been jaundiced. Apart from being jaundiced in late pregnancies, she also complained of passing dark tea-coloured urine whenever she had a bout of fever. She was admitted into the University Hospital in November, 1969. On examination, her general condition was well. There was no jaundice. She had bilateral arcus senilis. Her liver and spleen were not palpable, and there were no clinical abnormalities.

The following investigations were carried out and the results were: haemoglobin 12.7 gm.%; total white cell and differential counts normal; no evidence of haemolysis; prothrombin activity 100%; urine (chemical and microscopy) normal; serum bilirubin 1.1 mg.%; unconjugated 0.7 mg.%; conjugated 0.4 mg.%; serum aspartate transaminase (AsT) 6 I.U/L; serum alauine transaminase (ALT) 25 I.U./L; serum alkaline phosphatase 9.6 K.A.U.%; B.S.P. excretion test (Sherlock, 1963) showed a normal excretory pattern with 2% retention at 45 minutes and 0% at 210 minutes; liver biopsy revealed a rather brownish yellow liver tissue. Histology (Dr. B. Ferguson): "Sections of liver show normal architecture. The hepatic cells are engorged 1-2 cells thick. There is no increase in fibrous connective tissue or fibrosis. Only occasional granules of yellow brown pigment are found in a few of the hepatic cells." With all this story and findings, a diagnosis of subclinical Dubin-Johnson Syndrome was made.

Case 2: I.b.H., male, aged 45 years, (Member 5 in the family tree) a motor mechanic by occupation and is married with one son and one daughter, both normal. He has been midly jaundiced since childhood, the degree of which fluctuates in intensity. He had been having recurrent attacks of right upper abdominal pain for some years for which he was admitted and investigated in another hospital in July 1968. Investigations then had suggested an obstructive jaundice, with a normal oral cholecystography. A laparotomy was carried out but no biliary stones were found; however, there was a small stricture in the cystic duct. A cholecystectomy was performed. He remained well for a few months but jaundice never disappeared. The right upper abdominal pain returned and he still complains of vague upper abdominal pain food.

He was admitted into the University Hospital in November, 1969 and on examination, his general condition was well. He was mildly jaundiced and his liver and spleen were not palpable. There was no other clinical abnormality apart from an old laparotomy scar on his right upper abdomen.

Investigations: haemoglobin 15.1 gm.%; prothrombin activity 100%; no evidence of haemolysis; urine normal, both on chemical and microscopic examinations; serum bilirubin 4.7 mg.%; conjugated 3.2 mg.%; unconjugated 1.5 mg.%; AST 9 I.U/L; ALT 9.5 I.U/L; Se Alk. Phos. 4.8 K.A.U.%; serum proteins normal; B.S.P. excretion test: abnormal retention and delayed excretion of the dye, 21.3% at 45 minutes, 36.2% at 120 minutes and 47% at 210 minutes. Straight abdominal X-ray did not reveal any abnormality. A liver biopsy was carried out. The microscopic appearance of the biopsy material was dark-brownish yellow tissue. Histology (Dr. B. Ferguson): (Fig. 2) "The hepatic areas are 1-2 cells thick and the size and shape of the hepatic and Kupffer cells are normal. Many of the hepatic cells contain granules of yellow brown pigment usually arranged in a perinuclear fashion, and is most concentrated in central lobular areas. The pigment stains positively for reducing substances, is P.A.S. positive and diastase resistant. The pigment is negative for bile stains and iron stains." This is beyond doubt a fully developed case of Dubin-Johnson Syndrome.

Case 3: S.b.H., male, aged 34. (Member 7 in the family tree), a married labourer, with no children. He has been mildly jaundiced since the aged of ten and for this complaint, he was admitted into Assunta Hospital in May 1967 and after investigation was found to be having mild obstructive jaundice. His gall bladder could not be visualised after oral cholecystogram. Following B.S.P. excretion test and liver biopsy, a diagnosis of Dubin-Johnson Syndrome was made. This case has been published earlier (Dutt et al, 1968). However, towards the later part of October

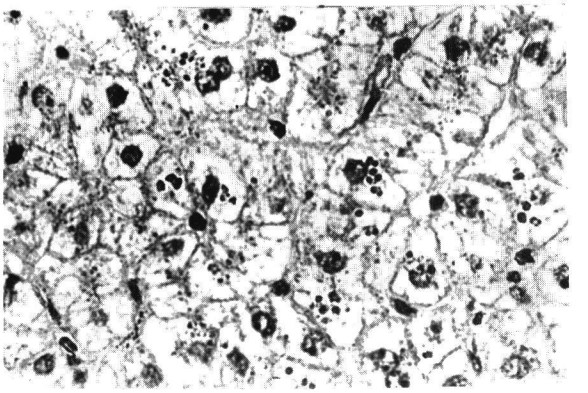

Fig. 2

1969, this patient was admitted into the University Hospital for a two-month history of irregular diarrhoea and bleeding per rectum for two days. On examination, he was mildly jaundiced, and there was first degree haemorrhoid to account for this recent P.R. bleeding. His liver was palpable, but the spleen was not palpable. His diarrhorae was found to be of non-specific origin, with normal stool culture and microscopy. This improved rapidly on symptomatic treatment.

Some of the previous investigations were repeated and the results were as follows:- serum bilirubin 3.0 mg.%; conjugated 2.0 mg.%; unconjugated 1.0 mg.%; AST 7 I.U/L; ALT 6 I.U/L; Ser. Ik. Phos. 5.4; K.A.U.%; serum proteins normal; B.S.P. excretion test revealed an abnormal and delayed excretion of the dye and a repeat liver biopsy (Fig. 3) was suggestive of Dubin-Johnson Disease. However, as this case has been reported earlier, no further details are mentioned.

The other members (Nos. 1, 3, 4, 6, 8, 9) were found to be completely normal. None of them has ever had jaundice. The female members had all been pregnant several times each, but none had any icterus during their periods of gestation. The following investigations were carried out on all of them: haemoglobin, reticulocytes, peripheral blood film, urine for bile pigments, prothrombin activity, serum bilirubin, AST, ALT, Serum Alkaline Phosphatase and Serum proteins. BSP excretion test was carried out only on member 8. The results obtained were all normal in each individual.

Discussion and Comments

Dubin-Johnson Syndrome is a rare form of congenital hepatobiliary condition characterised by mild non-haemolytic jaundice sometimes associated with vague abdominal pain, diarrhoea and passage of dark urine (Dubin, 1958). The disease commonly manifests under the age of 25 and tends to run in families. Both sexes can be affected and no case is known to be immune. The jaundice may be fluctuant with occasional exacerbation under stress situation e.g. pregnancy, infection, surgery, etc. The life long course is usually benign and the prognosis is excellent.

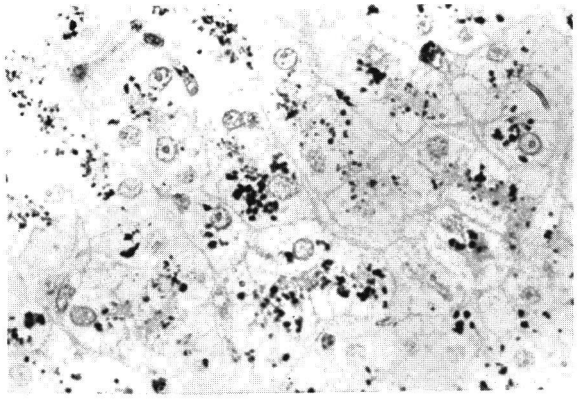

Fig. 3

There is no architectural change in the liver although the hepatic histology commonly reveals an excess of dark yellow pigment in the parenchymal cells. The other common denominators are elevated serum bilirubin mostly of the conjugated type, an abnormal retention and delayed excretion of the bromsulphalein dye (Dubin and Johnson, 1954; Dubin, 1958; Butt et al, 1966). However, these criteria are by no means constant or specific. Jaundice has been reported to be non-existent (Burka, 1960) or manifest only under stress (Dubin, 1958) and the degree of intrahepatic pigmentation to be grossly variable in amount (Wolf, 1960).

In the original discussion of this condition, Dubin and Johnson used the term "chronic idiopathic jaundice." Today, even after 16 years, this term still maintains its validity. Although a lot is now known about the bilirubin metabolism, the way it is handled by the liver cells and the pathogenesis of various other congenital hyperbilirubineamias, the basic pathology of Dubin-Johnson Syndrome still remains unexplained. However, available evidence suggests that the defect, which is probably genetically determined, lies in the biliary excretion. No evidence of bilirubin over-production, defective bilirubin uptake or inactivity of enzyme i.e. glucuronyl transferase has yet been demonstrated in this disease (Butt et al, 1966). On the other hand, the classical laboratory findings of an elevated conjugated bilirubin level in the serum, a poorly visible or non-visible gall bladder after oral cholecystogram, a secondary rise in the conjugated B.S.P. dye and low Tm. for B.S.P. (Arias, 1961) are all indicative of an excretory defect.

As regards intrahepatic pigmentation, there still exists a considerable amount of controversy and uncertainty about its nature. The majority (John, 1956); Brown, 1956) including Dubin and Sprinz themselves, regard this as lipofuscin. Others, however, consider this as of the melanin type and they put forward the clinical presence of melanuria in some of their cases (Bynam, 1957) as the supportive evidence.

The effect of pregnancy on the female sufferers of this disease is significant. Out of nine female patients

in a particular series, seven had become pregnant at some time or other and in six of them, pregnancy had precipitated or aggravated the disease. Although normal offspring was the usual outcome, quite a few pregnancies terminated in spontaneous abortions. Neonatal deaths due to unknown cause have also been noted. We can correlate these statements with the clinical history of Case 1.

Abdominal pain, especially over the right hypochondrium, is not uncommon and this is most probably due to pain in the liver. Development of biliary stones may occur in about ten per cent of cases but they virtually never produce obstruction. In one of Professor Sheila Sherlock's cases in Hammersmith Hospital, London, only narrowing of cystic duct, similar to our Case 2, was noted at laparotomy.

Genetically, the disease has been known to be transmitted as autosomal dominant (Dubin, 1958; Wolf, 1960; Arias, 1961). Wide variety in expression of the various features of the disease has also been reported. (Butt et al, 1966).

In the present family under study, there is little doubt that the disease has been in existence in two successive generations. The mother (Member 2) has got the disease in a subclinical form, presumably due to the low penetrance of her dominantly affected gene. As such, she manifests jaundice only under "stress" such as pregnancy and febrile states. However, two of her sons (Members 5 and 7) suffered from the full-blown disease with complete penetrances of the dominant genes they had inherited from their mother. The other live children studied have luckily escaped the disease, the reason for which is quite obvious and simple. Regarding the dead children, however, no one could say whether any one of them would have manifested the disease had he or she lived a few years longer. The three members (Members 1, 3 and 4) of the mother's family studied are all free of any feature suggestive of the disease and her deceased mother's clinical history is unobtainable; thus we cannot be sure of the mother's (Member 2) inheritance of the disease. This is extremely important before one accepts it as an incidence of mutation.

Summary

A Malay family resident in the district of Selangor, Malaysia, with three of its members affected by Dubin-Johnson Syndrome, is studied. The nature of the disease is breifly reviewed with some references.

Acknowledgement

I wish to thank Dr. A.K. Dutt of State Hospital, Kota Bharu and Dr. V. Rudralingam of Klang Hospital, the former for kind permission to include his already reported case (S.b.H. : Case No. 3) into this study and the latter for the previous clinical details of I.b.H. (Case No. 2) I am also indebted to Drs. S.C. Tan, B.K. Lim and A. Ambikapathy of University Hospital, Kuala Lumpur for their co-operation.

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Preliminary survey of aetiological factors in femoral shaft fractures

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'there is occasions and causes why and wherefore in all things'

Shakespeare, Henry V, Act V.

THIS PRESENTATION is by no means an exhaustive study, merely a pilot survey, undertaken to review briefly factors contributing to femoral shaft fractures. Available data considered noteworthy are here entered into the record, providing thereby a basis for further comparative study at a later date.

The series comprises the first one hundred cases of femoral shaft fractures admitted to the orthopaedic service of this hospital. The University Hospital, situated at the new township of Petaling Jaya, does not serve any stipulated demographic zone of the general population. Instead, the series contains cases of countrywide distribution though of somewhat modest number.

This article is based on information obtained from the history sheets of all the cases as well as those acquired from personal interviews of 61 patients shortly prior to writing this paper. A total of one hundred cases, involving 103 fractures, two cases having sustained bilateral fractures, spent a total period of 6,439 days of hospitalisation, the mean average being 64.4 days. Forty-eight cases having coincident injuries included 42 cases with fractures elsewhere and six with multiple soft tissue injuries.

The data obtained are organised in tabular form to demonstrate the various parameters involved in the aetiological factors. It appears from the tables that shaft-of-femur fractures are essentially the results of accidents involving severe trauma. The lesion is confined mainly to young males (92) and is more common among road users (71) both motorised (60) and pedestrian (11). Domestic accidents accounted for 15 cases, industrial accidents for nine cases and miscellaneous causes for the remaining five cases. Of the last five cases, only one case was the result of spontaneous fracture through secondary malignant deposit and another, a fracture in a case of pseudohypertrophic muscular dystrophy, the injury being sustained while the patient was being massaged. Sixty-eight cases occured on weekdays. Public holidays and weekends accounted for 28 cases, the remaining four being unknown. Right sided lesions predominate by taking a toll in 64 cases, the remainder being left sided.

The ethnic bias is towards the Chinese who

accounted for 56, followed by Indians 24, Malays 17 and others three cases, in that order.

In general, the time of occurence of fractures seem to maintain an even plateau throughout the working hours. Among the road accidents, there are two definite periods when the injury tends to occur more frequently, the periods coinciding roughly with the peak traffic hours.

Table No. 1

CAUSE OF FRACTURE
100 CASES

CAUSE OF FRACTURE		NO. OF CASES
Road Traffic Accident	71	28.2 years
Domestic accidents	15	28.6 years
Industrial accidents	9	370 years
Other causes	5	30.8 years
TOTAL	100	

In the sample of cases involved in road accidents, the injury occurs more frequently in built-up areas where 31 of the accidents occured. Accidents in rural areas/roads accounted for 18 and highways seven cases. Twenty-six cases in this series could not be accounted for. Only five out of the 71 cases confessed to have taken alcohol before the accident and none in the series, both road accidents and industrial injuries, had employed any form of protectives, restrainers or harness. Accidents following use of two wheeled vehicles totalling 52 cases far exceeded those due to car accidents which took a toll of eight cases only.

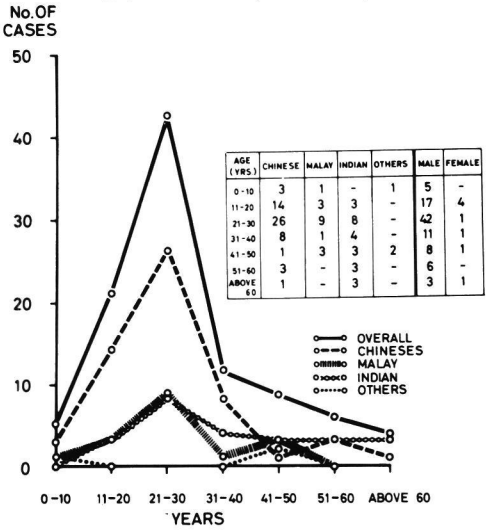
Discussion:

From the data available, a definite demographic concentration in males between the ages of 20s and 30s, essentially the wage earners, appear apparent, the bulk of toll being taken by road users. In the motorised cases, the predominance of the injury in youths, in built-up areas, exhibiting diurnal variations during peak traffic hours, suggests the motivation of use of transport in most cases, to be pursuit of occupational activity rather than irresponsible youthful use of high speed vehicles. The rise in the peak of accidents between 6 pm – 9 pm is possibly the result of late homecoming, coupled with the hazards of road illumination.

The predisposition of the lesion to affect the right side in the road accident series, in country where traffic flows on the left, is presumably the result of

Table No. 2

AGE, SEX & ETHNIC DISTRIBUTION (100 CASES)

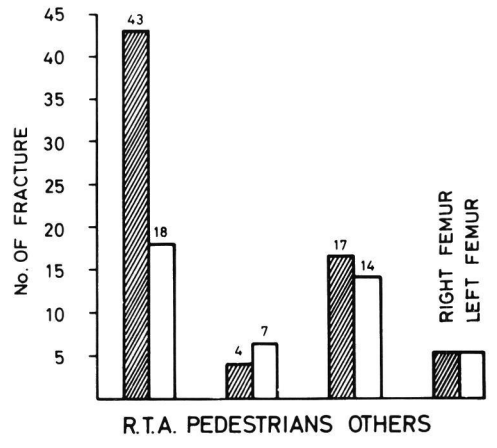


AGE (YRS)	CHINESE	MALAY	INDIAN	OTHERS	MALE	FEMALE
0-10	3	1	-	1	5	-
11-20	14	3	3	-	17	4
21-30	26	9	8	-	42	1
31-40	8	1	4	-	11	1
41-50	1	3	3	2	8	1
51-60	3	-	3	-	6	-
ABOVE 60	1	-	3	-	3	1

OVERALL AVERAGE AGE (100 CASES)–29·2 YEARS

Table No. 3

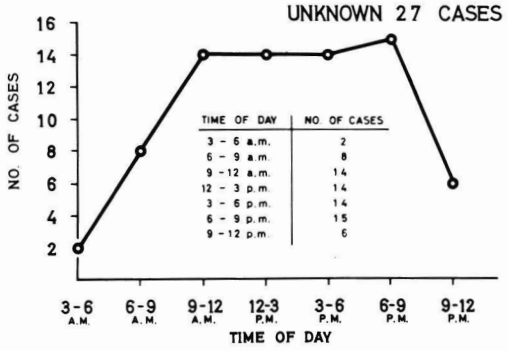
SIDE OF FRACTURE



either head-on collision or overtaking from either side or accidents at road junctions, a hypothesis substantiated to some extent by tables nos. 3 and 8 but needs further investigation. The complete lack of any form of physical restrainers in either road accident or industrial series is a practice deprecated for some time among the more technocratic countries

Table No. 4

GRAPH SHOWING TIME OF FRACTURE OCCURANCE TOTAL 73 CASES UNKNOWN 27 CASES



and the compulsory use of which has been long since legislated.

It appears, therefore, that accidents in general and road accidents in particular, tend to exhibit certain physical variables in respect to age, sex, ethnic distribution, diurnal variation, etc., comparable to the biological variables of conventional disease. Furthermore, should the traditional concept of host, agent and environmental interplay as a cause of lesion be applied to this series, it would follow that preventive measures, when contemplated, must encompass all the three parameters. The host remains the prime medical responsibility. By his training and insight into biological science and by caring for the physical and psychological integrity of the host, the physician helps keep factors involved in human variables to an optimum.

The recognition and understanding of the limits of human perception and ability, both physical and psychological, by the science of ergonomics and the application of such knowledge in the designing and

Table No. 5

TIME OF DAY ROAD TRAFFIC ACCIDENT OCCUR

TIME OF DAY	No. OF CASES
3 - 6 a.m.	2
6 - 9 a.m.	7
9 -12 a.m.	10
12 - 3 p.m.	7
3 - 6 p.m.	10
6 - 9 p.m.	15
9 -12 p.m.	4

16 CASES NOT KNOWN

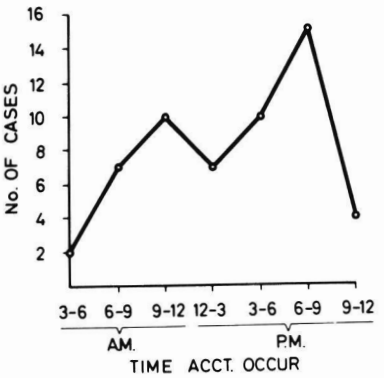


Table No. 6.

SITE OF ROAD TRAFFIC ACCIDENTS

SITE	NO. OF CASES
Built up areas	31
Rural area/road	18
Highway	7
TOTAL	56

15 cases unaccountable

Only five cases gave history of taking alcohol before accident occured. None of the cases among the road accident series had used any form of protectives.

Table No. 7

CLASSIFICATION OF CASES WITH AGES IN ROAD ACCIDENT SERIES

Patient	C	M	I	O	Total	Average Age
Car driver	3	1	–	–	4	22.3 years
Motorcycle rider	21	4	7	–	32	28.7 years
Bicycle rider	2	1	3	–	6	29.5 years
Passenger/pillion	9	5	3	1	18	20.1 years
Pedesterian	4	2	4	1	11	39.6 years
Total	39	13	17	2		

C = Chinese; M = Malay; I = Indian; O = Others.

Table no. 8

TYPE OF VEHICLE AND CAUSE OF ACCIDENT IN ROAD ACCIDENTS

Vehicle	No. & cause of accident					Total
	H.O.	R.J.	O.F.	Sk.	Uk.	
Motorcycle	18	8	7	11	2	46
Bicycle	1	—	3	2	—	6
Cars	2	—	1	3	2	8
						60
						† 11
						pedestrians

H.O. = head on collision
R.J. = accident at road junction
O.N. = onflow traffic accident
Sk = skidding
Uk = unknown

manufacture of vehicles, enable constant modification and alterations in vehicular designs which help curtail some of the physical basis of accidents. It is for the last factor, a rapidly changing environment of high speed vehicles, of highways and expressways, of traffic lights and traffic regulations, of road illumination and road surfaces (to mention but a few) that we need to invoke a close cooperation and collaboration between different branches of planning and engineering with biological sciences. To be effective, such an organisation needs to be at local, state and national level.

Without further detailed and factual information, it is not possible to state if this represents the national trend today but in view of the nationwide road network envisaged and rapid urbanisation already on the way, unless adequate steps are taken in time, this may well be the picture of tomorrow.

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Intestinal parasites, eosinophilia, haemoglobin and gamma globulin of Malay, Chinese and Indian schoolchildren

(Paper read to the Malaysian Society of Parasitology and Tropical Medicine – "Rural Health Seminar" on 25th January, 1970.)

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PARASITES (protozoa and helminths) are commonly seen in people in the tropics. Very little is known regarding the incidence and nature of these parasites in Malaysian school children of different ethnic groups (Malay, Chinese, Indian and Orang Asli – "Original people of Malaya") living in the country. The cultural practices and the different conditions (social, economic) under which the various communities live is thought to influence the incidence of parasitism. The present report gives the incidence of the various parasites in these different groups of children.

Material and Methods

Four parameters were used in the study, namely stool examination, eosinophilia (significant if above 8%), haemoglobin (anaemia if below 70% (10.6G%)) and increase of gamma globulin after determination of serum proteins. A sample of children from five schools, namely rural Chinese (Bukit Tinggi School), rural Indian (Seafield Estate School) and rural Malay (Sekolah Kebangsaan Kg. Kuantan School, Kuala Selangor), a semi-rural Malay (Ulu Klang School) on the outskirts of Kuala Lumpur and an urban (Sultan Alam Shah School), Petaling Jaya were studied. In the latter two schools, the gamma globulin was not determined. The urban school had children of all three racial groups (Malay, Chinese and Indian) and they were studied separately.

The ages of the children in all the schools studied ranged from 7 to 12 years, except in the urban school in Petaling Jaya where it was 10 to 12 years. Stool examination was carried out by the formol-ether concentration technique and a gram of wet faeces (equivalent to a large pea) was used for determination of parasitic constituents. In the Orang Asli children at Gombak Hospital, three direct smears were examined before the specimen was pronounced negative for parasites. The proteins were electrophoresed on cellulose-acetate and the fractions were quantitated in the usual manner. Thick and thin blood smears were stained with Giemsa stain for blood parasites. All the children were weighed and their weights recorded in pounds.

Results (See Tables 1 and 2)

In the rural group, 60 per cent of the Chinese children carried no helminths compared with 12.7 per

TABLE 1

INVESTIGATION INTO STOOL PARASITES EOSINOPHILIA AND HAEMOGLOBIN

CHINESE–BUKIT TINGGI SCHOOL, PAHANG

TOTAL (AGE)	ASCARIS	TRICHURIS	HOOKWORM	ENTEROBIUS/ STRONGYLOIDES/ OPISTHORCHIS/ CLONORCHIS	ONE HELMINTH INFECTION	TWO HELMINTH INFECTION	THREE HELMINTH INFECTION	NO HELMINTH INFECTION	E.HISTOLYTICA	G.LAMBLIA	E.COLI	E.NANA/ I.BUTSCHLII	NUMBER WITHOUT ANY PARASITIC INFECTION	M.P/ M.F.	EOS ABOVE 8%	Hb BELOW 10·6G (70%) (INVARIABLY HELMINTHS-HOOKWORM)	GAMMA-GLOBULIN 1·42±0·19g/100ml.
96 (7–11 YRS.)	14 MAX 200 EGGS/G (14·5%)	21 MAX. 300 EGGS/G ((22%)	21 MAX. 50 EGGS/G (22%)	12 ENTEROBIUS 1 STRONGYLOIDES	20 (21%)	18 (19%)	0	58 (60%)	0	10 (10·5%)	1 (1%)	5 (E. NANA) (5·2%)	46 (47·9%)	0	45 (HIGHEST 27%) (46·8%)	16 LOWEST 7·6G (50%) (17%)	0·83 (AVERAGE 14)

INDIAN–SEAFIELD ESTATE (RUBBER-OIL PALM) TAMIL SCHOOL, SELANGOR

110 (7–11 YRS.)	38 MAX 2500 EGGS/G (34·5%)	65 MAX. 2000 EGGS/G (59%)	59 MAX. 2000 EGGS/G (53·5%)	2 ENTEROBIUS 5 STRONGYLOIDES	42 (38%)	39 (35·4%)	15 (13·6%)	14 (12·7%)	4 (3·5%)	10 (9%)	28 (25·5%)	4 E. NANA 1 I.BUTSCHLII (4·5%)	12 (11%)	0	80 (HIGHEST 36%) (73%)	24 LOWEST 5·4G (35%) (22%)	1·17 (AVERAGE 6)

MALAY–SEKOLAH KEBANGSAAN KG. KUANTAN, KUALA SELANGOR

138 (7–11 YRS.)	118 MAX 1000 EGGS/G (85·5%)	121 MAX. 2000 EGGS/G (87·5%)	20 MAX 200 EGGS/G (14·5%)	0	23 (16·5%)	88 (64%)	20 (14·5%)	7 (5%)	1 (0·7%)	7 (5%)	20 (14·5%)	1 E.NANA (0·7%)	4 (3%)	0	87 (HIGHEST 29%) (63%)	0 LOWEST 11·2G (75%)	

MALAY–ULU KLANG SCHOOL, KUALA LUMPUR

183 (7–12 YRS.)	91 MAX 1000 EGGS/G (50%)	150 MAX. 1000 EGGS/G (82%)	62 MAX. 200 EGGS/G (34%)	1 OPISTHORCHIS/ CLONORCHIS	65 (36%)	63 (34%)	37 (20%)	18 (10%)	5 (3%)	8 (4·5%)	35 (19%)	24 E. NANA 1 I.BUTSCHLII (13·5%)	11 (5·45%)	3 1 PF. 2 PM. (1·05%)	97 (HIGHEST 32%) (53%)	6 LOWEST 9G (60%) -3 CHILDREN 1) P.FALCIPARUM, ASCARIS & TRICHURIS 2) P.MALARIAE, ASCARIS, TRICHURIS HOOKWORM (3%)	1·73 (AVERAGE 10)

SULTAN ALAM SHAH SCHOOL, PETALING JAYA

151 (10–12 YRS.)	MAX. 200 EGGS/G	MAX. 200 EGGS/G	MAX. 50 EGGS/G														
MALAY 46	8 (17·4%)	20 (44%)	1 (2%)	0	20 (44%)	2 CHILDREN	1 CHILD	23 (50%)	0	2 (4·3%)	–	1 E. NANA (2%)	20 (44%)	0	12 (26%) HIGHEST (22%)	NOT DONE	NOT DONE
CHINESE 76	9 (11·8%)	11 (14·5%)	–	0	16 (21%)	1 CHILD	–	59 (78%)	0	–	–	1 E. NANA (1·3%)	56 (73%)	0	12 (16%) HIGHEST (20%)	NOT DONE	
INDIAN 29	6 (20%)	5 (18%)	1 (3·4%)	0	9 (31%)	4 CHILDREN	1 CHILD	15 (52%)	0	1 (3·4%)	3 (10%)	3 E. NANA (10%)	8 (28%)	0	14 (48%) HIGHEST (30%)	NOT DONE	

TABLE 2

GOMBAK HOSPITAL (ORANG ASLI)

AGE	TOTAL EXAMINED	ASCARIS	TRICHURIS	HOOK WORM	E. COLI	E. NANA	GIARDIA	E. HISTOLYTICA	OTHERS (TRICHOMONAS)	ONE HELMINTH INFECTION	TWO HELMINTH INFECTION	THREE HELMINTH INFECTION
1-12 YEARS	100	69 69·0%	80 80·0%	51 51·0%	4 4·0%	-	25 25·0%	1 1·0%	7 7·0%	18 18·0%	44 44·0%	31 31·0%

cent Indian children and 5 per cent Malay children. Ten per cent of the semi-rural Malay children were helminth-free. In the urban school, the figures for "no helminth infection" among the children in the different ethnic groups was Chinese 78 per cent, Indian 52 per cent and Malay 50 per cent.

Considering the rural school children "without any intestinal parasitic infection" (helminth and protozoa) the figures for the Chinese were 47.9 per cent, Indian 11 per cent and Malay 4 per cent. In the semi-rural Malay school, only 5.45 per cent did not show any such infection (helminth and intestinal protozoa). In the urban school, the figures for "no intestinal parasitic infection" among the children in the different ethnic groups was Chinese 73 per cent, Indian 28 per cent and Malay 44 per cent.

Higher levels of **Ascaris lumbricoides** (85.5%) and **Trichuris trichiura** (87.5%) was found in rural Malay school children.

Higher levels of hookworm were found in rural Indian children (53.5%) and also a higher incidence of **Strongyloides** i.e. those larval helminths which, by penetrating the skin, cause infection.

A higher incidence of **Enterobius** (12 cases) was seen in the Chinese school children.

No **Enterobius** or **Strongyloides** were detected in rural Malay children but the semi-rural Malay children showed a significant hookworm load (34%) and **Ascaris** (50% or 1 in 2 children). **Trichuris** infection was relatively the same in the two Malay schools.

No rural Chinese child had all three helminth infections whereas it was found in both the rural Indian and Malay children.

No **Entamoeba histolytica** cysts were seen in the Chinese children whether from rural or urban areas, but it was present in a small percentage of rural Indian and Malay children.

Giardia lamblia was present in all the children in the different ethnic groups and slightly more cases were seen in the rural Chinese children (10.5%), Indian (9%) and Malay (5%). Urban Malay (4.3%) and Indian (3.4%) children carried the infection.

Three cases of malaria (one **P. falciparum** and two **P. malariae**) were seen in semi-rural Malay children. No microfilariae was detected in the day blood of any child in the survey.

All the three groups of children showed blood eosinophilia associated with their parasitic infections. Eosinophilia was highest in rural Indian children (73%), followed by rural Malay children (63%) and rural Chinese children (46.8%).

The lowest haemoglobin level recorded in rural Indian children was 35% (5.4G) and these children as a group showed the highest number of anaemia cases; 24 children (22%) had haemoglobin levels below 70%. The lowest haemoglobin recorded in the rural Chinese children was 50% (7.6G). Sixteen (17%) had Hb levels below 70%. Six semi-rural Malay children were anaemic. The lowest Hb recorded was 60% (9G) and three of these children had a malaria infection together with intestinal helminths. Among the rural Malay children, the lowest haemoglobin level found was 75% (11.2G).

The gamma globulin levels of all groups were within normal limits; however, the highest levels were found in Malay semi-rural children.

Sultan Alam Shah School, Petaling Jaya (Urban school)

The children in this school come from urban families. They showed presence of intestinal helminths but with a reduced incidence and intensity of infection. The Chinese children had a lower percentage of helminths and no hookworm was found in them compared to the other racial groups in whom also the infection was here very low.

No **Enterobius** infection was found, although the stools tested were in a slightly higher age group, 11 to 12 years and of course the Scotch-tape method was not used.

A number of the children had one helminth infection, the highest being in Malay children (44%), Indian (31%) and then Chinese (21%). Only one Indian and one Malay child had all three helminths, **Ascaris, Trichuris,** hookworm.

Seventy-eight per cent of the Chinese children were without any helminth infection and 73% without any intestinal parasitic infection. The figures for Malay children was 50% and 44% and for Indian children 52% and 28% respectively.

No malaria parasites or microfilariae in day blood were found in this group.

In view of this group harbouring parasitic infections, a significant proportion of these children had eosinophilia in the blood (See Table 1).

Gombak Hospital (Orang Asli)

Ninety-three per cent of these children had helminth infections, with a high percentage of the children suffering from **Ascaris** (69%), **Trichuris** (80%) and hookworm (51%).

One in four children suffered from **G. lamblia** infection; **Trichomonas hominis** was also found in seven per cent of all the stools examined. A single case of **E. histolytica** was detected.

Other Helminths

Other helminth infections were rare in the children. No cestodes such as **Hymenolepis nana** was detected. Sandosham (1954) and Lie Kian Joe (1964) also reported on the rarity of cestode infections generally; Sandosham (1954) found **Dipylidium caninum** ova in an aboriginal girl. A single case of **Opisthorchis Clonorchis** infection was found in a child in the semi-rural Malay school at Ulu Klang, near Kuala Lumpur, and investigations revealed that she came from Kuantan, Pahang, nearly 200 miles away.

Weights

The average weights of both boys and girls in the 10-year age group were rural Chinese school 55.3 lbs. (lowest 45 and highest 75 lbs.), rural Indian school 48.9 lbs. (lowest 42 and highest 60 lbs.), rural Malay school 49.3 lbs. (lowest 40 and highest 63 lbs.), semi-rural Malay school 53.5 lbs. (lowest 42 lbs. and highest 76 lbs.), and urban school 62.2 lbs. (lowest 50 and highest 92 lbs.).

Discussion

Parasitic infection is prevalent in children of all racial groups. Lie Kian Joe (1964), who found few reports on the prevalence of intestinal parasites in Malaysians, found **Ascaris, Trichuris** and hookworm to be common in Malaya. Bergner and Tantalo (1963) found intestinal parasites in 92.5% of the people surveyed throughout the Federation of Malaya in 1962. The incidence in the military groups were considerably lower than in the civilian population. **Trichuris trichiura,** the most common helminth, ranged from 81 to 100%, followed by **A. lumbricoides** 15 to 97% and hookworm 34 to 91%. **E. vermicularis** averaged 5.2% and **E. histolytica** 0 to 13%.

Both pathogenic helminths and protozoa were found to be highest in the Orang Asli children (the level of malaria parasitaemia was not determined in this group) when compared to the other racial communities. This is to be expected considering their way of life in the jungle or on the edge of primary forest in close communities. A higher prevalence rate of parasitic infection was found in rural Malay and Indian children compared to rural Chinese children. In the study, the rural Indian, Malay and Orang Asli harboured **E. histolytica** cysts in a low percentage.

Contrary to popular belief, urban children suffer from parasitic infections, but it is in the rural children that the greater worm burden is seen reflecting their closer contact with soil. Greater prevalence of helminths in Malay and Indian children is suggested to be related to, (1) eating habits i.e. "chop-sticks" in the case of Chinese and "fingers" with Malay and Indian communities, and (2) the overall health status and resources (economic) of the Chinese population in being able to provide a better nutritional diet may probably play some part in their overall lower incidence of intestinal helminth infection.

Single stool examination, as opposed to three to six stool examinations spaced at intervals, will not reflect the true incidence of **Strongyloides stercoralis** infection but generally it has been found much less common than hookworm infection in the present study. Schacher and Danaraj (1960), who studied the relationship between tropical eosinophilia and intestinal helminth infection among patients of the General Hospital in Singapore, found a prevalence rate of 4 per cent. Sandosham (1955) recovered the worm in 6 per cent of 1,300 stool cultures of hospital patients in Singapore in 1948.

As stool examination is not an efficient method to detect **E.vermicularis** infection, the number of children in each ethnic group found to harbour the infection does not reflect the actual prevalence rate of the infection in Malaya. Sandosham (1955) found

a 40 per cent positive rate of infection in Singapore.

It is significant that while Kuala Lumpur may claim to be free of malaria, some transmission of the disease does take place on the outskirts of the city.

In view of the high incidence of parasitism, this, by itself, is not the only factor in the causation of anaemia except in the three Malay children with chronic malaria. Dietary intake is very important, especially in the rural Indian children. Hookworm infection is important, especially with heavy loads on a background of poor diet. Rural children, with haemoglobin below 70 per cent (10.6G), generally had a higher worm burden and invariably also carried hookworm infection. Peripheral blood films appeared to show only microcytic hypochromic anaemia in most of those examined. Lie-Injo Luan Eng and Virik (1966) investigated anaemias in children of the different ethnic groups in Malaya and found the causes multiple and complex; iron deficiency anaemia with low serum iron levels was by far the commonest and of the 108 children, 71 were Indians, 19 Chinese and 18 Malays. This would confirm our findings that Indian children formed by far the most anaemic group.

Weights generally correlate well with other parameters in the different racial groups. Considering the 10-year olds, it was found that the children in the rural Indian school were at the bottom of the weight scale and the urban school at the top. Both the rural Indian, rural and semi-rural Malay children were well below the average weights of the rural Chinese children whose intestinal worm loads were also the least. The rural Indian children, who formed the largest anaemic group with high intestinal worm loads, showed a poorer nutritional state compared with the other children except the rural Malay children who also had high intestinal worm loads.

Conclusion

It is concluded that intestinal helminths (**Ascaris, Trichuris,** hookworm) are common in Malaysian children, particularly in rural areas and this, inspite of improvements in general sanitary conditions and increase in the number of health clinics in rural areas in recent years.

As children form the most vulnerable group, the problem of soil-transmitted parasitic infections needs further investigation along the following suggested lines:

(1)The nature of disease, if any, caused by ascariasis, trichuriasis and hookworm infection in children. (Poor diet coupled with a worm burden often carried by particularly rural children in the tropics is in some part responsible possibly for a poorer school achievement when compared to the urban child).

(2)attitudes of the different racial groups to worm infections generally.

(3)control of environment factors leading to infection.

(4)treatment (mass chemotherapy) of ascariasis in kampongs and rubber estates and its relation to reinfection, including the pattern of worm replacements. Attempts should also be made to treat **Trichuris** and hookworm.

Summary

The results of a survey of stool parasites, eosinophilia and haemoglobin of primary rural school children according to ethnic group (Malay, Chinese, Indian) is presented and compared with semi-rural Malay children and urban Malay, Chinese and Indian school children.

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Pathology of experimental neonatal diarrhoea from *Escherichia coli*

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RABBITS 8 to 12 days old develop diarrhoea with distinctive symptoms when various human enteropathogenic bacteria are injected into the duodenum by laparotomey (Ghosh, 1969). Only the pathology of cholera in baby rabbits has been studied in detail, and it closely resembles the natural infection in man. Evidence is now presented that **E. coli** enteritis in baby rabbits has a close similarity to infantile diarrhoea in children and also to experimental cholera. Professor Scott Thompson (1955) and others have already emphasised the clinicopathological similarities between natural cholera and infantile diarrhoea.

MATERIAL AND METHODS

Cultures: The enteropathogenic **E. coli** (EEC) 65/56 of serotype 0-26:B-6:NM was received from Dr. Joan Taylor, Central Public Health Laboratory, London and maintained without subculture for about three years on an egg-saline slope at room temperature (ca. 26° C). EEC 0-127a:B-8:H-6 was isolated in our laboratory from the liquid stool of a child. It is peculiar for its serotype in being motile (Edwards and Ewing, 1967). Controls were inoculated with a K **E. coli** isolated in this laboratory from urine and inagglutinable with polyvalent EEC antiserums (Burroughs Wellcome Ltd.).

Animals: Three strains of rabbits were used. Strain I was a family (i.e. closed colony started with a single litter) of blackpointed Californians which have a relatively simple genotype and are highly susceptible to cholera vibrios (Cruickshank et al. 1966). Strain II came from a long-established closed colony started with mongrels. Strain III was derived from Strain II a few generations ago, but is kept under different conditions.

Methods: The inoculum was 0.5 ml of a four-hour culture at 37 C in Difco brain-heart infusion broth and contained ca. 10 viable cells. Rectal contents collected with flexible nylon microswabs and diarrhoeic stools were plated on MacConkey's medium and grown overnight at room temperature. At this temperature, most indigenous coliforms of the rabbits formed rosy pink colonies while the human strains, together with a few rabbit bacteria, formed red colonies, which allowed some discrimination in selecting suspicious colonies for transfer to agar slopes. The subcultures were suspended in saline, steamed for one hour and tested by slide agglutination with specific 0 serums prepared in rabbits in the laboratory and diluted 4 – 6 fold with saline to agglutinin titres of 1:150 (Edwards and Ewing, 1967).

Results

E. coli of urine: Of four rabbits from different litters given the **E. coli** from urine, one did not excrete it in detectable numbers. In the rest, about 5 – 30% of

coliforms in rectal swabs, from 24 hours after inoculation till the termination of the experiment seven days later, were of the administered type. At necropsy, it constituted about one-third of all bowel coliforms which were limited to the distal ileum (total count of coliform colonies ca. 10) and colon (count ca. 10).

EEC 65/56 & rabbit strains: All rabbits inoculated with EEC either became healthy carriers, or developed transient or fatal diarrhoea. Litters varied considerably in proneness to develop diarrhoea. Thus seven out of eight rabbits from two litters of Strain II infected with EEC/65/56 had fatal diarrhoea, while all four from another litter of the same strain became merely carriers. Of eight rabbits from three litters of Strain III, three became carriers, three had transient diarrhoea and two died with diarrhoea. Four rabbits from two litters of Strain I were inoculated with only ca. 10 viable cells: three had fatal diarrhoea and one became a carrier.

Carriers: In carriers of all rabbit strains, EEC 65/56 was first detectable in rectal swabs 24 – 26 hours after inoculation, forming 8 – 20% of all coliform colonies. Within the next 12 hours, it formed 50 – 90% of coliforms. Only one rabbit showed appreciable reduction in the proportion of EEC from the sixth day after inoculation; others continued to excrete almost pure EEC with a few streptococci and other noncoliform bacteria as long as the ninth day, when they were killed. At necropsy blood, spleen, bile, stomach and duodenum were sterile. A loopfull of the contents of the mid-ileum yielded moderate pure growth of EEC, while the terminal ileum and colon gave heavy growths. Haematoxylin-eosin stained paraffin sections of formalin-fixed tissues from various levels of gut showed no abnormality.

Fatal diarrhoea: Began on the second or third day in rabbit Strains I and II, lasting 2 – 4 days. One rabbit of Strain III had diarrhoea on the fifth day and died two days later, while the other developed diarrhoea only on the seventh day and died next morning. The liquid discharge was greenish and faecal (not rice-watery) with a strong offensive odour. In rectal swabs EEC 65/56 appeared in small numbers 24 – 36 hours after inoculation, irrespective of the clinical incubation period, and rapidly reached a concentration of 50 – 80% of the coliforms. In diarrhoea stool, they grew in almost pure culture. Wet and gramstained films showed dense coliforms and a few epithelial cells with absence of pus cells, red cells and parasites.

The general condition deteriorated markedly with onset of diarrhoea. Culture of stomach juice during diarrhoea gave light to moderate growth of EEC in four out of six rabbits. In these four, the acidity was lowered to about pH 3 from the normal pH 1 – 2. At necropsy, the viscera looked normal, apart from signs of moderate dehydration, a little opalescent mucoid fluid in the distal half of the ileum, and 5 – 15 ml of faecal liquid (pH 7 – 8) in the colon. On gentle centrifuging, about half the volume of colonic fluid sedimented, leaving a cloudy watery fluid. This was filtered through membrane filters of 0.8u APD. 0.1 ml of the filtrate injected into the skin of adult rabbits did not elicit any local reaction, unlike the increased vascular permeability with cholera stool. Cultures of blood and spleen were negative in three out of eight rabbits. Bile culture was negative in all, and the stomach in five of six rabbits. There was moderate to heavy growth of EEC 65/56 from the duodenum of all eight, with heavy growth from their ileum and colon. Culture from the small intestine gave pure EEC on aerobic plates, and from the colon an almost pure growth.

Histology revealed nothing striking. The columnar epithelium of the lower ileum showed slightly increased basophilia, loss of surface mucin layer, hyperactivity of goblet cells, and groups of bacilli adhering to the intact brush border, especially near the base of the villi and in crypts without invasion of the epithelial cells or deeper tissues. A variable proportion of the villi showed mild subepithelial oedema at the tips and some congestion. There was no necrosis or inflammatory cell infiltration. The colon was normal.

Transient diarrhoea: In four rabbits, diarrhoea resolved in 1 – 4 days. EEC was cultivable from stomach juice in two during diarrhoea only. These continued to excrete almost pure EEC till killed 3 – 4 days after the cessation of diarrhoea, by which time the general condition had returned to normal. The cultural and histological findings at necropsy were the same as those in healthy carriers.

Serum agglutinin: The serum of carriers and diarrhoeic animals collected 6 – 8 days after inoculation had titres of less than 1:20 in tube agglutination and passive haemagglutination tests (Neter et al., 1952) using the inoculated strain as antigen.

EEC 0:127: Apart from the above rabbits, seven rabbits of Strain III infected with EEC 0-127a all became carriers; as did one of Strain II, the other one having transient diarrhoea only. Their pathological and bacteriological features were similar to those already described.

Discussion

In spite of the small number of observations, the results suggest that environmental factors like housing, apart from the inherent variations in **E. coli** and rabbit strains, contributed to the differences in susceptibility, e.g., in incidence of diarrhoea in rabbit Strains II and III. This may have some bearing on the observation that EEC strains may spread and persist in children's institutes without causing symptoms (Payne and Cook, 1950).

The symptomatology in baby rabbits, in both carriers and sick ones, showed a close resemblance to natural infantile enteritis. It is notable that a normal human **E. coli** strain could establish itself in the rabbits in the face of competition from a large excess of the indigenous bacteria, reaching a concentration of up to a third of the total aerobic bacteria. However, Cooke et al. (1969) have shown that the stools of normal men contain waves of different **E. coli** strains, each lasting from a few days to months although animal **E. coli** do not seem to establish easily in human bowel (Smith, 1969). It is plausible that the urinary strain gained a foothold in the distal ileum of rabbits where the normal flora comprised few bacteria. This strain failed to reach the high concentration that EEC attained and did not involve the proximal ileum. It would be interesting to see whether EEC produces colicines to inhibit the normal flora.

Thomson (1955) recovered by intubation EEC from the stomach of many children with diarrhoea and from the duodenum of nearly all. It has been speculated from such findings together with necropsies on scours of calves and piglings (Smith and Hall, 1968) that the occurrence of diarrhoea requires the invasion of the proximal ileum. Although similar findings were made in baby rabbits, it is by no means certain that the organisms did not invade the oral end of the ileum after derangement of the normal cleansing mechanism of the gut associated with diarrhoea, as is probably the case in experimental cholera. The failure of EEC to infect the proximal ileum in healthy carriers and its disappearance from this region in convalescents indicate that such localisation is conditioned largely by the host.

In milk acidified with conc. HCl, all three **E. coli** strains survived at 37° C for about three hours at pH 3, but only a few minutes at pH 2. This explains the recovery of the bacteria from the stomach of sick animals with high pH.

The absence of rise in serum agglutinin titre to EEC accords with recent experience in children (McNaught, 1958). Undoubtedly, EEC entered the circulation in many rabbits with advanced disease, but any belated rise in agglutinin due to this in rabbits would have been missed in the series.

Little is known about the internal pathology in human infantile diarrhoea, mainly because death is infrequent with treatment and postmortem changes rapid in the intestines. The findings in baby rabbits are essentially similar to those in experimental cholera (Cruickshank et al., 1966), although milder.

In cholera, the absence of inflammatory cells and other features suggested exotoxin-provoked lesions, and led to the discovery of an enterotoxin (Cruickshank et al., 1966). Smith and Halls (1968) have shown that EEC of piglings produce exotoxin under the control of a plasmid. The same remains to be confirmed in human strains.

Summary

Three strains of baby rabbits, infected with two EEC strains, became carriers or developed diarrhoea, the EEC almost replacing the indigenous coliforms. The EEC were located on the cell surface in the distal ileum and colon, and in sick animals also in the proximal ileum and sometimes in the stomach. Systemic invasion was terminal and irregular. Histologically, there was minimal congestion and oedema of villi of the distal ileum only. A nonvirulent strain was able to establish itself in the terminal ileum only and remained a minority in the coliform population. Similarity of this experimental system with infantile diarrhoea in man and with natural and experimental cholera is emphasised. A suitable strain of baby rabbits could provide a useful model for investigating the pathogenesis and management of human **E. coli** diarrhoea.

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'Once a Caesarean section'

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THREE HUNDRED AND SEVENTY-SIX deliveries in women who have had one previous Caesarean section are studied. The aim is to find out the obstetric performance of these women. Elective repeat sections were carried out in 72 (19.1%) of patients. Of the remainder, 239 (78.6%) delivered vaginally. Recurrent indications for repeat Caesarean sections are not common apart from cephalo-pelvic disproportion. The lower segment scar was found to be intact in 94.8% of the patients examined. The morbidity rate is increased in patients who had repeat Caesarean sections. Patients who have not had any vaginal delivery before or after the primary Caesarean sections performed badly in the subsequent labours and deliveries.

It is concluded that the majority of these patients be given a trial of labour. More than 60% of these should be able to deliver vaginally.

These women are not always delivered by Caesarean section thereafter. On the contrary, this study sets out to investigate what exactly happens to these women in labour and delivery. Many studies on this problem have had results diluted by including patients who have had two or more previous sections.

Apart from patients who have had recurrent indications for Caesarean sections, there is little doubt that most women, who have had one previous section, should be given a trial of labour subsequently. Browne (1951) noted that it was "not an unduly hazardous venture" to deliver vaginally after a Caesarean section. In fact, Harris (1953) studied the work of Cosgrove and Avites and concluded that it was statistically more hazardous to have a repeat Caesarean section than a vaginal delivery following a Caesarean section.

The problem is one of balancing the risks of the rupture of a uterine scar of unknown quality with those of a repeat Caesarean section. Pauerstein (1966) analysed the results from six authors and showed that the maternal mortality from scar rupture is 0.02% while that from a repeat Caesarean section is 0.14%.

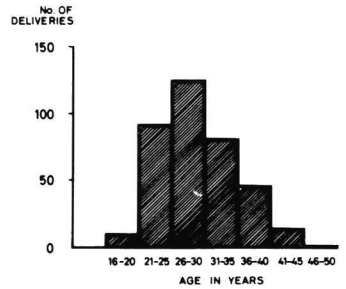
It would seem fair to allow all women with a previous Caesarean section to have a trial of labour unless: (1) there is an indication to deliver the present pregnancy by Caesarean section, e.g. a placenta praevia; or (2) the previous indication for Caesarean section still exists in this pregnancy e.g. definite cephalo-pelvic disproportion. This, in fact, is the policy of the Nuffield Department of Obstetrics and Gynaecology when the patients in this study were delivered.

MATERIALS

The study covers the period 1960 to 1967 inclusive. Three hundred and twenty-one patients, with one previous Caesarean section each delivered in this period. They had a total of 376 deliveries. The age distribution of these patients at the time of the study is shown in Figure 1. The commonest age group is 26 – 30 years.

Mode of deliveries

The method of delivery of the babies is shown in Figure 2. Of the 376 deliveries, 63.6% were delivered vaginally. Seventy-two patients (19.1%) were not allowed to labour. Hence, of those allowed a trial of labour, 239 (78.6%) were delivered vaginally.



AGE DISTRIBUTION OF PATIENTS IN STUDY

Fig. 1

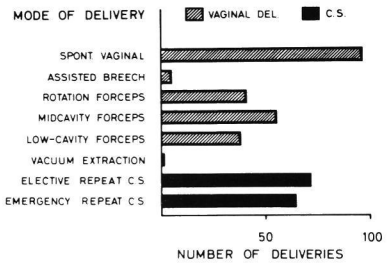


CHART SHOWING THE MODE OF DELIVERY OF THE 376 BABIES. 63·6% WERE DELIVERED VAGINALLY.

Fig. 2

PARITY	NUMBER	
	PRIMARY C.S.	DELIVERY IN STUDY
0	305	–
1	36	228
2	13	73
3	13	36
4	7	22
5	1	11
6	1	5
7	–	1
TOTAL	376	376

Parity of patients at the primary cesarean section and at the delivery in this study.

TABLE I

Parity

The parity of the patients at the time of delivery is shown in Table 1. It is seen that most of the patients (228) have had only one baby, i.e. the one delivered by the primary Caesarean section.

Indications for Caesarean Section

The indications for the primary Caesarean sections are set out in Table II. For the primary operation, it is noted that prolonged labour (including incoordinate uterine action) forms the largest single group of patients. Fetal distress and placenta praevia are the next commonest groups. It is noted that apart from those sectioned for cephalo-pelvic disproportion, only a small percentage of patients was operated on for a recurrent indication. A scar in the uterus plus an unfavourable feature, such as an unripe cervix, high presenting part or a presenting part that is off centre, is the commonest new indication for a repeat Caesarean section.

INDICATIONS	PRIMARY C.S.	REPEAT C.S.	
		RECCURENT INDICATION	NEW INDICATION
PROLONGED LABOUR	97	7	3
FETAL DISTRESS	54	4	7
PLACENTA PRAEVIA	53	1	5
CEPHALO-PELVIC DISPROPORTION	39	17	12
TOXAEMIA OF PREGNANCY	30	2	–
CORD COMPLICATIONS	14	–	1
ABRUPTIO PLACENTAE	11	–	1
FAILED INDUCTION	10	–	13
MISCELLANEOUS	68	7	22
PREVIOUS C.S. + UNFAVOURABLE FACTOR	–	–	49

TABLE II INDICATIONS FOR CAESAREAN SECTIONS

TYPE OF SCAR		NUMBER
LOWER SEGMENT	TRANSVERSE	368
	VERTICAL	1
UPPER SEGMENT		1
INVERTED T		1
HYSTEROTOMY		4
UNKNOWN		1

TYPE OF SCAR IN THE UTERUS

TABLE III

State of Scar	Number of patients
Sound	148 (94.8%)
Weak	5 (3.2%)
Window defect	1 (0.6%)
Incomplete rupture	1 (0.6%)
Complete rupture	1 (0.6%)
Total	156

TABLE IV: STATE OF UTERINE SCAR AT DELIVERY

The Uterine Scar

The type of scar in the uterus is shown in Table III. The commonest type of scar is the lower segment transverse scar.

The uterine scar was palpated and recorded in 156 patients at the time of delivery. Of these, 148 (94.8%) were found to be sound. (Table IV). In the other patients, it is presumed that the scar was either not palpated or if palpated, the entry into the case records was overlooked. There were three cases of uterine rupture.

Dilation of the os and subsequent delivery

In 253 patients, the state of the cervical os at the primary Caesarean section was known. In relating this to the performance of the subsequent labour and delivery, it is only fair to exclude those who did not labour but had repeat elective Caesarean sections. Table V shows the results. Though shown, the number of patients who had repeat elective Caesarean sections are excluded in calculating the duration of labour and the birth-weights of the babies.

The perinatal loss in this small series is not contributory.

There is evidence to show that those who had their primary Caesarean section when the os is not dilated do well at the subsequent labour. This may be due to the fact that many of these are, in fact, patients who have not laboured at all because of elective Caesarean sections before labour. The average duration of labour for this group is 461.5 minutes. There does not seem to be evidence to support the belief that the greater the dilatation of the os at the primary Caesarean section, the better the performance at subsequent deliveries.

Maternal morbidity and mortality

This is shown in Figure 3. There is no maternal mortality. This result has to be studied in relation to the fact that 239 vaginal deliveries and 137 Caesarean sections were studied. There is a definite increase in blood transfusion, puerperal anaemia, puerperal pyrexia and urinary tract infection in patients who were delivered by repeat Caesarean sections. The patients with rupture of uterus sustained the injury during the trial of labour and are therefore not complications of the sections.

Previous vaginal delivery and the present performance

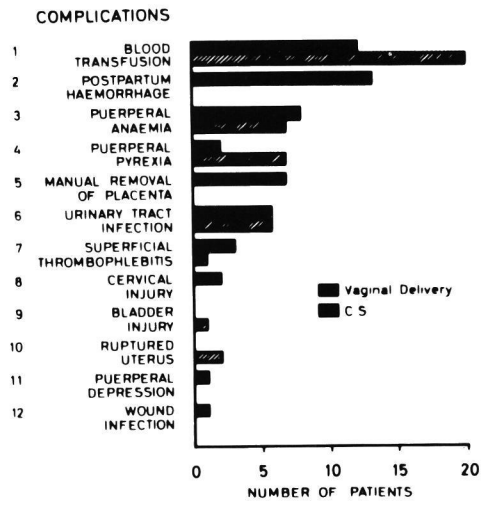
In this study the patients are divided into the following four groups:

Group I: Patients with vaginal deliveries before and after the primary Caesarean section.

Group II: Patients with vaginal deliveries before the primary Caesarean section.

DILATATION OF OS AT 1st C.S.	MODE OF DELIVERY VAGINAL EMER.	C.S. ELECT.		AVERAGE DURATION OF LABOUR (mins)	AVERAGE BIRTH-WEIGHT (gms)	PERINATAL LOSS SB VD	SB CS	NND VD	NND CS
0 cm	64	13	22	461.5	3334	2	1	–	–
1–3 cms	26	12	10	770.6	3497	1	1	–	1
4–6 cms	31	12	12	692.3	3540	1	–	–	–
7–9 cms	16	9	5	700.4	3685	1	–	–	–
10	6	2	3	322.5	3538	–	–	–	–

TABLE V RELATION BETWEEN THE CERVICAL DILATATION AT THE PRIMARY C.S. AND SUBSEQUENT LABOUR



MORBIDITY FOLLOWING VAGINAL DELIVERIES AND CESAREAN SECTIONS

Fig. 3

Group III: Patients with vaginal deliveries after the primary Caesarean section.

Group IV: Patients who had not had any vaginal delivery at all.

The results are shown in Table VI. For babies of about the same birth-weights, i.e. 3.5 kgm. (except Group I, 3.0 kgm.) it is seen that the patients in Group IV laboured for 854.1 minutes, which is about twice as long as those of the other groups who laboured 420.0 minutes (Group I); 501.8 minutes (Group II) and 400.7 minutes (Group III).

Group I patients had 72.2% delivering spontaneously by the vaginal route and only 11.1% delivering by repeat section. This seems the best obstetric performance of the lot. On the other hand, Group IV patients showed a high incidence of repeat sections and forceps deliveries, while only 10.3% delivered spontaneously by the vaginal route.

DISCUSSION

Many studies in labour and deliveries following Caesarean sections do not make the distinction between those who have had only one previous section and those who have had more than one section. This may be an important factor as the patients who have had only one previous section are expected to perform better.

Of the 376 deliveries, 63.6% took place vaginally. This compares favourably with other reports which range from 16.0% reported by Lane and Reid (1954) , to 73.8% reported by Riva and Teich (1961) . In this study, 78.6% of those allowed to labour produced their babies vaginally.

The percentage of these women delivering vaginally will depend to a great extent on the line of management adopted by the obstetrician. For most patients who have a scar on the uterus and who are allowed a trial of labour, 60% vaginal delivery should be within the reach of most centres. This is so because, as can be seen in Table II, the majority of indications for the primary Caesarean section are non-recurrent, like prolonged labour, fetal distress and placenta praevia. It is also noted that the common indication for a repeat Caesarean section is a uterine scar plus an unfavourable factor. The other common indication is failed induction of labour.

Under present day obstetric practice, the quality of all types of uterine rupture is 1.8%. This is a little high when compared with other series. Thus, Salzmann (1964) reported 0.6%; Browne (1951) and Chong (1968) reported 1.08% while Chesterman

	NUMBER OF PATIENTS	AVERAGE DURATION OF LABOUR IN MINUTES	AVERAGE BIRTH-WEIGHT (gms)		MODE OF DELIVERY					
			PREVIOUS BABIES	PRESENT BABIES	SPONTANEOUS VAGINAL DELIVERY	FORCEPS DELIVERY	FORCEPS ROTATION & DELIVERY (• INCLUDES 1 VENTOUSE DELIVERY)	ASSISTED BREECH DELIVERY	ELECTIVE C.S.	EMERGENCY C.S.
V.D. BEFORE & AFTER C.S.	18	420·0	3487	3·042	13 (72·2%)	2 (16·7%)	1	-	1 (11·1%)	1
V.D. BEFORE C.S.	44	501·8	3590	3·501	19 (43·2%)	4 (15·9%)	3	-	9 (40·9%)	9
V.D. AFTER C.S.	76	400·7	3522	3·526	38 (50·0%)	18 (30·2%)	5•	3	8 (15·4%)	4
NO V.D. BEFORE OR AFTER C.S.	234	854·1	3350	3·574	24 (10·3%)	69 (43·6%)	33	2	54 (44·9%)	51

RELATIONSHIP BETWEEN PREVIOUS VAGINAL DELIVERIES AND LABOUR PERFORMANCE

TABLE VI

(1953) recorded an incidence of 1.8% rupture. When one takes into consideration that the three uterine scars ruptured as a result of 321 patients delivering 376 babies, the actual incidence of rupture is in fact less. The maternal mortality from scar rupture is reported as 0.1% to 4.0% (Muller et al 1961 ; Pauerstein 1966). Hence the risk of a patient losing her life as a result of the rupture of a uterine scar is not unduly great. Pauerstein (1966) concluded that the presence of a transverse lower segment uterine scar seemed to add little maternal and fetal risk to that inherent in labour and vaginal delivery.

There is reason, from this study, to question the belief that the chance of vaginal delivery is better, the greater the dilatation of the os at the time of the primary section. Apart from those who had no dilatation of the os at all at the primary section, there is no correlation between these factors.

The incidence of blood transfusion is greatly increased in patients who required repeat section. The risks of blood transfusion has been well taken by Graham-Stewart (1960) Other complications, like puerperal pyrexia, puerperal anaemia and urinary tract infection, are also increased in this group of patients. These, coupled with the inherent risks of an anaesthetic and a major operation, make it desirable that as many patients as possible should be allowed trials of labour with the hope of vaginal delivery. Many of the complications listed in the group who delivered vaginally are, in fact, complications encountered in any spontaneous vaginal delivery. Workers like Allhbadia (1963) and Klinges and Gambrell (1967) also reported low incidences of morbidity in patients with uterine scars who deliver vaginally in subsequent pregnancies.

Feeny (1954) cautioned against any patient with a uterine scar who has not delivered a baby vaginally before being allowed a trial of labour. The results of this study agree that these patients do not perform well and great vigilance is required during the trial of labour. The results in Table VI put a heavy premium on these patients, both as regards to the average duration of labour as well as to the success of vaginal delivery.

In conclusion, a plea is made for careful assessment of patients with a scar in the uterus with a view to allowing a trial of labour. With due vigilance, the risks should only be minimally increased, both for the baby and the mother. The outcome of 60% to 75% of patients delivering vaginally is gratifying both to the obstetrician and to the mother.

Summary

1. Three hundred and seventy-six deliveries following one previous Caesarean section each are studied. Of these 72 (19.1%) had selective repeat sections. Of the remainder, 239 (78.6%) delivered vaginally.
2. Recurrent indications for repeat Caesarean sections are not common apart from cephalopelvic disproportion.
3. The lower segment scar was found to be intact in 94.8% of patients.
4. Blood transfusion, puerperal anaemia, puerperal pyrexia and urinary tract infection are increased in the patients who had repeat Caesarean sections.
5. Those patients who have not had any vaginal deliveries, before or after the primary Caesarean section, performed badly in the subsequent labours and deliveries.

Acknowledgement

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The antibiogram and the distribution of *Proteus* organisms isolated from urinary tracts

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Introduction

THE EMERGENCE of bacteria highly resistant to a multiplicity of drugs has become one of the most important factors which determines the clinical application of chemotherapeutic agents. The frequency of occurrence of bacteria resistant to more than one drug is causing concern to the clinicians. In urinary tract infections, gram negative bacilli are mainly the chief offenders and bacteria resistant to more than one drug are very frequently isolated. (Yorio et al 1967).

The genus *Proteus* is very frequently associated with urinary tract infections and the fact that they are usually more resistant to the drugs normally employed is making it quite difficult to handle such bacterial infections. (Huang and Chuo 1968). The marked differences in the response of the various species of *Proteus* to the various drugs has been reported by Barber and Waterworth (1964). This report is to give an idea of the distribution of the various species of *Proteus* organisms isolated from patients who had, or were suspected of having urinary tract infections in the teaching hospital and also at the same time to discuss the nature of the drug resistant pattern and the extent of the spread of the multiple resistant strains of the organism.

Materials and Methods

Sources of strains

The 302 strains of *Proteus* organisms were isolated from clinical specimens of urines from the teaching hospital during routine examination. Gram negative bacilli showing swarming on blood agar and urease positive were picked up and subcultured on the MaConkey's agar. Individual colonies on MaConkey's agar were then inoculated into the various sugar media given in Table I. Peptone water, gelatine and phenylalanine deaminase test medium were also inoculated. Identification of the organisms is based on the method of Edwards and Erwing (1962).

Drug sensitivity tests

These were done by the discs plate method of Isenberg (1964). Five ml of a four to five hours' broth culture of the organism were used to flood nutrient agar plates. Excess fluid was removed by Pasteur pipettes and dried. Various discs, impregnated with drugs obtained commercially, were placed on the nutrient agar plates. Plates were incubated at 37°C overnight.

Results and Discussion

Table I shows the distribution of species of

TABLE I – BIOCHEMICAL TESTS USED FOR THE IDENTIFICATION OF PROTEUS SPECIES

Species	P. mirabilis	P. vulgaris	P. rettgeri	P. morganii
Glucose	+	+	+	+
Sucrose	+	+	+	–
Lactose	–	–	–	–
Maltose	–	+	–	–
Mannitol	–	–	+	–
Indole	–	+	+	+
Gelatin	+	+	–	–
Phenylalanine	+	+	+	+
Urease	+	+	+	+
No. of strains tested	290	7	3	2
Strains in %	96.3%	2.3%	0.9%	0.6%

TABLE II – DRUG RESISTANT PATTERN OF *PROTEUS* ORGANISMS

Organisms	No. of strains tested	No. of strains resistant to										
		P.	AMP.	S.	T.	CL.	K.	CR.	Ni.	SU.	NA.	NE.
P. mirabilis	290	115	28	31	118	6	33	18	117	191	12	25
P. vulgaris	7	5	3	0	6	0	0	3	2	7	0	0
P. rettgeri	3	3	2	2	3	2	2	3	3	3	0	1
P. morganii	2	2	1	1	2	0	0	2	1	2	0	0

P = Penicillin Amp = Ampicillin S = Streptomycin T = Tetracyclin
CL = Chloromycetin K = Kanamycin Su = Sulphatriad Ni = Nitrofurantoin
CR = Cephaloridin NE = Neomycin NA = Nalidixic Acid

TABLE III – MULTIPLE RESISTANCE PATTERN OF *PROTEUS* SPECIES

Organisms	Total No. of strains tested	Resistant to the number of drugs										
		1	2	3	4	5	6	7	8	9	10	11
P. mirabilis	290	17	35	69	54	13	7	10	5	2	1	0
P. vulgaris	7	0	0	2	2	3	0	0	0	0	0	0
P. rettgeri	3	0	0	0	0	0	1	0	1	0	1	0
P. morganii	2	0	0	0	1	0	0	1	0	0	0	0

Proteus organisms isolated from urine specimen. Among the four strains, Proteus mirabilis predominates and it constitutes more than 95% of the total isolates. Proteus mirabilis has been implicated as being one of the most common etiological agents of a majority of human infections caused by the genus *Proteus.* (Martin 1969). The results shown here concorded well with Martin's observation.

The pattern of antibiotic resistance and the extent of the spread of multiple resistant strains of the *Proteus* organisms are shown in Tables II and III. The results in Table II gives an indication of the negative response of the *Proteus* organisms to the following drugs, Penicillin, Tetracyclin, Nitrofurantoin and Sulphatriad. More than 40% of the Proteus mirabilis are resistant to the above mentioned four drugs, but in the case of the other three species not much can be said about them because of the small number of isolates.

The pattern of resistance of the organisms to a multiple of two, three, four and five drugs is given in Table IV. The drugs are Penicillin, Ampicillin, Streptomycin, Tetracyclin, Nitrofurantoin, Nalidixic Acid and Sulphatriad which are used in the treatment of urinary tract infections. As indicated in the table, a high proportion of the organism is showing a com-

TABLE IV – ORGANISMS SHOWING MULTIPLE RESISTANCE TO TWO, THREE, FOUR AND FIVE DRUGS

Organisms	Resistant to the groups of drugs					
	T/Su.	Ni/Su.	P/T/Su.	T/Ni/Su.	P/T/Ni/Su.	P/Amp/T/Ni/Su.
P. mirabilis	22(35)	8(35)	35(69)	25(69)	39(54)	13(13)
P. vulgaris			2(2)		2(2)	3(3)
P. rettgeri	All the three species are resistant to more than 5 drugs.					
P. morganii	–	–	–	–	1(1)	–

Figures in brackets indicates the total number of strains resistant to two, three, four and five drugs respectively as given in Table III.

T/su. = Tetracyclin and Sulphatriad
Ni/Su. = Nitrofurantoin and Sulphatriad
P/T/Su. = Penicillin, Tetracyclin and Sulphatriad
T/Ni/Su. = Tetracyclin, Nitrofurantoin and Sulphatriad
P/T/Ni/Su. = Penicillin, Tetracyclin, Nitrofurantoin and Sulphatriad
P/Amp/T/Ni/Su. = Penicillin, Ampicillin, Tetracyclin, Nitrofurantoin and Sulphatriad.

mon resistance to a combination of Penicillin, Ampicillin, Tetracyclin, Nitrofurantoin and Sulphatriad. Drugs like Penicillin, Tetracyclin, Nitrofurantoin and Sulphatriad are the least effective against the organisms, and this is clearly shown by the results in Tables II and IV.

The resistance of the organisms to one drug could be explained as being due to a process of selection and mutation. In the case of those organisms showing resistance to more than one drug, the selective and mutational process alone could not account for its development. Therefore, the frequency of occurrence of multiple resistant strains of *Proteus* organism may be due to the presence of an 'R' factor. The 'R' factor is an extrachromosomal element which is responsible for the transmission of the multiple resistant determinants from bacterial cells to bacterial cells on contact. The presence of such a factor among bacteria other than the *Proteus* isolated from urine has been reported by several workers. (Yorio et al 1967, Smith and Armor 1966). The nature and the role the 'R' factor played in the transfer of resistant determinants among the Enterobacteriaceae group of organisms except the *Proteus* has been well established and extensively documented. (Watanabe T. 1963, Watanabe T. and Fukoswa T. 1961, Watanabe T. Ogata C. and Sato S. 1964, Datta N. 1965 and Datta N. et al 1965). The result presented here is suggestive of the involvement of the 'R' factor and further work need to be caried out to try to establish the role the 'R' factor plays in the multiple resistant character of the *Proteus* organisms.

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Polycystic kidneys and liver in two siblings with other severe congenital abnormalities

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Introduction

THE MOST IMPORTANT developmental disturbance in the structure of the renal parenchyma, the polycystic kidney, is clinically found in two forms, one in adults and the other in infants and children (Dalgaard, 1963).

Only 26 cases have been reported in which polycystic kidneys occurred in two or more siblings, and only five of polycystic kidneys and liver occurring in siblings. This is probably the first report of a sibling pair who had not only polycystic kidneys and liver, but also malformations involving the brain (anencephaly in one and encephalocoel in the other) and spleen (splenic agenesis in one and multiple spleniculi in the other) in addition to other minor abnormalities.

Case Reports

These two infants resulted from consecutive pregnancies. There was no consanguinity between the parents nor was there any history of abnormality, as far as could be determined, in the relatives of either partner. The mother was 24 years old and the father 28 years old when the second baby was delivered. Both parents appeared normal. Serologic examination for syphilis was negative. Chromosome studies revealed no abnormality.

Case 1.

The mother, a primigravida, was perfectly healthy during this pregnancy. She was noticed to have hydramnios when first seen at 28 weeks' gestation. At 37 weeks' gestation, it was realised that the foetal head was not easily palpable. Radiologic examination demonstrated microcephaly and an enlarged abdomen. Hydrops foetalis was suspected. Labour was induced 23 days after term. The head and shoulders were easily delivered, but the foetus became impacted because of a grossly enlarged abdomen. The abdomen had to be incised; two large spongy kidneys were removed, after which the rest of the body was delivered with no difficulty.

The foetus, a female, weighed 3.63 kg. with a crown heel length of 45 cm. External malformations included polydactyly, lobed tongue and a large encephalocoel. Internally, bilateral grossly enlarged spongy kidneys (wt. 791 gm.) and multiple spleniculi were seen. On histologic study, the kidney had only a few normal glomeruli, the major part being made up of dilated tubules and loose mesenchymal tissue. The liver (wt. 128 gm.) had multiple hamartomatous areas consisting of proliferated bile ducts, some of which showed cystic dilation with fibrosis. The spleen was normal in structure. Much of the enlarged tongue was infiltrated with fat.

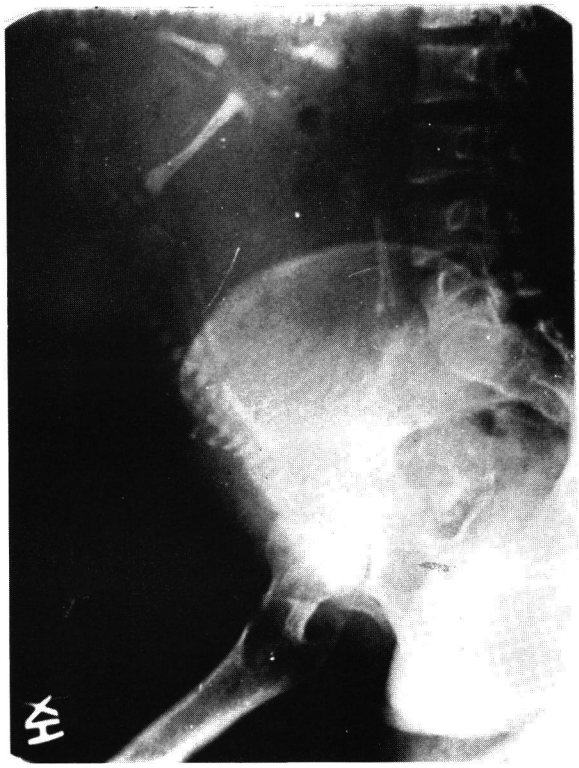

Fig. 1: Case 2. X-ray of the abdomen at 36 weeks' gestation. The posture of the limbs of the foetus indicates a grossly enlarged abdomen, leading to a diagnosis of hydrops foetalis. Anencephaly was also present.

Fig. 2: Case 2. The two grossly enlarged spongy kidneys together with the enlarged congested liver are mainly responsible for the marked enlargement of the abdomen.

Case 2.

Two years later, the mother became pregnant again; the pregnancy was uneventful. She presented with transverse lie which was corrected easily by external cephalic version. At 36 weeks' gestation, it was realised that the foetal head could not be felt. Radiographs revealed anencephaly and a "Buddha posture" indicating an enlarged abdomen. (Fig.1) Labour was induced, resulting in the delivery of a very feeble female baby who lived for only half an hour. The baby weighed 2.95 kg., had a crown heel length of 43 cm., and had anencephaly and a grossly enlarged abdomen, especially prominent in both flanks where two large craggy masses could be felt.

Autopsy revealed two grossly enlarged kidneys (wt. 659 gm.) on both flanks and occupying, with the liver, the major part of the abdomen. (Fig. 2). The kidneys appeared spongy with lobulated surfaces but having the general configuration of normal kidneys. The ureters and bladder were normal. The liver (wt.

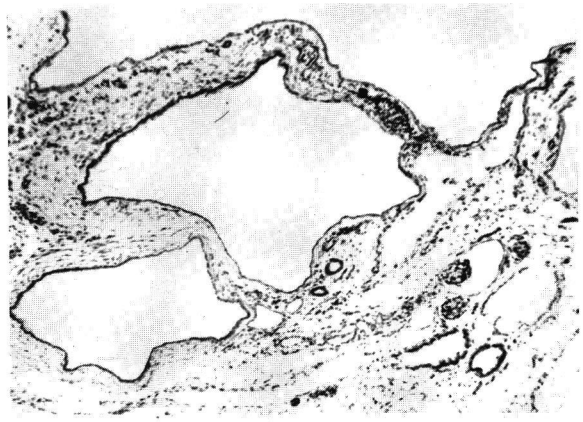

Fig. 3: Case 2. Histology of the kidney (x 75). Cystic dilation of the tubules are seen. A few normal glomeruli are present scattered in different areas. (Haematoxylin and Eosin stain)

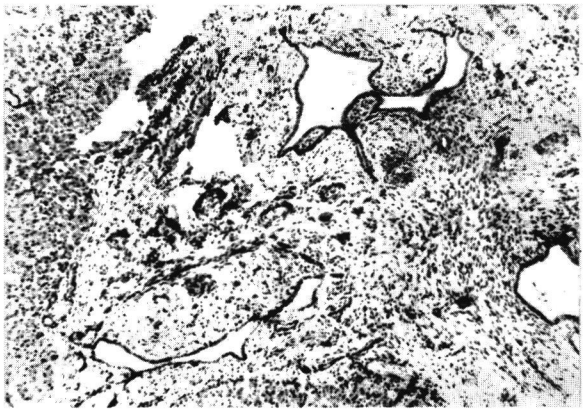

Fig. 4: Case 2. Histology of the liver (x 150) showing the cysts and the connective tissue stroma in the portal areas. (Haematoxylin and Eosin stain)

139 gm.) appeared enlarged and congested. No spleen could be detected. On microscopy, the kidney had multiple cysts consisting of dilation of the tubules. A few normal glomeruli were seen scattered in different areas. Mesenchymal tissue was abundant in the medullary area (Fig. 3). The liver had normal architecture with an increased amount of connective tissue and bile ducts in the portal areas. Some of the bile ducts showed cystic dilation (Fig. 4) very similar to that seen in the liver of the sibling.

Discussion

Clinically, polycystic kidneys can be divided into two main groups, (though it is not as clear cut structurally), one occurring in adults and the other occurring in infants (Dalgaard, 1963, Bell, 1935, Fergusson, 1949) the former reaching a peak at the 5th – 6th decade of life and being usually inherited as a Mendelian dominant (Dalgaard, 1963). In contradistinction, polycystic kidney in infants is usually transmitted as an autosomal recessive (Dalgaard, 1963, Lundin et. al., 1959, Osathanondh, et. al., 1964, Greenberg et. al., 1967).

Polycystic kidneys occurring in infants is rare – the incidence varies from one in 219 autopsies (Roscher, 1933) to one in 448 autopsies (Dalgaard, 1957) and one in 6,000 births (Dalgaard, 1957) to one in 14,000 births (Book, 1951). Polycyctic livers accompanying polycystic kidneys is very well known since Bristowe (1856) first described it. It has been estimated that approximately ¼ to 1/5 of patients with polycystic kidneys have polycystic livers (Lathrop, 1959). Conversely, about half the patients with polycystic livers have polycystic kidneys (Comfort et. al., 1952). The liver cysts are due to distortion, segmentation, and dilatation of intrahepatic bild ducts, a process considered to be essentially degenerative, an abnormal extension of the process of resorption which occurs normally in the first generation of bile ducts (Comfort et. al., 1952, Norris et. al., 1947). Only four sibling pairs with polycystic kidneys and livers could be traced by Dalgaard (1963) though Lathrop (1959) reported a family with four, and probably six, or seven siblings being affected. The present sibling pair is therefore among the very few to present with these features.

That multiple deformities may accompany polycystic kidneys in infants has been well known since Gruber (1934) first described the association and managed to collect 16 examples of it. Smith et. al., (1965) reported a sibling pair with multiple developmental defects in addition to polycystic kidneys and liver. The present siblings presented with major abnormalities in addition to polycystic kidneys and liver – this is probably among the very few, if not the first report, of a sibling pair with such gross abnormalities.

According to the classification on pathogenesis of Osanathanondh and Potter (1964), the present two cases would fit into Type 1, which is due to hyperplasia of interstitial portions of collecting tubules – this type appears to be incompatible with prolonged survival, invariably bilateral, accompanied by cystic proliferation of bile ducts in the liver and seems to be the only variety seen in siblings. However, some cases have survived beyond the first decade of life (Lathrop, 1959). In Lundin and Olow's (1959) classification, the present cases would fit into Group 1 – they state that cysts in the pancreas and liver occur in 50 percent of such cases.

The condition reported here would appear to be of hereditary origin, probably an autosomal recessive.

Summary

A sibling pair is presented who, in addition to polycystic kidneys and liver, also had major abnormalities affecting similar organs in other systems which were not compatible with life. This syndrome with polycystic kidneys is probably transmitted as an autosomal recessive trait.

We would like to express our thanks to Prof. Wong Hock Boon for encouragement and help in preparing this paper, to L.S. Tan for the photographs, and to C.S. Chua for typing the manuscript.

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Neuroleptanaesthesia using pentazocine and propanidid

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IT MUST be fairly obvious to any practising anaesthetist that there is no such thing as the ideal method of anaesthetising patients, for if there were, there would not be such a spate of articles in the journals advocating this or that method for routine use. Most of the methods satisfy the two basic requirements of any anaesthetic technique viz:-

(1) Safety and comfort of the patient,

(2) Good operating conditions for the surgeon,

but at this point, all similarity ends. All that can be said of a particular technique is that it is good when Dr. X does it, but when Dr. Y tries it, the results may not come up to expectations. This is so because consistently good results can only be produced by someone who does the particular technique routinely, and who can cope with any eventuality that may arise. Having used neuroleptanaesthesia in various combinations since 1962, the author has come to the conclusion that pentazocine (Talwin) and propanidid (Epontol) are eminently suitable for routine use in this form of anaesthesia.

Neuroleptanaesthesia

Neuroleptanaesthesia is simply the addition of a neuroleptic drug and an analgesic agent to general anaesthesia, except that "smelly" and expensive vapours are not used.

Neuroleptanaesthesia = neuroleptic drug + analgesic agent + general anaesthesia (induction agent, nitrous oxide, oxygen and relaxant only). Neuroleptanaesthesia, like transcendental meditation, is not a new or revolutionary concept. When Laborit and Huguenard in Paris began using their "lytic cocktail", they were in fact pioneering the use of neuroleptanaesthesia because their cocktail comprised chlorpromazine (Largactil), a neuroleptic drug, pethidine, an analgesic drug, and promethazine (Phenergan), an antihistaminic drug with marked sedative properties. This technique did not find favour with the majority of anaesthetists, because the patients, whilst they were rousable to some extent after the operation, did not really come round till the next morning. However, they looked and felt so well that no one would have thought that they had such major procedures as gastrectomies or lobectomies performed on them. Despite this, the "lytic cocktail" soon passed into oblivion.

Pharmacology of neuroleptic drugs

In the late 1950's, a new group of neuroleptic drugs were synthesized. They were all butyrophenone derivatives, and amongst this group, dehydrobenzperidol (Droperidol) has been found to be the most satisfactory for routine anaesthetic use. At this juncture, it would be germane to state what is meant by a neuroleptic drug. Such a drug will produce, in animal experiments:-

1. Loss of voluntary movement – cataleptic.
2. Apomorphine antagonism.
3. A diminished sensitivity to adrenaline and nor-adrenaline.
4. Apomorphine antagonism.

Clinically, a neuroleptic drug:-

1. Will produce intense psychomotor sedation without loss of consciousness – this is said to be due to a partial blockade of the reticular formation, possibly by way of the candate nucleus.
2. Has a pronounced anit-emetic effect, probably due to a direct action on the vomiting centre in the medulla.
3. Provides for a stable cardio-vascular system. After the administration of dehydrobenzperidol, there is a moderate dilatation of the peripheral vessels, leading to a slight fall of the blood pressure and slightly increased peripheral circulation. The low peripheral resistance facilitates good cardiac function, the intravascular space is constant, and unless the circulating blood volume changes, the pulse rate and systolic and diastolic blood pressures remain stable. This is mainly due to the selective blocking action of the alpha-receptors of the sympathetic nervous system, thereby suppressing the vasoconstrictive action of the catecholamines.

Amongst the neuroleptic drugs that have been used are chlorpromazine, a phenothiazine derivative, now mainly employed in psychiatry; chlorprothixene has very similar properties to chlorpromazine, except that its atropine – like action is stronger, and it has marked anti-depressive properties; haloperidol, a butyrophenone derivative, which may cause marked extra-pyramidal side-effects.

Analgesic Drugs

Up to date, the analgesic drugs used in neuroleptanaesthesia have been fentanyl and dextromoramide, both piperidine derivatives, and phenoperidine, a derivative of pethidine. All three are potent narcotic analgesics, but they have certain disadvantages. Except for a few instances, when only a short duration of action is required, a drug must possess two qualities:-

(1) Efficacy, the ability to produce its desired effect

(2) Tenacity, the ability to maintain this action for a certain minimal period of time.

Whilst fentanyl is certainly efficacious where its pharmacological action of producing analgesia is concerned, it can hardly be termed tenacious; and whereas both phenoperidine and dextromoramide are efficacious, they are also so tenacious that their analgesic action lasts for a long time, as would also their side-effects common to all narcotic analgesics, like respiratory depression, slowing gastro-intestinal motility and difficulty with micturition.

Pentazocine

Pentazocine, which is a narcotic antagonist with analgesic properties, appears to be a happy mean with regard to both efficacy and tenacity. It is derived from phenazocine (Narphen), being its n-dimethyl allyl analogue, and is about one-third as potent as morphine, with a similar duration of action. Being a narcotic antagonist, pentazocine will produce withdrawal symptoms if administered to a narcotic addict; it would, therefore, be prudent to avoid its use on known addicts. Pentazocine has little effect on the pulse rate, blood pressure or the electrocardiogram in man. However, it is a respiratory depressant in large doses; narcotic antagonists, like nalorphine and levallorphan, cannot counteract this, but methyl phenidate (Ritalin) will cancel this side-effect. It has no effect on the intra-ocular tension, making it suitable for use in ocular surgery. However, its most interesting property is that it does not cause any significant constipation or urinary retention after its administration. Ordinary people are not usually preoccupied with physiological mechanisms like defaecation and micturition, but these two excretory processes become very important to the patient lying in bed after elective surgery; these patients do not understand why they are unable to perform these two functions after simple surgery in no way connected with the abdomen at all. Since using pentazocine for anaesthesia and the post-operative phase, these complaints have become the exception rather than the rule.

The question of drug addiction assumes great importance, especially in hospitals where kind-hearted staff, who do not wish to see patients in pain, administer narcotic analgesics liberally whenever there is the slightest complaint. The average doctor would not be very upset if addiction were produced as a result of indiscriminate use of narcotics in a person who had an incurable malignant condition, but to produce addiction in a person who has renal colic, for example, is sure to weigh heavily on one's conscience. Whilst pentazocine addiction has been reported after massive dosage over a long period, the chances of addiction developing are remote, as in this technique patients require only one to two doses post-operatively, even after long and extensive operations.

Induction agents

Amongst the agents used for induction are:-

Thiopentone
Methohexitone
Gamma Hydroxybutyric Acid
Diazepam (Valium)
Propanidid

Thiopentone and methohexitone, even in small doses, appeared to negate the desirable post-anaesthetic effects expected of the patient who has had neuroleptanaesthesia – his ability to respond and co-operate was obscured by his somnolence, thus making this method no different from other general anaesthetic procedures.

Induction with Gamma Hydroxybutyric Acid took 10 to 15 minutes; and the patients took about 6 to 10 hours to regain consciousness. The use of diazepam was abandoned because it was highly irritant to the veins.

Propanidid

Propanidid is an eugenol derivative presented as a 5% solution in ethoxylated castor oil, which makes it rather viscous; it is usually diluted to a 2½% solution to facilitate its administration. It acts quickly and effectively, the patient being completely unconscious during intubation. Propanidid has almost no tenacity and acts for only a short time. However, its purpose in this technique is to provide a swift and pleasant induction as anaesthesia is maintained by nitrous oxide, oxygen and a relaxant (alcuronium was used in all the cases), thus assuring prompt return of consciousness at the termination of surgery.

Complications

Amongst the complications noted were:-

(1) **Awareness during anaesthesia:** A few patients have complained that they were aware of what was going on during the operation; however, they did not feel any pain. This was in the main due to the fact that nitrous oxide and oxygen were used in one to one or three to two ratios. With a nitrous oxide-oxygen ratio of seven to three, there have been no complaints and this is the ratio now employed.

(2) **Respiratory depression:** In a few cases, respiratory depression of the central type occurred; they were in patients who had more than 60 – 90 mgms. pentazocine during surgery. They were adequately reversed with methyl phenidate.

(3) **Intense Mental Agitation:** This occurred in a few cases who received the following premedication:

hyposcine 0.45 mgm.
dehydrobenzperidol 5 mgms.
pentazocine 30 mgms.

The patients were intelligent and well-adjusted individuals, who knew the "score" so to speak and who had no reason to be perturbed or agitated. After the above premedication, they were intensely anxious and worried, but did not know why they were in that particular state of mind.

Premedication was then changed to:-

atropine 0.6 mgms.
dehydrobenzperidol 5 mgms.

and there have been no complaints since.

In summary, then the technique that has been evolved is as follows:-

Premedication

atropine 0.6 mgms.)
) given i/m 1 hour pre-operatively
dehydrobenzperidol 5 mgms.)

Induction

Dehydrobenzperidol	10 – 15 mgms. i/v
Pentazocine	30 – 60 mgms. i/v
Alcuronium (Alloferin)	10 – 20 mgms. i/v
Propanidid	150 – 200 mgms. i/v

Intubation

Maintenance

Nitrous oxide, oxygen (7 – 3)
Intermittent positive pressure respiration

Post-operatively

dehydrobenzperidol 2.5 mgms.)
) i/m 6 hourly p.r.n.
pentazocine 30 mgms.)

The regime would appear to be a suitable one for routine anaesthetic use because:-

(1) It is technically simple
(2) It is safe, and in scaled-down doses, can be even used in emergencies; this technique has not been used in children under 12.
(3) It is economical as no expensive vapours together with their equally expensive vapourisers need be used.

A cucumber in the abdomen penetrating through the vagina

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Introduction

MANY BIZARRE OBJECTS in the vagina have been reported (Frachtman, 1963; Hoge et al., 1958). Self-insertion may be an act of masturbation; it may be made by a mentally ill patient or an unknowing child. Usually the damage, if any, is minimal. Insertions by loving husbands or irate boy friends are more serious. In this patient, a cucumber inserted by the husband easily penetrated into the abdomen.

Case Report

The patient, aged 39 years and para 2, was admitted to hospital in Britain with abdominal pain of two days' duration. She and her husband were celebrating their 15th wedding anniversary, and had been "slightly tipsy". Coitus took place, and immediately after the climax, the husband inserted a fresh cucumber into the patient's vagina; this slipped in easily and then "suddenly disappeared". Digital attempts at removal were unsuccessful. No pain was then felt and vaginal bleeding was minimal.

On examination she was not shocked, but was obviously distressed with central and lower abdominal pain. The abdomen was rigid and tender. Pelvic tenderness prevented adequate examination. At examination under anaesthesia, a 2½-inch long tear was seen in the region of the right latero-posterior fornix. Through this rent, the tip of a cucumber was felt and the rest of it was palpable abdominally.

Laparotomy showed a 14-inch long cucumber lying freely in the abdomen. It had become soft and brownish in colour. The right ovary was covered with purulent material. There was no haemoperitoneum or visceral injury. After removing the cucumber, the pelvic peritoneum was repaired. The forniceal tear was sutured from the vaginal aspect. Post-operative recovery was uneventful.

Comment

Non-obstetrical traumatic lesions of the vagina commonly occur in connection with coitus (Metsala et al, 1968). Immediately after coitus, the vagina is more liable to injury and the insertion of a foreign body may be dangerous. During orgasm, the lower third of the vagina strongly contracts whereas the upper two-thirds expands and lengthens (Masters and Johnson, 1966). With the presence of lubricating secretions, the vagina becomes easily penetrable; once resistance at the lower third is overcome, the foreign body may rupture the already expanded and thinned-out vaginal vault. Since the cervix is often usually directed to the left of the midline (Richter, 1966) and the fornix is deeper posteriorly, injury to the posterior part of the vaginal vault on the right side is most often seen, as in this case.

I am grateful to Mr. D.C. Aird, of the Victoria Hospital, Blackpool, for his encouragement and permission to report the case.

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Acute inversion of the uterus:

A report of 2 cases and reappraisal of the method of management

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ACUTE INVERSION of uterus is a very rare complication in modern obstetric practice. Das (1940) reported an incidence of one uterine inversion for every 14,881 deliveries, and Bell et al (1953) reported one in 4,894 deliveries. The maternal mortality rate has been quoted by different authorities to range between 15% and 70%.

Immediate recognition and treatment of the condition offers the best results. Proper management includes effective and early replacement of the inversion. Various methods of replacement of the inversion have been described namely, Johnson's manual replacement, O'Sullivan's hydrostatic method, and various operative procedures like Huntington's, Spinelli's and Kustner's operations. In this paper, two cases are described in which the Johnson's method of replacement of the uterine inversion was successfully used.

CASE REPORTS:

Case No. 1: A 25-year-old Chinese housewife, gravida 3, para 2, had a full-term normal delivery in the University Hospital at 2025 hours on the 8th November, 1968. The baby weighed 2700 gm. (5 lb. 15 oz.) and the first and second stages lasted 5 hours and 25 minutes respectively. "Syntometrine" (1 ml.) was given intramuscularly at crowning of the head. Controlled cord traction for delivery of the placenta was then commenced, after ascertaining that the uterus was well contracted. After half an hour of controlled cord traction, the patient began to complain of severe lower abdominal pain, not similar to labour pains. The placenta was partially delivered through the introitus at 2105 hours, and this was followed by severe post-partum haemorrhage. She then rapidly went into a state of shock.

Intravenous therapy was begun immediately – 1000 ml. of "haemacel" was given as quickly as possible. Attempts at manual removal of the placenta failed, and a careful vaginal examination revealed that the uterine fundus was inverted. She had, thus far,

lost 1000 ml. of blood and was still in a state of shock at 2145 hours. She was then given a general anaesthesia (atropine 1/100 gr.; d-tubocuraraine 50 mg. + 40 mg.; and maintained with nitrous oxide and oxygen) and the inversion of the uterus was successfully and completely replaced, using Johnson's method.

No difficulty was encountered in the replacement. Following the replacement, she was given 0.5 mgm. ergometrine maleate intravenously; and 100 units of oxytocin in a pint of 5% of dextrose solution was given rapidly. Her general condition improved rapidly, after replacement of the uterine inversion. In all, she had transfusion of 2000 ml. of "haemacel" and 1350 ml. of blood.

The patient made a satisfactory recovery in the puerperium. She was treated for her anaemia (Hb = 8 Gm./100 ml.). She was seen for a post-natal checkup six weeks postpartum, and was found to be quite well.

Case No. 2: A 30-year-old Malay housewife, gravida 2, para 2, was admitted as an emergency case to the University Hospital at 1610 hours on the 6th April 1969, almost unconscious with a barely recordable blood pressure and pulse.

She had commenced labour spontaneously at 39th week of pregnancy on 5th April 1969, and was admitted to a general practitioner's maternity home about 2½ miles away from the University Hospital. Progress was satisfactory and she was considered to have completed her first stage at 1200 hours the next day (6th April). After a further 2 hours in the second stage, the general practitioner performed a forceps delivery. A big baby boy, weighing 4230 gm. (9 lb. 5 oz.) was delivered with some difficulty at 1435 hours.

"Syntometrine" 1 ml. was given intramuscularly after the delivery. The placenta was delivered by controlled cord traction after a further 25 minutes. It was claimed by the general practitioner to be "adherent at first, but came easily afterwards." This was followed by severe postpartum haemorrhage. The patient went into a state of shock immediately, and the following resuscitative measures were rapidly instituted by the general practitioner: 500 ml. of "haemacel" and 450 ml. of blood were given rapidly. An injection of "methidrone" (methyl-amphetamine H Cl) 30 mgm. was given intramuscularly at 1510 hours. These measures brought her blood pressure up to the level of 90/60 mm.Hg. The blood loss was estimated by the general practitioner to be about 1500 ml.

She was then rushed to the University Hospital by ambulance. On arrival, the patient was semi-conscious with "air hunger". The blood pressure was 80/60 mm.Hg., and the pulse rate was 120 beats per minute. The (apparent) uterine "fundus" (what appeared to be so) could be felt per abdomen. The uterine mass was assessed to be about the size of a 14-week gravid uterus and was "well-contracted". It was extremely tender. A vaginal examination revealed that the real fundus of the uterus had inverted into the vagina. The patient lost a further 1000 ml. of blood at the time of the present pelvic examination, most of which being blood clots from the distended vagina. She was immediately resuscitated by a rapid transfusion of 500 ml. of 5% dextrose, 500 ml. of "haemacel", and 450 ml. of blood. Her blood pressure was brought up to 90/60 mm.Hg. She was then given a general anaesthesia (methohexitone 50 mgm., suxamethonium 50 mgm. and oxygen) at 1720 hours.

The uterine inversion was successfully and completely replaced without much difficulty, again using the Johnson's method of manual replacement. Ergometrine maleate 0.5 mgm. was given intravenously and 50 units of oxytocin in a pint of 5% dextrose solution was given intravenously at a rapid rate to maintain the uterus in a firmly contracted state. The patient rapidly improved; her pulse rate was recorded at 120 heats per minute and her blood pressure at 100/60 mm.Hg., 15 minutes after the replacement. Multiple lacerations on the vaginal walls and a third degree perineal tear were repaired. The patient was estimated to have lost a further 300 ml. of blood during the procedure of replacement. A further transfusion of 1000 ml. of blood was given slowly.

She made an uneventful post-partum and post-operative recovery. Her haemoglobin level on the third post-partum day was eight gm. per 100 ml. She was given a course of imferon injections and folic acid tablets to correct her anaemia. At her post-natal visit four weeks post-partum, she complained of swelling of her right ankle for three days. She was found to have pitting oedema of the right leg for which no cause was detected, and this subsided two weeks later, when she was seen again.

DISCUSSION

In the management of acute inversion of the uterus, the essential principles to be observed are as follows:-

(1) Prevention of the occurrence of acute inversion of the uterus by the proper and skilful management of the third stage of labour. Acute inversion of the uterus is usually attributed to be the result

of "mismanagement of the third stage of labour", as may occur during the process of an improperly applied technique of "controlled cord traction" for the delivery of the placenta. Uncommonly, acute inversion of the uterus may be predisposed by pre-existent pathology in the uterus and placenta, such as placenta accreta. In both the cases described in this paper, no pre-existent pathological factor could be incriminated, and hence the resultant acute inversion of uterus can only be attributed to "mismanagement of the third stage of labour". The administration of oxytocics (ergo-metrine maleate or "syntometrine") prior to the performance of "controlled cord traction" will considerably minimise the risk of acute inversion of the uterus.

(2) The early diagnosis and the prompt replacement of the inverted uterus will considerably reduce maternal morbidity and prevent maternal mortality. The presenting features in these two cases were the sudden severe post-partum haemorrhage and shock. In both cases, a "mass" could still be felt per abdomen, simulating a well contracted uterine fundus. Severe abdominal pain, especially following controlled cord traction, is an important symptom. An early vaginal examination in all cases of post-partum haemorrhage and retained placenta should always be indicated. Hurried infusion of oxytocics without a definite diagnosis can lead to tightening of the cervical ring, preventing easy replacement of the inverted uterus.

(3) Prompt and effective resuscitation of shocked and exsanguinated patient should be carried out and maintained before, during and after the replacement of the inverted uterus. Rapid recovery is always associated with early replacement of the inverted uterus.

(4) Strict asepsis should be observed during the procedure of replacement of the inverted uterus.

(5) Good general anaesthesia is required to effect deep analgesia and adequate relaxation of the "ring" at the neck of the inverted uterus.

(6) Skilful technique of replacement of the inverted uterus should be practised.

The method used in these two cases was the Johnson's method of manual replacement. There was no difficulty encountered. The procedure consisted of placing the entire hand in the vagina with the tips of the fingers at the utero-cervical junction and the fundus of the inverted uterus in the palm of the hand. The uterus was then lifted

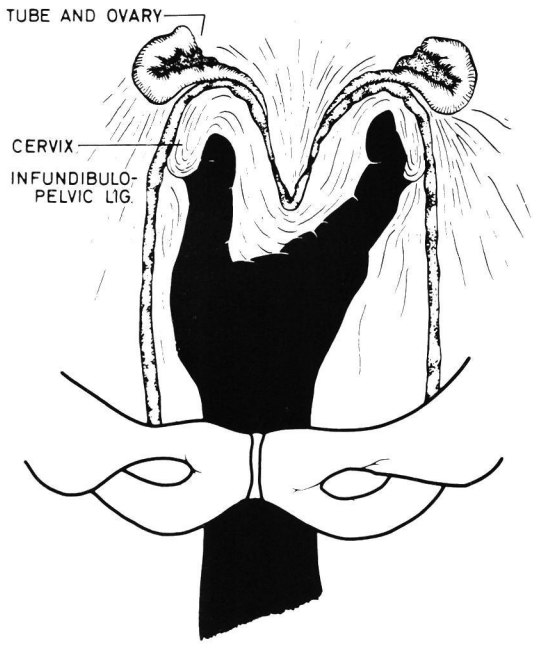

Fig. 1: Diagram showing the technique of application of Johnson's Method.

out of the pelvis and forcefully held in the abdominal cavity above the level of the umbilicus for three to five minutes. During this time, the fundus receded from the palm of the hand. To perform this procedure, it usually meant that the entire hand and two-thirds of the forearm must be placed in the vagina and the uterus. The basis of this method is the increased tension of the round, Mackenrodt, utero-sacral and pubo-cervical ligaments produced by lifting the uterus out of the pelvis. The ligaments are so situated that when they are placed under tension, pressure is exerted firstly to widen the cervical "ring" and secondly to pull the fundus through it, thereby replacing the uterus to the normal position.

(7) The administration of potent oxytocics (ergo-metrine maleate and intravenous oxytocin drip 50 – 100 units per 500 ml. of 5% dextrose), after replacement of the inverted uterus to minimise further haemorrhage, is essential.

SUMMARY

1. Two cases of acute inversion of the uterus that were personally managed at the University Hospi-

tal, Kuala Lumpur, are described.
2. Salient principles in the management of acute inversion of the uterus are discussed.
3. The Johnson's method of manual replacement of inversion of the uterus, which was successfully used in the management of these two cases, is described and discussed.

ACKNOWLEDGEMENT

The Department of Medical Illustration, Faculty of Medicine, University of Malaya for the diagram of the Johnson's method.

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Meigs' syndrome:
A case report and review of the literature

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MEIGS' SYNDROME is a very uncommon condition. In 1954, Meigs himself in a survey of the literature found 84 cases.[9] Up to 1967, only a total of 129 cases were reported (Hammouda).[5] As far as the writer is aware, this case presentation is the first Meigs' syndrome to be reported from Malaysia.

Interest in Meigs' syndrome is mostly focussed on the theories concerning the production of ascites and hydrothorax. What is not so commonly known is that, in recent years, there has been included in this syndrome a group of confusing cases which do not fall strictly within its scope.

All clinicians ought to be aware of this syndrome, for it can be mistaken for an inoperable malignant neoplasm of the abdomen and pelvis, though in fact it is completely curable.

Case Report

The patient, a Chinese woman aged 66 years, gravida 1, para 1, was first seen on 23.3.69 with the complaint of progressive enlargement of the abdomen of eight years' duration. For the past year, she also experienced lower abdominal discomfort and exertional dyspnoea. There was no urinary or bowel disturbances. The appetite was normal. Menopause occurred at 46 years of age.

Physical examination showed a thin elderly woman with no evidence of dyspnoea. The heart did not appear enlarged; the heart sounds were normal and no murmurs were heard. The blood pressure was 180/100 mm Hg. The chest showed dullness and reduced breath sounds in the right lung base. The abdomen was considerably enlarged by a solid, mobile mass which appeared to arise from within the pelvis. The liver, spleen, and kidneys were not palpable.

On pelvic examination, a hard mass was easily felt in the Pouch of Douglas. The atrophic uterus was pushed anteriorly.

Chest X-ray confirmed the presence of an effusion in the right lung base. An intravenous pyelogram revealed good renal function bilaterally. The bladder was displaced downwards and to the left by the tumour.

The haemoglobin level was 12.7 gm/100 ml; ESR 14 mm per hour; blood urea 34 mgm/100 ml. The ECG was normal. Vaginal cytology showed no tumour cells.

A laparotomy was done on 28.3.69, five days after admission. The right ovary was found to be enlarged by a solid lobulated mass, weighing 3380 grams and measuring 29 cm x 28 cm x 14 cm. There were numerous thin-walled cysts on the tumour surface. 450 ml of straw-coloured ascitic fluid were aspirated. The atrophic uterus, Fallopian tubes and left ovary were normal. A total hysterectomy and bilateral salpingo-oophorectomy were performed.

The postoperative recovery was uneventful, and the patient was discharged on the 12th day. A chest X-ray, repeated six weeks after operation, showed a complete resolution of the right pleural effusion.

Histological examination of the tumour confirmed the diagnosis of ovarian fibroma with no evidence of malignancy. The microscopic picture consisted mainly of well-differentiated bundles of collagenous tissue.

Discussion

Cullingworth[9] (1878) was the first to publish a report of a case of ovarian fibroma with ascites and

hydrothorax found at autopsy. Though in 1877, Demons[8] in France reported a series of similar cases, it was not until 1937 that Meigs[8] and Cass drew our attention to the importance of this condition. Lately, the concept of Meigs' syndrome has become distorted by the inclusion of certain other pelvic lesions under its name,[1,2,13] Broadly, Meigs' syndrome may be classified as follows:

(1) True Meigs' syndrome

As stated by Meigs,[10] this should be limited only to cases with the following features: (i) benign solid ovarian tumours such as ovarian fibroma, thecoma, granulosa cell tumour and Brenner tumour; (ii) ascites; (iii) hydrothorax; and (iv) cure after removal of the tumour with complete disappearance of ascites and hydrothorax. In this group, ovarian fibroma is the commonest lesion seen. Meigs[9] mentioned that of the 84 cases collected in the literature, 69 were pure fibromas, eight thecomas, five granulosa cell tumours and one Brenner tumour. It is to be remembered, however, that ovarian fibroma constitues only 2% to 5% (Dockerty)[3] of all surgically removed ovarian tumours, and that less than 5% (Green)[4] of all ovarian fibromas give rise to the classical features of Meigs' syndrome. Hence the rarity of this condition.

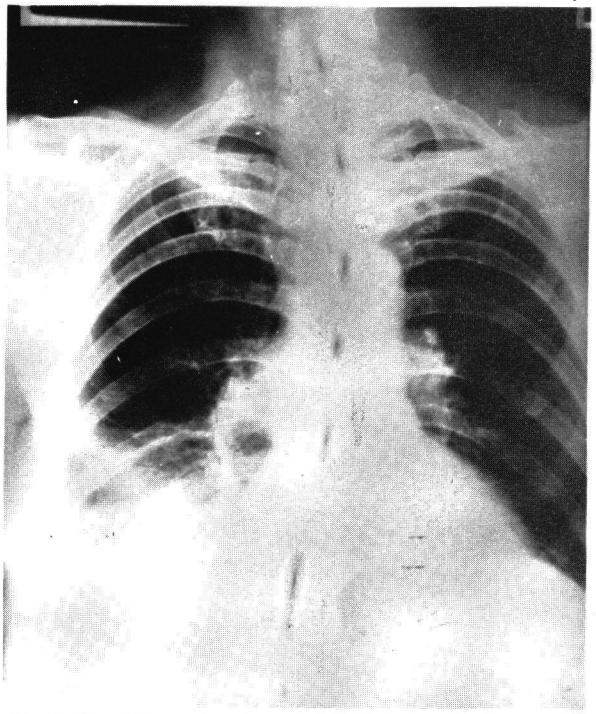

Fig. 1: Chest X-ray showing a right-sided pleural effusion.

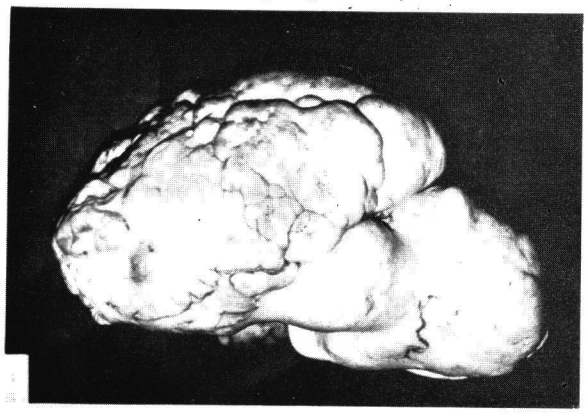

Fig. 2: Photograph of the external surface of the ovarian fibroma.

Meigs' syndrome is seen mostly in menopausal women, the average age being 48 years. The youngest patient reported was a 9-year-old girl, who had a feminising ovarian tumour, weighing 99 grams (Knaus et al).[7] The average diameter of 312 fibromas of the

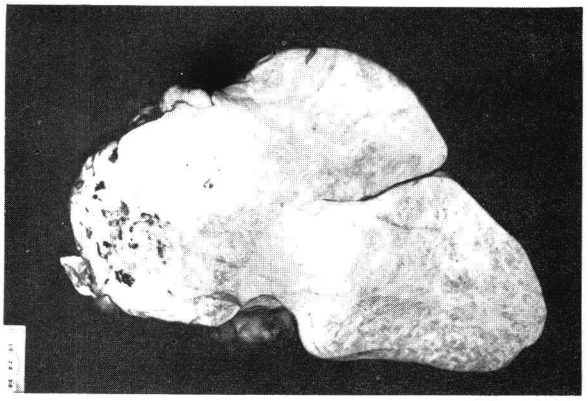

Fig. 3: Cut surface of ovarian fibroma. Note the wholed fibrous pattern and foci of necrosis and haemorrhage (right hand corner).

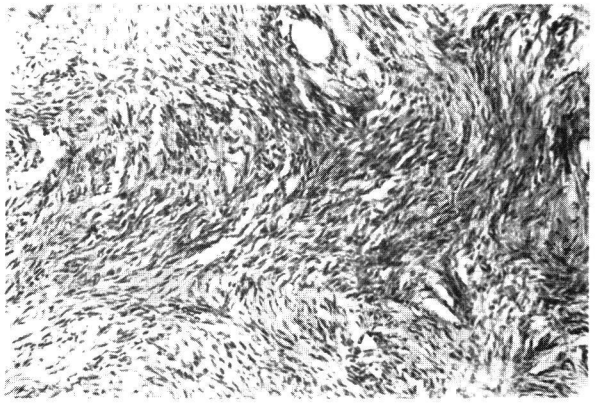

Fig. 4: Photomicrograph of fibroma of ovary showing bundles of well-differentiated collagenous tissue (x 140).

ovary removed surgically from 280 patients (Dockerty)[3] was 6 cm; only 14 were larger than 20 cm in diameter. Very few attained a weight of 2,500 grams. Simon[14] reported a case of Meigs' syndrome with an ovarian fibroma weighing 5,200 grams and measuring 26 cm x 23 cm x 7 cm.

True Meigs' syndrome should never include conditions with ascites and hydrothorax secondary to metastases from ovarian or abdominal cancer. It is important that one is clear about the benignity of true Meigs' syndrome, which differs vastly from the fatal outcome in patients with malignant ovarian or other abdominal tumours. In any patient with a pelvic tumour associated with fluid in the abdomen and chest, the possibility of Meigs' syndrome should be considered. If the diagnosis is in doubt, a laparotomy must be performed.

(2) Pseudo-Meigs' syndrome[4] includes other benign pelvic tumours associated with ascites and hydrothorax such as ovarian cysts, teratomas, uterine myomas and papilloma of the Fallopian tube.

(3) Acute Meigs' syndrome[6,12] arises as a result of hyperstimulation of the ovaries by either clomiphene citrate or human menopausal gonadotropin, used for the purpose of inducing ovulation. The condition is characterised by rapid cystic ovarian enlargement, ascites, hydrothorax and occasionally haemorrhage, necrosis and rupture of the cystic ovaries. Janovski[6] described a case of Acute Meigs' syndrome produced by giving 100 mgm clomiphene daily for 14 days. Vande Wiele[16] similarly had five cases of severe hyperstimulation out of 20 patients treated with human menopausal gonadotropin.

The mechanism of fluid production in Meigs' syndrome remains obscure.

Ascites: Of the numerous theories suggested, three are considered likely. (1) Fluid formation is thought to be secondary to local peritoneal irritation by the tumour. However, this does not explain why ascites is so seldom seen with ovarian cysts or uterine myoma. (2) Direct leakage of fluid from the usually oedematous tumour surface. It is conceivable that obstruction of lymphatics or blood vessels may take place in the tumour itself. (3) Torsion. In most cases there is no torsion. However, partial twisting of the venous return in the pedicle, thereby bringing about an increased transudation from the veins.

Hydrothorax: There is good evidence that hydrothorax is the result of upward passage of ascitic fluid into the chest. It is known, for instance, that when the tumour is removed, the ascites and hydrothorax disappear. Radioactive gold administered intra-peritoneally has been recovered from the thorax in cases of Meigs' syndrome.[15] What is more difficult to understand is the actual route by which ascitic fluid passes into the chest. Using carbon particles, Meigs'[11] has shown that the transfer is not by way of the general circulation. He believes that the most likely pathway is by lymphatic drainage via communicating channels, connecting the subdiaphragmatic and supra-diaphragmatic lymphatics.

Summary

1. A 66-year-old woman with classical Meigs' syndrome, the first recorded case in Malaysia, is described.
2. The literature is reviewed, and a classification of the Meigs' syndrome is discussed.
3. The mechanism of fluid production in Meigs' syndrome is discussed.

Acknowledgements

My thanks are due to Professor D. Chan, Head, Department of Obstetrics & Gynaecology, University of Malaya, for permission to publish this case, and to Dr. T.A. Sinnathuray, Senior Lecturer in Obstetrics & Gynaecology, for helpful advice.

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Stylohyoid ossification with a case report

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STYLOHYOID OSSIFICATION in varying degrees is well-known to occur and reports in the literature cite examples met with clinically with symptomatology referable to this ossification (Dwight, 1907; Babitt, 1933, Fritz, 1940; Loeser and Cardwell, 1942). The more extensive type of ossification is less common; also it is not clear in such reports which portions of the second branchial bar from the styloid process into the stylohyoid ligament and the lesser horn of the hyoid bone are ossified. This report presents an example which has been examined post-mortem by dissection and radiography, and is discussed in relation to the reported literature.

CASE REPORT:

A 40-year-old Chinese male, described as a vagrant, was admitted on the 10th November, 1964, to the General Hospital, Kuala Lumpur, for treatment of anaemia. It appears that he was "violent, aggressive, irrational and abusive", and it was also reported that one was "not able to get patient to show tongue." Clinical examination and results of investigations: temperature 99° F; B.P. 110/60; Hb = 8.28 grams %; reticulocyte count 4.4%; W.B.C. 7,900/cu. mm. with 65% polymorphonuclear leucocytes, 31% lymphocytes and 4% eosinophils. The blood film showed microcytic, hypochromic erythrocytes with anisocytosis and poikilocytosis. No X-rays were taken. Treatment included a milk and liquid diet and parenteral vitamins. However, eight days after admission, he died with terminal bronchopneumonia.

POST-MORTEM FINDINGS:

On skin reflection and superficial dissection of the neck, a bony resistance was felt over the stylohyoid ligament on the right side which rendered the larynx rigid. The X-ray taken of this region is shown in Fig. 1, which shows the opacity of the ossified ligament, though somewhat displaced in this partly dissected specimen. Dissection to display the ligament showed a 'solid' structure (Fig. 2), which on further dissection revealed some mobility and discontinuity (Fig. 3). In order to examine the definite degree of ossification, a dental X-ray plate was exposed, placed directly behind the dissected specimen, and Fig. 4 illustrates the ossification of the ligament with discontinuity at the styloid process end and at the attachment to the lesser horn. The length of the ossified process was 8 cm. On the left side, the styloid process measured 1.5 cm., while the stylohyoid ligament was 4 cm. and the lesser horn of the hyoid bone 2.6 cm. in length.

DISCUSSION:

The embryology of the second branchial arch has been reported in detail (Bart, Anson and Richany, 1956). In the adult, the skeletal components of this branchial arch usually become ossified at the upper and lower ends, leaving an unossified stylohyoid ligament between them. The styloid process ossifies from two centres: an upper tympano-hyal centre,

which is fused with the petromastoid in the first postnatal year, and a lower stylo-hyal centre, which appears shortly after birth and fuses with the upper centre after puberty. Failure of fusion has given rise to the incorrect diagnosis of fracture of the styloid (Watkins, 1966). These two parts produce a styloid process which is 2.5 cm. long on the average. The lesser horn, which ossifies in the first year, is united to the hyoid bone by a synovial joint which may disappear in old age. The horn, usually a few millimeters in length, may be as long as 10 to 12 mm. (Inkster, 1951).

Dwight (1907) collected 14 cases of "stylohyoid ossification" in the literature and reported five cases of his own. He suggested that this was not a pathological process but was "due to a continued growth and subsequent ossification of the second branchial arch cartilage." He added that "the condition is a theromorphic one; that is, one in which parts of the human body show an exceptional structure which is normal in certain animals as a consequence of a common plan of development."

The frequency and precise form of stylohyoid ossification is difficult to determine routinely on account of the relative inaccessibility of the region and since radiographs do not display it satisfactorily. If they do, the picture of the process, as in Fig. 1, does not permit one to distinguish the elements involved, such as can be obtained from a radiograph of the dissected specimen post-mortem (Fig. 4). In some instances, the ossification is continuous with the styloid process and such a "styloid process" may then measure as much as 8.5 cm., though in only 4% of persons is the average length of 2.5 cm. exceeded (Eagle, 1948); and in those which are symptomatic, they are of 6 to 7 cm. in length (Watkins, 1966). In these instances, they are long enough to impinge on the carotid vessels, the glossopharyngeal nerve, and the tonsillar bed. A twisted process is more likely to be symptomatic (Asherson, 1957). Babitt (1933) gives the average length of the styloid process as 3 cm. and cites the data on 2,000 skulls, giving lengths of 3.8 cm. in only 0.5%, and in only one instance a length of 7.6 cm. (Gruber, quoted by Guthrie, 1924). However, longer styloid processes have been seen on routine X-ray examination or even been palpated in the tonsillar fossa which remained asymptomatic (Watkins, 1966), so that some instances of extended ossification may be of this type.

The styloid process has been referred to as a "mobile" structure and in operations on an elongated one, it is said to be necessary to "reorientate its position from time to time by palpating it" (Watkins, 1966). A solidly fused styloid process connected to the temporal bone is not 'mobile' and movements of soft tissues are more likely to change their own relative relationships to the bony process. Alternatively, the "stylohyoid" ossification is likely to be in the stylohyoid ligament, discrete from the styloid process and only visualised as we have done in artificially good conditions for radiological clarity in this relatively inaccessible area.

It seems unlikely that a solid rod of ossification extending from temporal bone to hyoid bone ever occurs, for this would impose too rigid an immobility upon the hyoid and larynx, even if it were an unilateral abnormality. In fact, ossification extending along the length of the 2nd branchial bar, but

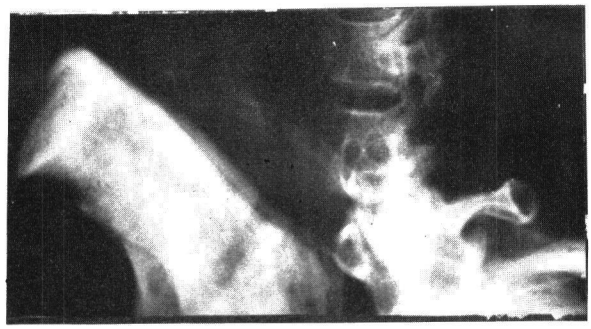

Fig. 1: A lateral X-ray view of the partly dissected specimen. The stylohyoid ossification is visible, somewhat displaced and only the faint outline of ossification is discernible. This is the general appearance of such ossification as seen in clinical cases.

Fig. 2: Partial dissection of the ossified stylohyoid structure shows what appears to be a solid rod continuous from styloid process to hyoid bone.

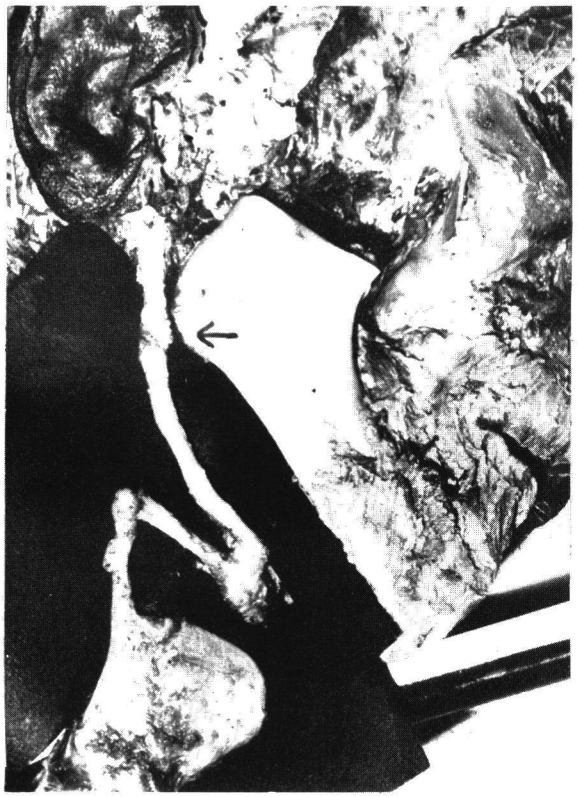

Fig. 3: Isolation of the ossified process by further dissection exhibits discontinuity at the portion marked by the arrow.

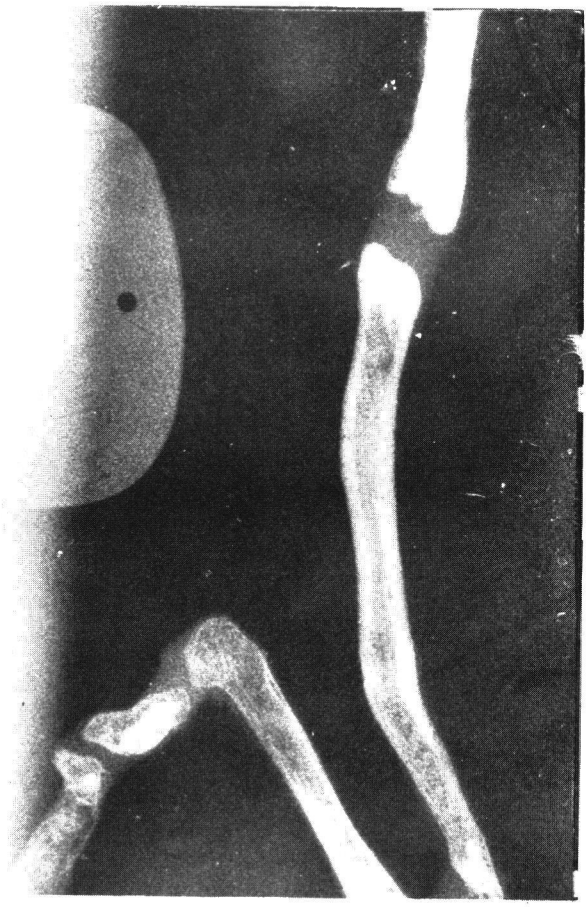

Fig. 4: A dental X-ray plate placed against the process, dissected free as in Fig. 3 and exposed, shows discontinuous ossification. At the top is the styloid process; the greater horn and thyro-hyoid ligament (containing ossification) occupy the lower left corner of the picture.

interrupted in its continuity, is a more likely condition. Dwight (1907) contributes to this view and Loeser and Cardwell (1942) state that "there are usually three segments in the process." It is interesting that Babitt (1933) describes massive efforts of swallowing, sneezing, coughing of laughing as causation of "spontaneous" (non 'traumatic') fracture of the styloid process in the half dozen cases he collected; there is no means of identifying how many may have been discontinuous ossification instead. Perhaps, extending ossification and immobilisation of the stapes, which represents the upper end of the 2nd branchial bar (tympanohyal), is a reflection of this ossification extending into the otic capsule, though the relation between this latter process and stylohyoid ossification remains to be examined.

Thus, clinical material is the chief source of reports, and many structures related to the stylohyoid area have been implicated in symptomatology. At tonsillectomy, ossified parts projecting into or lying in the tonsillar bed have been removed; post-tonsillectomy neuralgic pain has been relieved by subsequent excision of an 'elongated styloid process', while in some instances a chronic sore throat, dull pain in this area, or even "glossopharyngeal neuralgia" in unoperated patients is claimed to occur with stylohyoid ossification. (Loeser and Cardwell, 1942; Asherson, 1957; Fritz, 1940). Further, it is claimed that headaches may be attributed to compression of the carotid vessels by the ossified stylohyoid ligament, or to irritation of the sympathetic nerves that accompany these vessels (Eagle, 1949).

Phylogenetically, the skeletal components of gills have in the higher vertebrates taken over other functions, such as giving support to the mobile larynx, the stylohyoid arch components of which are quite mobile during movement of the head and jaws (Watkins, 1966). Limitation of this movement has interfered with direct vision endotracheal intubation (Potgieter, 1959; Cavenagh, 1937), or with per oral oesophagoscopy (Cavenagh, 1937) in the anaesthetised patient. In these instances, calcification prevents the oropharyngeal region from straightening out from its normally curved configuration owing to limitation of hyoid mobility. There is no reference to limitation of lingual mobility or to difficulty in swallowing or speech in these patients. The case reported here was mentally deranged, and it was not possible to establish difficulty in either function in this instance, because acccess to it was available only at post-mortem examination.

SUMMARY

A case of complete stylohyoid ossification, discovered post-mortem, is reported. The anatomy and clinical significance of this condition and of elongated styloid processes are discussed.

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A case of rudimentary horn pregnancy that reached term

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(A paper read at the Annual General Meeting of the Malayan Medical Association, Johore Bahru, 1969)

RUDIMENTARY HORN pregnancy is sufficiently rare as to warrant recording in every case. This is especially so when such a case has progressed to term. According to R.R. De Nicola and M.R. Petersen (1947), 90% of such pregnancies ruptured at between the fourth and fifth month and only 10% went on to term.

CASE RECORD

L.K.F. aged, 24, para 1, gravida 2, was first seen on 21 June, 1967, complaining of no foetal movement for the past week. Her last menstrual period began on 24 July, 1966. Her periods were normally regular coming on once every 40 days. She had one male infant, three years old; both the pregnancy and the labour were normal. She did not practise contraception.

Clinically she looked healthy. Systemic examination revealed no abnormality. The blood pressure was 110/80. Urine analysis showed no proteinuria nor glycosuria. Abdominally, a term-sized normal lying uterine ovoid presented. The uterus felt tense all the time, resembling that of an accidental haemorrhage. Foetal parts were difficult to make out. Foetal movement and heart sound could not be elicited. Vaginal examination revealed a normal vulva and vagina with no abnormal discharge. The cervix was not effaced, centrally situated and somewhat firm to the feel. The external os was closed. The presenting foetal part was roomy and gynaecoid. The diagnosis of intra-uterine death from postmaturity was made.

Management: It was decided to induce labour by the use of intravenous Syntocinon drip. This was instituted on three alternate days without success. On each occasion, the progress was assessed by a vaginal examination at the beginning and at the end of the day. Starting with five units in a pint of 5% dextrose, the rate and concentration were gradually increased until the concentration of 20 units at 40 drops per minute was reached. It was interesting to note that throughout the periods of the induction, the patient appeared comfortable, although on direct questioning she admitted to having felt a slight intermittent lower abdominal pain. Her blood pressure and pulse rate remained undisturbed.

Being chary to embark on an operative delivery of a dead foetus, it was decided to prime the uterus with stilboestrol (Jeffcoate, 1940). This was administered from 27 June until 2 July when the patient developed a low pyrexia. No obvious cause could be found. On 3 July, the case was reassessed. The one inexplicable feature that had become glaringly and tantalisingly obvious was the tense uterus in a comfortable patient. Vaginally, the previous findings were confirmed except now on rocking the firm cervix, which was surprisingly mobile, this mobility was not transmitted to the uterine mass (which was actually the pregnant horn). Pushing this mass upwards and to the right, the eight-week sized non-gravid uterus could easily be defined bimanually. A tentative diagnosis of an abdominal pregnancy was therefore made.

Laparotomy: On 4 July, after due preparation, including cross-matching of two pints of blood, a laparotomy under general anaesthesia was carried out. The abdomen was opened through a midline subnumbilical incision. To our surprise, a normal looking 'gravid uterus' with no adhesions presented. Being fairly mobile and having enlarged the incision, the gravid sac was exteriorised. Attached to its lower pole was the right broad ligament. Into its right lower side, the distal ends of the right round ligament, Fallopian tube and ovarian ligament merged imperceptibly. To its left lower side, by a thickened fibrous band about one inch broad by ¼ inch thick, was attached a lob-sided asymetrical uterus with its complement of the left tube, round ligament and ovary. The uterus was enlarged to the size of an eight-week pregnancy. The fibrous band was attached to the uterus at the level of its internal os. Excision of the entire pregnant rudimentary horn was easily accomplished. The pedicle of the left behind right ovary, round ligament and Fallopian tube was sutured on to the uterus to ensure stability. The post-operative recovery was uneventful.

Pathology: Dissection of the specimen revealed the muscular nature of the wall of the gravid sac. The foetus appeared normal externally. A section taken from the connecting band revealed on microscopy only strands of connective tissue.

Follow up: She promptly became pregnant again. On 16 June, 1968, she presented herself at term, labour pains having started five-and-a-half hours previously. She was delivered of a stillborn 20 minutes later, weighing 6½ lb. The foetal heart sound could not be heard at the time of her admission, and she volunteered the information that the foetal movement had ceased about a week earlier.

DISCUSSION

Rudimentary horn abnormality is usually found occurring on the right side in most of the recorded cases. Why this is so, no one has yet advanced a plausible etiology. Opinion is divided on the frequency of the presence of a communication between the cavity of the horn with the cervical canal of the uterus. Latto and Norman (1950) thought that this was present in almost all cases and that failure to find it might be due to the passage being obliterated by the growing tissue or by the fibrin formed from bleeding into the cavity. On the other hand, Bourgeois and Shapiro (1952) could only demonstrate this

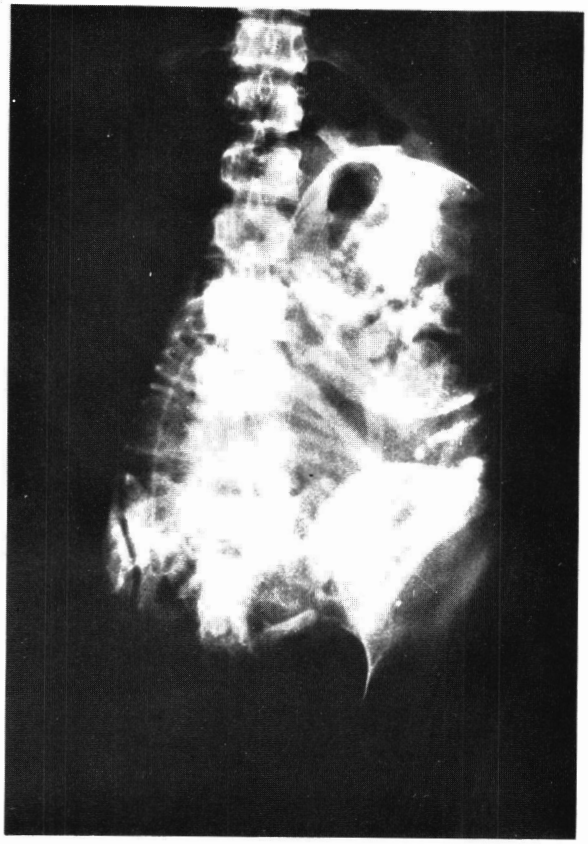

Fig. 1: X-ray of the abdomen — antero-posterior view showing the classical signs of intra-uterine foetal death.

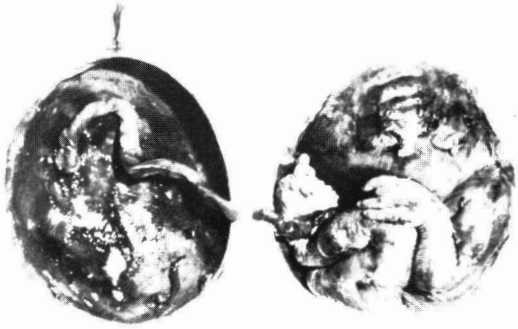

Fig. 2: Shows the foetus and the placenta on opening up the gestation sac.

in a small percentage of non-gravid specimens that had been dissected. Of Kehrer's 84 cases (quoted by Williams, 1945), 78% had no communication. When no communication was present, as in my case, it was presumed that pregnancy must have occurred by an external transmigration of the sperms. This would explain the rarity of such pregnancies.

Incidence: Since the first recorded case by Mauriceau and Vassal in 1669 (quoted by Mulsow, 1945) up to November 1962, a total of 328 cases have been collected (O'Leary, 1962). Using the Cumulated Index Medicus and the New Index Medicus, I have noted that there have been a further nine cases recorded. As with any rare conditions, a true incidence is difficult to ascertain. Roughly, pregnancy occurs in a double uterus once in every 5,000 pregnancies (Taylor, 1943). Eastman (1956) quotes an incidence of one per 15,000 for abdominal pregnancy, while Smith (1931) was able to uncover one case of rudimentary horn pregnancy in 141,946 deliveries at the New York Hospital.

Diagnosis: When a rudimentary horn pregnancy presents during the first trimester, it will be hard to differentiate it from a normal pregnancy complicated by an ovarian cyst or a pedunculated fibroid. Unlike tubal pregnancy, its gravid sac is rounded, firm, freely mobile and not tender on palpation (Abramson, 1958). When such a mass is on the right side, this possibility should certainly be thought of (Heinonen and Relander, 1961).

When a case of rudimentary horn pregnancy ruptured and continued to develop as a case of secondary abdominal pregnancy, there is usually a definite history of an acute-abdomen episode at about the fourth or fifth month (Bourgeois & Shapiro, 1952). Premature foetal death in the first trimester can occur and is probably due to lack of or defective vascular supply or due to poorly formed decidual bed (Mackay & Ebringer, 1963). Sounding and hysterosalpinogram can be done to clinch the diagnosis when foetal death has occurred.

At term, tenseness of the gravid mass reminded one of the woody hard uterus of an accidental haemorrhage, except here the usual signs and symptoms of toxemia pain and anaemia are absent. The diagnosis in this case was initially missed because the tense uterus and the firm cervix were ignored. The mobility of the cervix was helpful and should be looked for when one encountered a cervix whose consistency was firmer than that expected from the period of gestation.

In almost all recorded cases, the diagnosis was made at operation or autopsy. Therefore, if correct diagnosis is to be made before complications occur, it must be based on suspicion. The advice of routinely doing a detailed careful vaginal assessment in all antenatal cases at the first visit and again at about the 36 weeks is a commendable practice and could result in the early detection of pregnancy abnormalities.

Management: In all cases, immediate treatment should be embarked upon on diagnosis or suspicion, because bleeding from a rupture at the fourth or fifth month can be and is often torrential and may lead to death. The only exception to this rule is in a case discovered near viability when one is justified to wait a few more weeks for the sake of the foetus.

At operation, a hemihysterectomy with the excision of its ipsilateral Fallopian tube should be carried out. Rupture of the subsequent intrauterine pregnancy as a result of such an operation is unlikely (De Rezende, 1954). Humpstone (1920) recommended removal of the accessory horn if this was encountered in the course of a gynaecological operation.

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A case of thrombophlebitis in a woman on oral contraceptive

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THE PATIENT is a 26-year-old Chinese woman with four children, the last delivery being in January 1968. She was married in 1961. There is no history of abortions. She has been on an oral contraceptive since March 1968.

I first saw her for this complaint on 8 Jan. 1970. She had pain and tenderness over the long saphenous vein of the right leg. The onset of pain was in the groin on the morning of 2 Jan. The pain spread downward to reach the region of the knee by 5 Jan. and the ankle by 7 Jan.

On examination, she had a slight swelling of the right thigh, and purplish discolouration over the medial aspect of the thigh. There was oedema over the medial aspect of the right ankle. Tenderness was localised over the course of the long saphenous vein. The vein was palpable as a cord above the ankle. She was afebrile. Apart from a cervical erosion, other systems were normal.

Her last period was from 28 December 1969 to 31 December 1969. She resumed taking the pill on 2 January 1970, the last pill being taken on the night of 7 January 1970.

She was admitted to the University Hospital on 8 Jan. 1970. The results of laboratory tests done at the University Hospital are as follows:

Hb. 13.1 G
Platelet count 162,000/ul
TWC 6,200 N 45% F 12% L 43%
ESR 20
Thrombotest 100%
Urine: SG1025
Protein – negative
Sugar ¼% (checked on ward – 0%)
X-ray chest: normal

She was treated symptomatically and discharged on 11 January 1970 with the diagnosis of "(R) Superficial Saphenous Vein Thrombosis (probably due to oral contraceptives.)"

Contraception with oestrogen-progestrone compounds causes a rise in blood clotting factors. Factor VII and Factor X are significantly increased from the third month onward[2] and platelet aggregation is accelerated.[4] These changes do not exceed the levels found in the third trimester of a normal pregnancy; Factor VII, which is accumulative, reaches that level after two years on oral contraceptives[2,4].

The oral contraceptive used by this woman, "Previson". contains 2.5 mg of the progestogen norethynodrel and 0.1 mg of an oestrogen, mestranol. Norethynodrel belongs to the 19-nortestosterone group and is partly metabolised to oestrogen Mestranol is a synthetic compound which is equivalent by weight to ethinyl-oestrodiol.

As a matter of interest, I have questioned this patient to establish her hormonal profile before starting on the pills. Her periods were regular, scanty, lasting three days or less with premenstrual breast discomfort and cramps. There was no leucorrhoea, nor complaint of premenstrual tension or oedema. This suggests a progestogenic profile. It appears then that she was prescribed the appropriate oral contraceptive – an oestrogenic one.

Thrombophlebitis is rare in Chinese and this is the first case reported in this country in a woman on oral contraception. This patient is a young woman and predisposing factors, such as infection and varicosities, are absent. It seems reasonable to conclude that ingestion of oestrogen in contraceptive pills is a causative factor.

Thromboembolism is virtually unknown in this country and the report of a single case of mild and superficial thrombophlebitis should be no cause for alarm. This woman has been on the pill for a relatively short period of two years, and more cases can be expected to be seen as the use of the pill spreads. In the United Kingdom, where thromboembolism is a major problem, the Dunlop Committee has advised the use of oral contraceptives containing 50 microgrammes of oestrogens. As a result, it is likely, that a series of new formulations with low oestrogen content will replace the present range of pills. It is uncertain, however, how much this will help as Factors VII and X changes of the same order are reported with low-oestrogen formulations[3,4].

A registrar should be appointed in this country to whom reports of adverse reactions to oral contraceptions could be directed by the medical profession, general practitioners and government doctors as well as by the clinics of the Family Planning Board and the Family Planning Associations.

Acknowledgements

I am grateful to Dr. H. O. Wong, Head of the Medical Unit, University Hospital, for permission to quote from their report and to Dr. T. A. Sinnathuray, Senior Lecturer in Obstetrics and Gynaecology for seeing this case at my request.

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Alveolar soft part sarcoma: a case report

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ALVEOLAR SOFT PART SARCOMA is an uncommon clinical entity, the pathogenesis of which has been controversial. Recently, Dutt et. al. (1969) have reported one such case from Malaysia. The following case report throws further light on the nature of the tumour.

Case Report

A healthy 42-year-old Chinese woman was admitted to the University Hospital on 6 June 1969. She had noticed a pea-size lump growing on her right arm for the last four years. At first, the lump very slowly increased in size and asymptomatic. One month prior to admission, the rate of growth had acclerated and the lump become painful.

On examination, a rounded firm swelling measuring 4 cm. across was found on the postero-medial aspect of her right arm. It was fairly mobile but appeared to tether to the tendon of triceps. The overlying skin was free and unremarkable and the movements of the right elbow were unrestricted.

Investigations showed a normal blood picture with the erythrocyte sedimentation rate 10 mm. per hour. Roentgenogram of the chest was normal while that of the elbow showed a normal bony architecture with a shadow of a soft tissue mass 5 cm. proximal to the joint (Fig. 1). A provisional diagnosis of solitary neurilemmoma was made and on 13 June 1969, the tumour was excised under general anaesthesia. At operation, the tumour was found to be attached to the triceps tendon but was well capsulated. The cut surface of the tumour appeared firm greyish-yellow tissue with foci of haemorrhage.

Histology

Sections showed areas of cluster of cells surrounded by connective tissue septa containing fine vascular channels. An organoid pattern was thus produced (Fig. 2). The structural units appeared alveolar and in areas appeared as solidly growing cell aggregates. Reticulum stain did not show the isolation of individual cells by fibres, but each unit was seen to be surrounded by a network of collagenous connective tissue septa. The tumour cells varied in size and normally contained one or two vesicular nuclei, although as many as four were observed within some cells. The nuclei possessed prominent nucleoli. Mitotic figures were rare. The cytoplasm in haematoxylin and eosin preparations was characteristically eosinophilic and finely granular (Fig. 3). No striations or fibrils were seen. Diastase resistant PAS positive crystals were present within the cytoplasm of the tumour cells (Fig. 4). The diagnosis of alveolar soft part sarcoma is supported by the morphology of the tumour cells, the alveolar pattern and the presence of diastase resistant PAS positive crystals in many of the tumour cells.

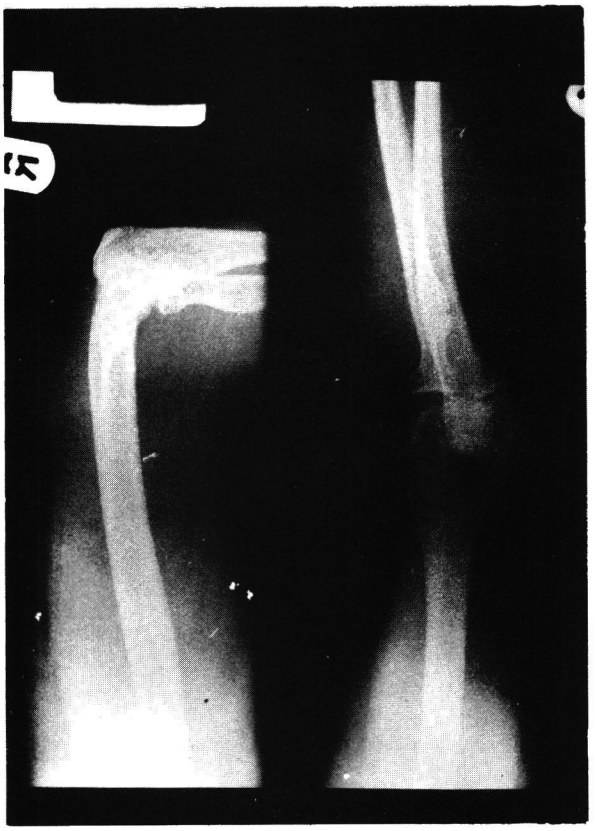

Fig. 1

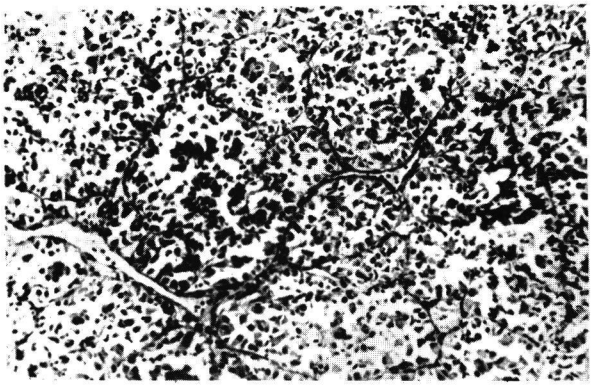

Fig. 2

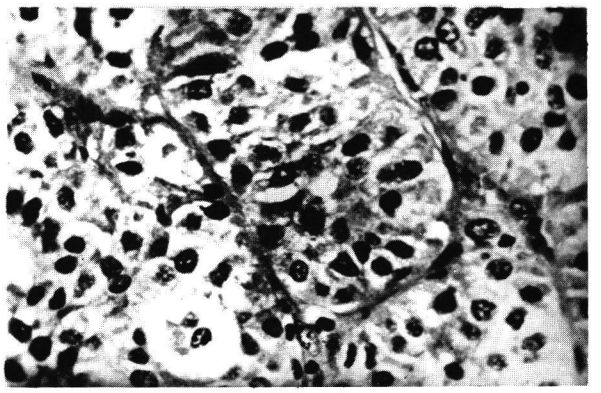

Fig. 3

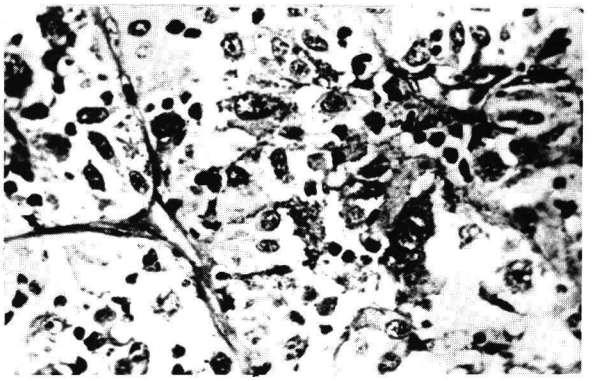

Fig. 4

Discussion

Christopherson, Foote and Stewart in 1952 described morphologically identical growths of unknown classification which they found amongst the undiagnosed tumours at the New York Registry of Cancer. Their clinical and histological similarity were remarkable. Subsequently, many such tumours have been documented (Farquharson 1960, Hicks and Leitch 1955, Mcfarlane and McGregor 1958 and Randall and Walter 1954). These tumours occur predominantly in women and are commonest in the late teens or early twenties. They are invariably related to skeletal muscles and are slow-growing and asymptomatic until late. Though well capsulated, the tumour is malignant and often metastasises to the lungs. Microscopically, the appearances of the tumour are characteristic, being uniform both at the primary and metastatic sites. Large eosinophilic cells, with alveolar or pseudo-alveolar arrangements, lie in close relation to endotheliúm-lined blood vessels. Periodic acid stain shows abundant fuchsinophilic cytoplasmic granules. In the absence of a better name, Christopherson (1952) called these tumours alveolar soft part sarcoma. They can be easily mistaken for metastatic adenocarcinoma, endothelioma, liposarcoma, myosarcoma and myoblastic myomas. However, their organoid structure and absence of neurofibrils or cross striations are usually distinctive.

The pathogenesis of this rare but very interesting tumour is not known. Swetana and Scott in 1951 described eight tumours with nearly identical histological pattern and from their resemblance to carotid body-like tumours, thought them to be malignant, non-chromaffin paragangliomas. Similar views have been expressed by Barbera and Fiore-Donati (1953), Randall and Walter (1954), Willis (1967) and Evans (1966). Karnauchow and Magner (1963) also noted the overlapping histological patterns and suggested that the alveolar soft part sarcomas arise from undifferentiated primitive neural crest cells, thus explaining the presence of such tumours in places where paragangliomas are anatomically non-existent. Fisher (1956) thought this tumour of neural origin, as biochemical methods show that the cytoplasmic granules of the tumour cells are mainly cerebrosides with a small amount of polysaccharides. The similarity of the cytoplasmic granules of alveolar soft part sarcoma to those of malignant granular cell myoblastoma and the myelin of peripheral nerve, leaves no doubt as to their neural origin. Christopherson and his co-workers (1952), in their original paper, found impressive resemblance of alveolar soft part sarcomas to malignant myoblastomas. MacFarlane (1958) does not believe in the separate existence of the alveolar soft part sarcoma or malignant myobiastomas. The close proximity to muscles, granularity of the cytoplasm and distinctive organoid histological pattern of both these tumours are, according to him, typical of non-chromaffin paraganglioma.

However, recently Shipley et. al. (1964) have shown, with the help of the electron microscope, definite and specific crystalline structures in the intracytoplasmic granules in alveolar soft part sarcoma, which are not seen in myoblastoma or carotid-body tumour. The presence of these characteristic crystalline structures are a definite diagnostic aid. Udekwu and Pulvertaft (1965), in tissue culture studies of a typical case of alveolar soft part sarcoma in a young Nigerian male, found that the behaviour and the characteristics of these tumour cells contrasted sharply with tissue culture of carotid-body tumours as reported by Costero (1963). They conclude that the alveolar soft part sarcoma is not a paraganglioma.

Summary

A rare case of alveolar soft part sarcoma in a Chinese female is described. The controversy regarding its histogenesis is reviewed.

Acknowledgement

The histological sections of this case was sent to the Armed Forces Institute of Pathology, Washington D.C., U.S.A. for consultation and they concurred with the diagnosis.

We are indebted to Dr. Ferguson of the Department of Pathology for reviewing the paper; the Department of Radiology for the roentgenograms; the Department of Medical Illustrations for the micro-photographs; and to Professor J.F. Silva, Department of Orthopaedic Surgery, for permission to publish the case report.

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Correspondence

THE OCCURENCE OF Aedes *(STEGOMYIA) aegypti* IN SABAH*

AEDES (STEGOMYIA) AEGYPTI (Linnaeus, 1758) was incriminated as a vector of yellow fever by Walter Reed and his associates as early as 1900. Since then it has been established that this mosquito is a principal vector of urban yellow fever in Africa and Latin America. **Aedes, egypti,** along with other members of the **scutellaris** group, is also known to be a vector of dengue fever over wide areas of the tropics and subtropics. Since 1956, it has been responsible for major epidemics of dengue haemorrhagic fever in Southeast Asia and this disease has now become a major public health problem in the area (Rudnick, 1967).

Haemorrhagic fever, caused by the dengue viruses, is now known to be widespread in the Philippines, Cambodia, Thailand, Malaysia, Singapore, Indonesia, South Vietnam, Ceylon and in East India (Calcutta). Although only **aegypti** has been definitely associated with the transmission of dengue haemorrhagic fever so far, it is possible that **Aedes albopictus**, which also transmits dengue fever, may transmit the haemorrhagic disease. Dengue haemorrhagic fever occurs mostly in children and in young adults and generally causes a fatality rate of about 10%.

Aedes aegypti is also an efficient vector of chikungunya virus and epidemics of this infection occurred recently in Calcutta, Philippines, Thailand, Cambodia, Burma and Ceylon. This disease is a milder form and is non-haemorrhagic. It is not known to cause any mortality.

Aedes aegypti is widely distributed around the world, due to the agency of man, and occurs between latitudes 45° N and 35° S (Christophers, 1960). It is widespread in Southeast Asia. The first and only report of its occurrence in Sabah was made by Stanton in 1920. Since then, it has been reported to occur in Indonesian Borneo (Brug, 1924; Bonne-Wepster and Brug, 1937; Brug and Bonne-Wepster, 1947) and in Sarawak (Macdonald, Smith and Webb, 1965). In 1965, Chow reported that **aegypti** had not been encountered in Sabah during the previous seven years. In a recent report, Chow (1970) stated that **aegypti** has not so far been found in Sabah. Dengue fever occurred in Labuan Island, off the West Coast of Sabah in 1969 and this was confirmed by virus isolation and positive serology by the Arbovirus Research Unit of the University of California International Center for Medical Research and Training in Kuala Lumpur. The mosquito vector was, however, not incriminated.

As part of a research programme, organised by the author, to study the mosquito fauna of Malaysia, a team of three technicians were sent to Sabah and this team made extensive collections in Sabah between the period 14 March, 1970 to 8 June, 1970. The survey covered the following areas which includes all the major towns in Sabah; Kota Kinabalu, Papar, Beaufort, Pulau Labuan, Sipitang, Tenom, Kemabong, Keningau, Sapulut, Sook, Tambunan, Ranau, Mount Kinabalu, Tuaran, Kota Belud, Langkon, Bandan, Kudat, Pulau Banggi, Sandakan, Telupid, Lahad Datu, Semporna and Tawau.

This survey was not made specifically for **aegypti** alone, but was a comprehensive survey with the purpose of collecting as many species of mosquitoes as was possible. However, the team was instructed to pay special attention to the collection of mosquitoes of medical importance. Collections were only made from those habitats or containers that contained both water and immature stages of mosquitoes in them. A total of 1246 collections were made from Sabah. This included 102 collections made from artificial containers, 42 from coconut shells, 310 from tree holes and stumps, and 82 from bamboo stumps. All of these are possible sites for the breeding of **aegypti** in various parts of the world.

Aedes aegypti was encountered in the town of Semporna on the East Coast of Sabah. It was found breeding in five artificial containers, three of these being large drums and the other two in wooden boats that were still under construction. A total of 173 adults (84 females and 89 males) were reared from these collections in addition to several larvae that were killed and preserved in alcohol. Other species of mosquitoes that were found breeding in association with **aegypti** were: **Aedes (S) albopictus, Culex (C) quinquefasciatus** and **Culex (Cu) fragilis.** On closer examination of **aegypti,** it was seen that 115 adults were of the "type form" and 58 of the "queenslandsis form." According to Mattingly (1957-58) the "type form" has narrow basal pale bands on the abdominal tergites, whereas the **queenslandsis** form is much paler of the two forms, with numerous white scales on the abdominal tergites.

In order to prevent the accidental extension of the range of yellow fever, Article 20(1) of the World Health Organisation, International Sanitary Regulations (1957), requires that the area within the perimeter of every airport and port be kept free from **Aedes aegypti** in its larval and adult stages. This regulation and the present findings that **aedes aegypti** occurs in Sabah will necessitate the initiation of measures to prevent the breeding of this mosquito in and around the international airport and port at Kota Kinabalu. At present, **Aedes aegypti** has been found to breed only on the east coast of Sabah, but as there is a regular air service between Semporna and Kota Kinabalu, it is quite likely that **aegypti** will spread to Kota Kinabalu and to other places within Sabah. A specific survey for **aegypti** should be made throughout Sabah and its distribution studied. This has also been recommended by Dr. C.Y. Chow (1970), the Regional W.H.O. Entomologist. If the survey confirms the present finding that **aegypti** is only confined to a relatively small area on the east coast, then immediate measures should be taken to eradicate the mosquito from Sabah.

The author wishes to thank the Director and staff of the Medical Department, Sabah, for their cooperation. Thanks are also due to the enthusiasm of members of the collecting team; Messrs. Sulaiman bin Omar, Samuel Wison James and Chia Yiew Wang.

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Book Reviews

NEUROLOGICAL NURSING – A Practical Guide by John Marshall, M.D., F.R.C.P. (Lon), F.R.C.P. (Edin.), D.P.M., and Jean Mair, S.R.N.

THIS BOOK, as its title indicates, is written as a guide to aid nurses charged with the management of neurological and neurosurgical patients. It is not a textbook on signs and symptoms of disease but focuses on the practical problems that a nurse is likely to be faced with in the management of these patients. However, the authors give a sound basis for the rationale so that nurses can appreciate their role better in this field of nursing.

The handbook is concise and well illustrated. Emphasis is also placed on the psychological, theoretical and social aspects of management. The authors do well to sub-divide the category of patients managed in accordance with the degree of nursing attention they require. Thus, they have three categories of patients, namely, those who are acutely ill, those admitted for a specific disability but are otherwise well, and those admitted for just observation and investigations.

The chapter on anatomy and physiology may be inadequate as the authors presuppose the reader to have prior knowledge of them. However, they are presented in the light of their application to practical problems. Practical hints on lumbar punctures, cisternal punctures and ventricular punctures are also given. The role of the physical therapist in the management of these patients is amply illustrated and emphasised.

The two closing chapters, although brief, are well conceived. They deal with the psychological and social aspects of a neurological patient which should be of the utmost importance to anyone dealing with such patients.

This book serves to emphasise the principles underlying the various treatments instituted in a neurological and neurosurgical center, comprehension of which it makes the work of a nurse more meaningful and rewarding. We have no hesitation in recommending this book to all hospitals charged with the care of patients with head injury or neurological disorders.

SISTER THERESA CHOONG
DR. N. ARUMUGASAMY.

"CUTANEOUS SENSATION"
by David Sinclair
Oxford University Press, London; 1st edition, 1967
Pages, 306 · Illustrations, 30; 63 s net

ALTHOUGH there has been voluminous studies of the cutaneous sensation, the general picture becomes so complicated and controversial that it requires an authority in this field to evaluate the present status and future potentialities of the various theories and their clinical implications. Unfortunately, there has, until now, been no text devoted exclusively to a review of the problems of skin sensation.

Written primarily for clinicians who wish to obtain a general survey of the skin sensation, this book, nevertheless, gives a good deal of the physiological picture of cutaneous investigations. The content of this book includes the histological background of the major existing theories on cutaneous sensation, the methods of investigation, the sensory apparatus involved, the sensations themselves, and the trends of current research. The fluent style of writing and the continuity in introducing new topics make this book interesting to read. In addition, the summary at the end of each chapter enables one to grasp the main theme with minimum effort.

This book is recommended not only to the clinicians but to the research workers who should also find it useful in placing their own studies in perspective.

T.T. LOH

ENVIRONMENTAL HEALTH AND HYGIENE
by Evelyn Pearce
2nd Edition Published by Faber and Faber
24 Russell Square London Pp 286 Price 25s net.

THIS BOOK should be a most welcome addition to the list of text books for a student nurse. It is clear and comprehensive, and deals with the total environment in a very intelligent manner. There is a great need to make the nurse appreciate the importance of the numerous interacting forces in the occurrence and spread of disease and its prevention and this book has achieved this admirably well.

The arrangement of the contents has been done with a great deal of care, and appears to be better than most text books of this type. The author has been able to cover almost every aspect of Public Health.

As this book is written for nurses, there is no attempt to go too much into detail. It is, therefore, very readable and may be also of value to school teachers and other educators.

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