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TUBAL ECTOPIC PREGNANCY

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SUMMARY

Forty patients with tubal ectopic pregnancies seen over an 18 month period are studied. Epidemiological parameters in the three major groups are compared. The diagnostic problems, signs and symptoms are discussed. Aetiological factors in this area are compared with changing trends in other centres. Pelvic inflammatory disease remains an important cause. The role of conservative approach in surgical treatment of ectopic pregnancy is discussed. The crude incidence rate of ectopic pregnancy in Johore Baru Hospital between January 1978 and June 1979 is I:358 deliveries.

INTRODUCTION

A prospective study of 40 cases occurring over an 18 month period at the General Hospital Johore Baru, with a discussion on epidemiological parameters, clinical features and surgical treatment in the three main ethnic groups in the region, is presented.

Because of its interesting pathophysiology and dramatic clinical picture, ectopic pregnancy, especially tubal ectopic pregnancy is a notable entity among the obstetric population. This large reservoir of unsuccessful pregnancies that implant in an aberrant area that is not conducive to further development and growth, not only accounts for a large source of non-preventable foetal wastage, but continues to be responsible for a large number of maternal deaths.

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It has been repeatedly pointed out that ectopic pregnancy is one of the greatest imposters as whether it presents as the acute form or the chronic form, it may simulate almost any intra-abdominal disease (Vengadasalam, 1970), be it surgical, medical or gynaecological. Multiple large and well documented studies have been published emphasizing the importance of early diagnosis and management. Though less is known of the aetiology and epidemiology more studies point to a changing trend in clinical presentation and casual factors.

MATERIALS AND METHODS

The objective of this study is to review the epidemiological factors such as age, parity, clinical history and operative findings among patients with ectopic pregnancies in this hospital and to compare our own experiences with this condition with that in other areas. However, in view of the short period of study, we have been unable to study the obstetrical sequelae and subsequent fertility status of these patients.

The material utilized consists of 40 ectopic pregnancies from January 1978 to June 1979, a period of 18 months, at the General Hospital, Johore Baru. Sixty percent of these cases were referred from the outlying rural areas and the four district hospitals in South Johore. In this same period there were 14, 318 deliveries in the hospital.

Detailed clinical history with a full physical examination including pelvic examinations was performed on all patients thought to suffer from the condition. Past obstetric performance, gynaecological disorders, period of involuntary infertility and contraceptive methods used were noted.

TABLE I
POPULATION DISTRIBUTION BY ETHNIC GROUPS IN JOHORE WITH INCIDENCE OF TUBAL ECTOPIC PREGNANCIES

Ethnic Group	Population Distribution in Johore (%)	Incidence of Ectopic Pregnancies %
Malay	50	47.5
Chinese	35	35.0
Indian	10	10.0
Others	5	7.5
Total	100	100

TABLE II
TUBAL ECTOPIC PREGNANCIES BY ETHNIC GROUP AND AGE

AGE	MALAYS	CHINESE	INDIANS	OTHERS
15-20	2	1	0	0
21-25	4	3	0	0
26-30	6	5	3	2
31-35	4	3	1	1
36-40	3	2	0	0
TOTAL	19	14	4	3

RESULTS

Incidence

The incidence of ectopic pregnancy varies in different parts of the world. The incidence in Singapore is about I:530 deliveries (Vengadasalam, 1970). Breen (1970) reported a ratio of I:118 deliveries. The crude incidence rate in this hospital is I:358 deliveries. This figure is too large an estimate because many of the cases were referred cases, and the actual delivery rate in South Johore is not considered.

Beral (1975) in conducting an epidemiological study of recent trends in ectopic pregnancies concluded that the incidence of ectopic pregnancy has been increasing since the 1950's with a particularly sharp rise in 1970. Pathak (1971) expressed a similar opinion on reviewing the occurrence of this gynaecological disorder in the West Indies, though unlike Beral, he attributes it to inadequate treatment with antibiotics. Such a rising trend is not seen in this hospital. There was one ectopic in 415 deliveries in 1977. Breen (1970) states that ruptured ectopic pregnancies account for 6-7 percent of gynaecological deaths. There were no deaths in this series.

Because of recent trends in fertility control, the clinical presentation and aetiology of ectopic pregnancy is changing in the West (Burke, 1977). In this region the pattern of the disorder is still closely related to puerperal and postabortive pelvic inflammatory disease.

Age and Ethnic Group Distribution

There was no significant difference in the distribution of ectopic pregnancies in the three main ethnic groups as it is well reflected in the population distribution of the three groups in the State, as shown in Table I.

Franklin (1973) pointed out the difference in age distribution of ectopic pregnancies and obstetrical population in Atlanta, Georgia, the former averaging 26.9 years whilst the latter averaged 22.0 years. This correlated well with the local population in this series.

Parity

Thirty-three patients (82.5 percent) gave a history of having been pregnant. Of these 10 patients were primiparas and 15 had 2 or 3 children. Four patients had more than five children. Only seven patients had never conceived before, indicating a high fertility index for patients with ectopic pregnancy. The youngest patient in this series, a 19 year old was the only single lady. She vehemently denied coitus even after histological confirmation of the diagnosis.

Similar findings were recorded by Breen who reviewed 654 ectopic pregnancies in 1970 in the United States. A period of involuntary infertility were seen in both the nulliparous and multiparous women between marriage or last pregnancy and diagnosis of ectopic pregnancy.' In another 25 percent of cases more than 5 years lapsed after birth of the last child. Eleven cases (27.5 percent) had their previous pregnancy ending in abortions. Six of these were induced abortions. The significance of this is discussed later.

Signs and Symptoms

Patients with ectopic pregnancies are only occasionally seen by the doctor when the tube is intact. Because there are hardly any diagnostic signs or symptoms that can be relied upon at that stage either the patient ignores the symptoms or the

TABLE III
TUBAL ECTOPIC PREGNANCY BY PARTY

PARITY	NO. OF PATIENTS	PERCENTAGE (%)
0	7	17.5
1	10	25.0
2	8	20.0
3	7	17.5
4	4	10.0
More than 5	4	10.0
TOTAL	40	100.0

attending physician misses the diagnosis. Ectopic pregnancies are ubiquitous and can co-exist or stimulate many other emergencies, hence they will only be diagnosed if the physician thinks 'ectopic'. In this series, general symptoms presented by the patients included the classical triad of abdominal pain, amenorrhoea and vaginal bleeding. The main symptoms are listed in Table IV and compared with those in other series in order of frequency.

Except for two patients, all had abdominal pain. This was of a severe nature in 90 percent of the patients who gave a history of a vague type of pain followed by a sudden sharp stabbing type pain. This was associated with fainting or giddiness in one-third of the cases. There were no menstrual irregularities in 40 percent of the cases. Two patients had a period of amenorrhoea of 10 weeks while another two had 8 weeks amenorrhoea. None of the patients could distinguish between colour of vaginal blood compared to their menstrual blood. Only 45 percent complained of abnormal vaginal bleeding. Nausea and vomiting though classically said to be an unusual symptom in ectopic pregnancy (Breen, 1970), accounted for one of the largest number of additional symptoms in the series (32.5). Shoulder tip pain was present in 4 cases.

Physical Signs

Signs of anaemia and shock of varying severity were common. Pallor was noted in 90 percent of cases. A low grade fever was present in 3 cases. Only three cases (7.5 percent) were admitted in a state of collapse with systolic blood pressure less than 80 mm Hg. A rapid thready pulse was a useful index of a ruptured or leaking ectopic pregnancy. Shifting dullness could only be elicited in seven cases.

TABLE IV
TUBAL ECTOPIC PREGNANCY BY SYMPTOMS OF ECTOPIC PREGNANCY

SYMPTOMS	PRESENT STUDY	VENGADASALAM (Singapore)	BREEN (U.S.A.)
Abdominal Pain	95.0%	96.0%	100.0%
Amenorrhoea	60.0%	75.0%	83.6%
Vaginal Bleeding	45.0%	60.0%	80.0%
Fainting	37.5%	19.0%	
Nausea and Vomiting	32.5%	12.0%	17.4%

Marked abdominal guarding over the lower abdomen was noted in 90 percent of the cases. Cullen's sign was present in one patient. Six patients (15 percent) were initially admitted to the surgical ward as acute appendicitis before transfer to the gynaecological ward. In three of these, ectopic pregnancy was detected after opening the abdomen through a McBurney's incision. Pelvic examination revealed tenderness in the fornices in 31 patients (77.5 percent). An adnexal mass was noted in 20 patients (50 percent).

Operative Findings

All 40 patients had tubal pregnancies. Twenty-seven of these occurred on the right side (67.5 percent). The proximity of the appendix has been suggested (Jeffcoate, 1967) for the more frequent occurrence on the right side. Hallat (1968) noted a right sided ectopic pregnancy in 61 percent in a group of 104 patients who had an appendicectomy done. He propounds a low grade infection associated with appendicectomy that sets the stage for ectopic pregnancy. In the present series only 3 cases (7.5 percent) had an appendicectomy done earlier on. One patient had a ruptured tubal pregnancy on the right side four months after an elective female sterilization by the modified Pomeroy's technique. Three patients had repeat ectopic pregnancies giving an incidence of 7.5 percent for repeat occurrence of the catastrophe. Hallat (1968) quotes an incidence of 9.25 percent for repeat ectopic pregnancy in Los Angeles. There is a general acceptance of 10 percent for repeat ectopic by most workers.

There was no bilateral tubal pregnancies in this series. Twenty-four (60 percent) of ectopic gestations were in the ampullary portion of the tube, 9 were in the isthmus (22.5 percent) and 4 were in the fimbrial end. From the consideration of the contralateral tube (Table V) it was surmised that

TABLE V
TUBAL ECTOPIC PREGNANCY
CONDITION OF CONTRALATERAL TUBE

CONDITION OF TUBE	NO.
Normal	22
Hydrosalpinx	1
Chronic Salpingo-oophoritis	10
Tubo-ovarian cyst	2
Total salpingectomy done	3
Endometriosis	2
TOTAL	40

pelvic inflammatory disease which was evident in 25 percent of the patients was still a prime aetiological factor. The contralateral tube appeared macroscopically normal in 22 patients (55 percent). The true functional impairment of the latter e.g. impairment of ciliary activity and muscular peristaltic activity, could still be prevalent but could not be ascertained. This is just as important a factor in causing retardation in progress of the fertilized ovum as a mechanical factor in chronic inflammatory disease (Novak, 1974). Thirty patients had a total salpingectomy and cornuectomy was performed in 3 cases where the ectopic gestation was located in the interstitial portion of the tube.

Blood Loss

The blood pressure was less than 80 mm Hg (systolic) in only three patients. These had an estimated blood loss of more than 2000 ml. The volume and tension of the maternal pulse correlated well with the quantity of blood loss. Sixty-five percent of the cases had about 1000-2000 ml of blood in the peritoneal cavity. Eighty percent required blood transfusion, two had a total of 12 pints of whole blood transfused between them. There was no significant correlation between haemoglobin level and blood loss.

Mortality and Morbidity

No mortality occurred in the series. Fifty-two percent of the cases had to have their anaemia corrected prior to discharge. There was one patient with wound dehiscence but required secondary suturing. Average hospital stay was 6.5 days.

COMMENTS AND CONCLUSIONS

Epidemiological parameters of age, parity and ethnic group distribution fail to demonstrate any significant difference in incidence of ectopic pregnancy amongst the three major ethnic groups in the local population. Parity had little influence. The diagnosis of ectopic pregnancy in the majority of cases depended on the awareness of the possibility of the condition and careful consideration of the history and physical findings. The study well illustrates the problem in diagnosis and a variety of symptomatology, few of which being diagnostic pointers to the condition. Three cases were in fact operated on for acute appendicitis.

Pelvic sepsis especially postabortal and postpuerperal rather than gonococcal were important aetiological factors postulated to give rise to peritubal adhesions or tubal damage. Twenty-five percent of the cases had definite evidence of pelvic infection. A period of involuntary infertility of more than two years was seen in 50 percent of the cases. This may further substantiate pelvic inflammation as a prime aetiological factor (Myerscough, 1977). Termination of the previous pregnancy in abortion in 11 cases, six of them being induced, emphasizes the importance of post-abortal sepsis in the region. Panayotou (1972) points out a tenfold relative risk in developing ectopic pregnancy following previous induced abortion. Delay in evacuation of spontaneous incomplete abortion could yet be another contributing factor to pelvic sepsis.

Ectopic pregnancy following female sterilization has been commonly implicated (Krzaniak, 1968). One such case was noted in this study. The increasing use of the intrauterine contraceptive device (IUCD) and progestogen only contraceptives have been mentioned to be a major contribution to the recent increase in extrauterine gestation in the West (Beral, 1975). None of the 40 cases were on the IUCD. One Indian patient, however was on 'Depo-Provera' (Medroxy Progesterone Actate), having received a total of four injections of 250 mg. over a 12 month period prior to conception. Hawkins (1974) believes that progestogen only contraceptives do not cause ectopic pregnancy, the relation being analogous to that between IUCD and ectopic pregnancy, that affecting tubal function.

The value of diagnostic curettage in tubal pregnancy was well illustrated by one case. This 34 year old multiparous lady had a curettage done for 'menorrhagia' after a six year period of involuntary infertility two weeks prior to laparotomy for a

ruptured tubal pregnancy. The curettings were reported as secretory phase endometrium with no significant pathological change. Curretage is usually of no help in diagnosis (Novak. 1974). The Aris-Stella reaction, even if present, can occur in the non-pregnant state as an exaggerated response to progesterone in the premenstrual era.

An immunological test for pregnancy is non-informative and was not resorted to as a diagnostic aid. Culdocentesis and laparoscopy were resorted to where indicated. No fatalities occurred and this encouraging result was attributed to early and appropriate resuscitation of the hypovolemic patient and prompt surgical intervention. The availability of blood transfusion services in the hospital and district hospitals enabled restoration of blood volume and contributed to the relative well-being of the patients prior to surgery. Auto-transfusion was not resorted to though it has been usefully employed in certain centres (Pathak, 1971).

The primary aim in surgery in these cases was life-saving. Most of the cases were from the lower socio-economic groups and living in areas distant from where immediate medical care was available. With the risk of a repeat ectopic occurring in 10 percent in the general population, a conservative approach was looked upon with caution.

It has been established that surgery for an ectopic will affect her future fertility. Fertility is impaired in 33 percent to 60 percent of women who had one ectopic gestation (BMJ, 1976 (i) 607). Seventeen percent were nulliparous in this study, their obstetric sequlae is yet to be studied. Hallat (1968) states that the management of ectopic pregnancy should be patterned to the patient's desires and needs as well as to the surgical findings, hence justifying an attempt to preserve the involved tube. The risk of a subsequent ectopic pregnancy in the reconstructed tube is about 16 percent. This risk is small compared to the chances of a successful pregnancy. In the light of such views, perhaps a compromise should be sought in surgical management with due consideration of the patient's desires, parity, socio-economic status and the risk to her own life in yet another ectopic gestation.

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