

OVARIAN TUMOURS IN PREGNANCY A REVIEW

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SYNOPSIS

Ovarian tumours in pregnancy were reviewed for the five years 1978-1982 inclusive. There were 40 cases seen. Their clinical presentation, management and histological types are reviewed. The incidence of ovarian tumours in pregnancy in this study was 1:649 deliveries and the majority of cases were between the ages of 20-34 years. 15% of the patients presented with acute complications. 42.5% of cases were diagnosed in early pregnancy during pelvic examination. The value of a pelvic examination in early pregnancy is emphasised. However, a fairly large number of cases (35%) were picked up at Caesarean Section and sterilisation. This underscores the importance of examining the ovaries at operation. Significant but asymptomatic ovarian tumours are usually removed in the early part of the second trimester pregnancy. Though ovarian tumours in pregnancy are largely benign, malignant tumours do occur and this possibility must always be borne in mind.

INTRODUCTION

Alexandra Hospital opened its doors as a civilian hospital in late 1971. The number of deliveries in the Department of Obstetrics & Gynaecology has increased from 2814 deliveries in 1972 to 4971 deliveries in 1982. It is felt that it would be a useful exercise to review the experience of the Department with ovarian tumours in pregnancy so that one could better appreciate the problems in management now that the Department is a busy unit serving an estimated population of half a million (1). Besides the subject was last reviewed in Singapore more than a decade ago in 1971 (2).

MATERIALS AND METHOD

The criterion of "significant" ovarian tumours reported in the literature is largely one of size (3). While accepting the fact that cystic enlargements of less than 5 cm. do occur, these are difficult to distinguish from normal ovarian variations (4). In the experience of Grimes et. al. (5) the majority of cysts less than 5-6 cm. diameter disappeared during pregnancy and thus were deemed functional. For this review, we have adopted the lower limit of 6 cm. diameter (3).

During the review period of 1978 through 1982 there were 213 patients in the unit in whom the diagnosis of an ovarian tumour was confirmed at laparotomy (6). Of these, 40 had an associated pregnancy. Thirty-eight were intra-uterine pregnancies and two, ectopic pregnancies. The case records of all patients were traced and studied. There were 25,956 deliveries in the unit during this period (1).

RESULTS AND DISCUSSION

In this study, the incidence of ovarian tumours associated with pregnancy was 1:649 deliveries. Our incidence is compared with others in Table 1. The incidence has ranged from as high as 1:81 (5) to 1:6226 deliveries (2). This large variation is due to the minimum size of tumour taken as the standard for inclusion in the study and on whether diagnosis was confirmed by laparotomy.

**TABLE 1
INCIDENCE OF OVARIAN TUMOURS
IN PREGNANCY**

Study	Incidence
Haas	1 : 330
Grimes et. al.	1 : 81
Tawa	1 : 815
Sinnathuray	1 : 6226
Sivanesaratnam et. al.	1 : 512
Present Study	1 : 649

**TABLE 2
DISTRIBUTION OF PATIENTS BY AGE**

Age (in Years)	Number of Patients
15 - 19	2
20 - 24	8
25 - 29	13
30 - 34	13
35 - 39	3
40 -	1
Total	40

**TABLE 3
DISTRIBUTION OF PATIENTS BY RACE**

Race	Number of Patients
Chinese	34
Malays	5
Indians	1
Total	40

**TABLE 4
TIME OF DIAGNOSIS OF OVARIAN TUMOURS
IN PREGNANCY**

Gestation	Number of tumours diagnosed
First trimester	17
Second trimester	7
Third trimester	14
Total	38*

* Two cases were diagnosed in the puerperium.

**TABLE 5
MODE OF PRESENTATION OF OVARIAN TUMOURS
IN PREGNANCY**

Mode of Presentation	Number of Cases
Incidental finding at operation	19
Mass	12
Pain	6
Obstructed labour	3
Total	40

**TABLE 6
OPERATIONS AT WHICH THE OVARIAN TUMOUR WAS
DISCOVERED AS AN INCIDENTAL FINDING**

Operation	Number of Cases
LSCS	11
Sterilisation (Post-abortion & Post-partum)	3
Laparotomy	2
Vacuum D & C	2
Total	18

**TABLE 7
HISTOLOGY OF THE OVARIAN TUMOURS OCCURRING
IN PREGNANCY**

Histology	Number of patients
Benign	
Teratoma	17
Mucinous Cystadenoma	5
Serous Cystadenoma	4
Endometriosis	4
Corpus luteum cyst	5
Serous Cystadenofibroma	1
Malignant	
Mucinous Cystadenocarcinoma	1
Serous Cystadenocarcinoma	1
Total	38*

* Two specimens were badly lysed and no histological confirmation could be made.

**TABLE 8
TYPES OF OPERATION DONE FOR OVARIAN TUMOUR**

Type of Operation	Number of Cases
Cystectomy	15
Salpingo-oophorectomy	25
Total	40

Most of our patients were between the ages of 20 years and 34 years. The youngest patient in the series was aged 19 years and the oldest 41 years. The predominant racial group was Chinese and this is not unexpected as it reflects the racial composition of Singapore.

In 1970, based on a study of patients in the Singapore-Malaysia region, Sinnathuray (2) found that a large proportion of cases, 63.2%, presented with acute complications. In contrast only 15% of our cases presented with acute complications — five with torsion of the tumour and one with rupture. Sinnathuray felt that the high proportion of acute complications in his series was due to the patients being mainly unbooked while in others a routine pelvic examination was not done. In our study, 42.5% of cases were picked up in the first trimester, 17.5% in the second and 35% in the third. Two cases were diagnosed in the puerperium. There is definitely a change in trend from the time of Sinnathuray's study. Almost all cases diagnosed in the first trimester were picked up during pelvic examination in patients requesting abortion. The same cannot be said for antenatal patients because most of our patients are seen at the primary health care clinics and are usually referred to the unit for booking late in the second trimester or in the third trimester of pregnancy. By this time however, it is difficult to feel any adnexal mass unlike in the first trimester when the uterus is still a pelvic organ. Furthermore the majority of ovarian tumours are asymptomatic. As shown by our data, a large proportion of ovarian tumours are still diagnosed late in pregnancy. The importance of pelvic examination in the first trimester of pregnancy cannot be over-emphasised. Assessment of uterine size at this time provides a good clinical correlate of gestational age (7) as well as an opportunity to detect abnormalities such as ovarian tumours which when complicated could have serious consequences on the pregnancy. Pregnant mothers should therefore report early for antenatal care.

It is important to note the large proportion of ovarian tumours picked up incidentally at operation. Two patients were missed at the outpatients and the tumour picked up at the time of Vacuum D & C for unwanted pregnancy. The state of the ovaries at Caesarean Section and sterilization should be examined always especially when large numbers of the latter operation are done in Singapore.

15% of patients presented with complications. Five tumours underwent torsion and one ruptured. Infection of the tumour occurred in one of the patients in the puerperium and initially a diagnosis of acute appendicitis was made. The puerperium is the time when infection most commonly occurs (8).

The commonest histological type of tumour in our series is the benign teratoma. The histological type is probably unrelated to the pregnancy as we have also found the benign teratoma to be the commonest type even in non-pregnant women (6). Other histological types commonly encountered were the mucinous and serous cystadenomas, endometriotic cysts and the corpus luteum cyst. Our findings are similar to that reported by others (3, 9, 10). There were two malignant tumours in this review thus making the incidence of malignancy to be 5%. The incidence of malignant ovarian tumours in pregnant women varies from 2–5% (11). Sivanesaratnam et. al. recorded an incidence of 7.4% (9). While one would expect malignant tumours in older patients it was unusual that one of the two patients with a malignant ovarian tumour in our study was only 27 years old.

At operation, cystectomy was done in 37.5% of cases and salpingo-oophorectomy in the other 62.5% of cases. Of the two patients with malignant ovarian tumours one subsequently underwent hysterectomy and salpingo-oophorectomy while the other refused further treatment.

Csapo (12) has shown that a pregnancy is dependent on the corpus luteum before the seventh week of gestation after which it becomes dispensable. Others however think that the corpus luteum is not essential to stabilising an early pregnancy as they have found a very low incidence of abortion among cases where the corpus luteum was excised (13). However removal of an ovarian tumour in the first trimester of pregnancy has been associated with a high incidence of abortion (10). Therefore if an asymptomatic ovarian tumour is detected in the first trimester of pregnancy, it is usually removed early in the second trimester of pregnancy, as later in pregnancy access to the tumour would be hindered by the size of the pregnant uterus.

The incidence of abortion following surgical removal of ovarian tumours in pregnancy varies and has ranged from 23% (14) to as low as 1–2% (4). Unfortunately the majority of our patients who were diagnosed to have an ovarian tumour in early pregnancy sought abortion. Consequently, there were few patients who were operated on early in pregnancy and were followed till delivery. The two patients who continued with their pregnancies following surgical removal of ovarian tumours delivered normally and their babies were healthy.

While one would prefer to remove significant ovarian tumours in the second trimester of pregnancy the likelihood of malignant tumours must always be remembered. Solidity, bilaterality and rapid growth of an ovarian mass correlate with malignancy and might necessitate earlier intervention.

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