The pattern of the pathology of ovarian tumours in pregnancy in the Singapore-Malaysia region

by T. A. Sinnathuray

AM,MD (S'pore), BS (Malaya), FRCS (Edin.), FRCS (Glasg.), FICS, MRCOG
Professor and Head,
Department of Obstetrics and Gynaecology,
University of Malaya,
Kuala Lumpur,
Malaysia.

Introduction

THE OCCURRENCE of ovarian tumours in the pregnant patient is relatively infrequent. But, when they do occur, they present as challenging problems in diagnosis and management, in view of the complications that can be associated with these tumours in pregnancy, namely pelvic impaction, obstructed labour, torsion of the ovarian pedicle, haemorrhage, rupture, infection, and last but not least, malignancy. Malignancy in the ovarian tumour, although the less frequent and least acute of the complications in the pregnant patient, is always at the back of the mind of the clinician, and often the foremost complication in the mind of the medical undergraduates and junior doctors.

Diagnostic criteria

In view of the fact that the ovaries undergo physiological cystic enlargements during pregnancy, especially in the first trimester of pregnancy, and that these physiological enlargements can be of variable sizes, they can pose problems in the diagnosis of ovarian tumours in pregnancy. The diagnostic criteria adopted in this study, for labelling an enlarged ovary in pregnancy as an ovarian tumour is when the enlarged ovary is 6 cm. or more in diameter. The minimum size criteria used in other studies have varied between 5 cm. and 6 cm.

Results

The evaluation of the study of any personal series of such an uncommon condition, as ovarian tumours in pregnancy, may not yield any statistically significant conclusion. It was, therefore, felt worthwhile to analyse the experience of a large obstetrical service, such as that of the Kandang Kerbau Hospital, Singapore, which had consistently been handling just under 40,000 deliveries per annum, during the 1964 to 1966 period under review (Singapore Year Book 1966).

TABLE I

Background data

Place of Study: Kandang Kerbau Hospital
Period of Review: January 1964 to December 1966 (3 years)
Total Deliveries: 118,303
Total Singapore Deliveries: 168,725
% of Singapore Deliveries Studied: 70.1%
No. of Diagnosed and Treated Cases of Ovarian Tumours in Pregnancy: 19
Incidence of Ovarian Tumours in Pregnancy: 1 : 6,226

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Background data

It will be noted from table I that, during the three-year period, 1964 to 1966, there were 118,303 deliveries in the Government units of the Kandang Kerbau Hospital. This represented over 70% of the total mothers delivered in the Republic of Singapore during the same period. In all, there were 19 cases of ovarian tumours in pregnancy, that were diagnosed and treated, and this gave an incidence of ovarian tumours in pregnancy of 1 in 6,226 deliveries, in this study. The incidence of ovarian tumours in pregnancy, as quoted by other authorities, has ranged from just under 1 in 1,000 deliveries to just over 1 in 8,000 deliveries (Gustafson, G.W. et al, 1954); and the incidence of 1 in 6,226 deliveries in this study fits in within the reported frequency range, but of the less frequent occurrence.

TABLE II
Clinical presentation pattern

	No. of Cases	%
Torsion of Ovarian Pedicle	4	21.1%
Pelvic Impaction/Obstructed Labour	8	42.1%
Incidental Finding at Caesarean Section	7	36.8%

Clinical presentation pattern

It is apparent from table II that 63.2% (12 out of the 19) of the cases presented as acute complications of the ovarian tumours in pregnancy, i.e. torsion of the ovarian pedicle 21.1% (4) of the cases and pelvic impaction with obstructed labour 42.1% (8) of the cases. The relatively high proportion (63.2%) of the ovarian tumours in pregnancy presenting as acute complications in this study is due partly to the relatively low "booking" rate of 57.9% in this study (table III) and partly to the lack of routine pelvic examinations at the first "booking" ante-natal visit. In fact, it will be noted that even the remaining 36.8% of 19 ovarian tumours (7 cases) were also diagnosed late, as incidental findings at Caesarean section deliveries. This latter finding also stresses the importance of routine careful inspection of the ovaries at the time of Caesarean section.

TABLE III
Booking pattern

	No. of Cases	%
Booked Cases	11	57.9%
Unbooked Cases	8	42.1%

Booking pattern

Table III shows that only 57.9% (11) out of the 19 cases of ovarian tumours in pregnancy in this study were "booked" cases, i.e. seen for routine ante-natal check-up prior to the onset of labour, the remaining 42.1% (8) of the cases being "unbooked", and hence emergency admissions in labour. As stated earlier, this relatively low "booking" rate of 57.9% is partly responsible for the high incidence (63.2%) of the ovarian tumours presenting as acute complications in pregnancy in this study (Gustafson et al, 1954).

TABLE IV
Ovarian tumour pathology pattern

	No. of Cases	%
Benign cystic teratoma (dermoid cysts)	8	42.1%
Benign serous cystadenoma	4	21.1%
Benign mucinous cystadenoma	4	21.1%
Chocolate endometrial cysts	2	10.5%
Bilateral retention serous cysts	1	5.2%
Malignancy	0	0

Ovarian tumour pathology pattern

In table IV is presented the histo-pathological pattern of the 19 ovarian tumours in pregnancy. It is apparent that the benign cystic teratoma, commonly referred to as the "dermoid cyst", is the commonest type of ovarian tumour (6 cm. or more in diameter) seen in pregnancy. Similar distributional pattern has been reported by other workers (Gustafson G.W. et. al, 1954 and Tawa, K., 1964). In this study, 42.1% (eight out of the 19) of the ovarian tumours in pregnancy were benign cystic teratomas. The benign serous cystadenomas and the benign mucinous cystadenomas each contributed to 21.1% (four cases) of the 19 ovarian tumours in this series. The remaining three cases were chocolate endometrial cysts (two cases) and bilateral retention serous cysts (one case).

TABLE V
Maternal age pattern

	No. of Cases	%
15 to 19 years	4	21.1%
20 to 29 years	11	57.8%
30 to 39 years	4	21.1%

Malignancy pattern

There were no cases of ovarian malignancy amongst these 19 ovarian tumours seen in the 168,725 pregnant women, reviewed in this study. The reported incidence of malignancy amongst ovarian tumours in pregnancy has ranged from 2.2 to 5 per cent (Gustafson, G.W. et al, 1954; Jubb, E.D. 1963; Munnell, E.W., 1963; and Tawa, K., 1964). The absence of malignancy in the 19 ovarian tumours in pregnancy reviewed in this study could be explained by a study of table V, which reveals that all the women were under the age of 40 years, and 78.9% (15 out of 19 women) of them were under 30 years of age. The rarity of ovarian malignancy in women under the age of 40 years, and more so under 30 years, is well established. Although 168,725 pregnant women have been reviewed, there were only 19 ovarian tumours amongst them. Since the reported incidence of malignancy amongst ovarian tumours in pregnancy is 2.2% to 5% (Jubb, E.D., 1963), i.e. 1 in 45 to 1 in 20 cases, it is also possible that another explanation for the absence of malignancy in this series of 19 ovarian tumours, is the fact that the number of cases of ovarian tumours reviewed is inadequate, so that there might be a chance exclusion of the malignant ovarian tumours.

Summary and conclusions

1. The diagnostic criteria adopted for labelling an enlarged ovary in pregnancy as an ovarian tumour is when the enlarged ovary is 6 cm. or more in diameter.

2. Ovarian tumours in pregnancy are relatively infrequent associations, and the incidence of 1 in 6,226 pregnancies found in this study fits in with findings in other parts of the world.

3. A high proportion (63.2%) of the ovarian tumours in pregnancy in this study presented as complications in pregnancy (obstructed labour 42.1%, and torsion of the ovarian pedicle 21.1%), and the reasons for these modes of presentations have been put forth.

4. A histo-pathological study of the 19 ovarian tumours reveals the benign cystic teratoma, commonly referred to as the "dermoid cyst" as the common ovarian tumour seen in pregnancy (42.1%). A finding consistent with other reports.

5. There were no cases of ovarian malignancy amongst these 19 ovarian tumours seen in 168,725 pregnant women. An explanation for this is seen in the maternal age distributional pattern, and the number of cases reviewed.

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