

## OVARIAN TUMORS IN PREGNANCY

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**B. Gülekli, M.D. \*\* / F.Durmuşoğlu, M.D.\* / E.İşgör \*\*\***

\* *Assistant Professor, Department of Obstetrics and Gynecology, Faculty of Medicine, Marmara University, İstanbul, Turkey.*

\*\* *Specialist, Dr.Z.T. Burak Women's Hospital, Ankara, Turkey*

\*\*\* *Medical Student, Faculty of Medicine, Marmara University, İstanbul, Turkey.*

### SUMMARY

Twenty-five pregnant woman with ovarian tumors, are presented. Management of an ovarian tumor in pregnancy depends on a number of factors, namely, the mode of presentation, the time of presentation, the ultrasonographic findings, the presence or absence of malignancy. The incidence of ovarian tumors in pregnancy ranges from 1 in 102 to 1 in 6226 and the malignancy range of these tumors varies from 2.2 % to 8%.

**Key words:** Ovary, tumor, pregnancy.

### INTRODUCTION

Ovarian neoplasm diagnosed during pregnancy is a serious complication. In addition to the risk to the fetus, it is a source of anxiety for both mother and physician. The first question that comes to mind is: Should there be a surgical intervention, and what effect would it have on the pregnancy? Search of the literature reveals that, there is no standard approach for the management of these patients. In this study, we report the results of 25 pregnant patients diagnosed as having ovarian tumors and treated surgically.

### MATERIALS AND METHODS

Between 1 January 1980, and 30 November 1985, 123884 women delivered in the Dr. Zekai Tahir Burak Women's Hospital, Ankara, Turkey. Each pregnant woman seen in the clinic had bimanual pelvic examination, and suspicious cases were referred to pelvic ultrasonography. During that time, 25 women were operated because of the clinical diagnosis of ovarian tumors. The incidence in our study is 1 in 4955 pregnancies.

The decision for the management of these patients was made after considering many factors, such as; status of the pregnancy at the time of diagnosis, trimester, ultrasonic findings, size of the mass, whether cystic or

not, the mother's wish to continue the pregnancy, and probability of the tumor being malignant. Even after consideration of all these factors, the decision on surgical intervention varies from patient to patient.

### RESULTS

Age distribution of our cases was shown in Table I. The youngest patient was 19 and oldest 35. Five patients were gravida 1, para varied between 0 and 8, and Dilatation and Currettage (D.C.) between 0 and 6. Five patients had more than 3 living children. Patients presented with pain associated with another symptom is the largest group (e.g. hemorrhage, discharge, abdominal swelling). Other chief complaints in the order of frequency were groin pain alone, referral by other physician, late period, vaginal bleeding, and in one patient abdominal swelling during puerperium.

Size of the uterus determined by bimanual pelvic examination and ultrasonography at the time of the diagnosis was shown in Table II. Adnexal mass was located on the left in 13, on the right in 9, and bilaterally in 3 patients.

On gross examination, 23 tumors were cystic, one solid, and one appeared to be malignant. On microscopic examination, the solid tumor was also malignant. Five of the tumors were 5 cm. or less in diameter, 9 were between 5 and 9 cm. and 13 were 10 cm. or more (two cases with bilateral tumors are included).

Histopathologic diagnoses of these tumors were shown in Table III. Dermoid cysts and cystadenomas comprised 44% of the cases. Functional cysts were found in 36% (9 cases) of the cases. Two patients had hydatid cysts (8%). Two patients with cancer were diagnosed as serous cystadenocarcinoma.

Type of the surgical procedure was listed in Table IV. Three patients had total abdominal hysterectomies with

bilateral salpingo-oophorectomy, two because the frozen section revealed malignant neoplasm, and the third had a hydatid cyst, which could not be resected. In two which the appendix was removed in addition to cysts, appendicitis with local peritonitis was found.

## DISCUSSION

Sometimes the consequences of an ovarian tumor in pregnancy are more serious than they first appear. The incidence of an ovarian tumor in pregnant and nonpregnant women in the same age group is approximately the same. The incidence varies between 1:102(1) and 1:6226(2) (Table V). Diagnosis is usually made via bimanual pelvic examination. Although ovarian tumors can be diagnosed any time during pregnancy or postpartum, ours along with other published studies reveals that adnexal masses are most often discovered during first trimester (1,3,5,6,9,10) (Table II). It should be stressed that when a pelvic mass is suspected on bimanual pelvic examination ultrasonographic studies should be done. In our series, six of the 25 patients were examined by ultrasound. Especially in the first trimester, possibility of misdiagnosis is high. For example, in Stuyk's study, five of 13 patients, who were operated during the first trimester had been misdiagnosed (6). However, a conservative approach can also be dangerous for the patient. Sixty percent of the adnexal torsion cases occur during first trimester (11). Both of our patients, who were operated due to acute abdomen and found to have adnexal torsion were in first trimester. Surgical procedure of choice in patients with adnexal torsion is adnexectomy if there is evidence of necrosis; ovarian cystectomy without attempt to correct the ovarian torsion if there is no apparent ischemia (12).

A physician, who encounters an ovarian mass, during first trimester is faced with a difficult decision: whether this is a corpus luteum cyst, which will disappear during second trimester, or a malignancy.

One can choose to "wait and see" and follow the patient with ultrasonography until 14-16th week of gestation, by that time if it is a corpus luteum cyst, it will have disappeared. In any case, the ideal time for laparotomy is the second trimester because there is less risk for abortion than during the first trimester, and surgery is easier than in the third trimester.

Ninety percent of functional cysts spontaneously regress (11). In our series, 36 % of the patients had functional cysts. The reason for this high percentage in our study is that all of our patients were operated because of complications such as pain, torsion, or rupture.

Primary echinococcosis of pelvic organs is extremely rare. Pelvic echinococcosis is usually secondary to rupture of hydatid cysts of liver or other organs (13). One of our two patients had a history of hydatid cysts in liver and lung, which had been resected 9 years ago. Total abdominal hysterectomy was performed in this patient because of age, lack of desire for additional children, and extreme difficulty of dissection. The other patient had no history of hydatid cyst. A 20x25 cm. cyst was extirpated without removal of uterus, fallopian tubes, or ovaries.

The rate of malignancy in ovarian tumors in pregnancy ranges from 1.1% to 8%, an average of 5% (11,14). The evidence of malignancy in our cases is 8%. In cases of malignancy, if there is a possibility of peritoneal spread, total abdominal hysterectomy with bilateral salpingo-oophorectomy, omentectomy, and pelvic and paraaortic lymph node dissection should be performed. This procedure was performed on our two patients.

If the tumor is discovered in the third trimester, surgery can be postponed until term, thereby avoiding risk of early labor and difficulties encountered during surgery because of large, pregnant uterus. At this stage, the best choice is elective cesarean section.

For ovarian masses discovered during the first six weeks postpartum, even if they are asymptomatic, laparotomy should be performed. After six weeks, the mass could be follicular cyst. Only one of our patients who was operated presented a lower abdominal swelling one week after the delivery.

In summary, management of ovarian masses diagnosed in pregnancy requires good communication between patient and her physician. The physician should approach the management of these patients conservatively when possible, in order to preserve fertility, but radically when necessary.

TABLE I :  
Age Distribution of Ovarian Tumor Cases in  
Pregnancy

Age	No of Patients	Percentage(%)
19-24	9	36
25-29	6	24
30-34	3	12
35-	7	28
Total	25	100

TABLE II: Gestational Time at Diagnosis

Uterine Size	No	Percentage(%)
Normal size	4	16
I.trimester	13	52
II.trimester	7	28
Postpartum	1	4
Total	25	100

TABLE III: Postoperative Histopathologic Diagnosis

Histopathologic Diagnosis	No	Percentage(%)
Dermoid cyst	6	24
Follicle cyst	5	20
Luteoma of pregnancy	4	16
Papillary serous cystadenoma	3	12
Hydatid cyst	2	8
Mucinous cystadenoma	2	8
Endometrioma	1	4
Serous cystadenocarcinoma	2	8
Total	25	100

TABLE IV : Type of Surgery Procedures Performed  
for the Ovarian Tumours in Pregnancy

Type of Surgery	No	Percentage (%)
Cystectomy	10	40
Unilateral salpingo-oophorectomy	5	20
Wedge resection	3	12
Total abdominal hysterectomy and bilateral salpingo-oophorectomy	3	12
Cystectomy and appendectomy	2	8
Salpingo-oophorectomy and contralateral tubal ligation	2	8
Total	25	100

TABLE V : Ovarian Neoplasms During Pregnancy

Author	Year	Country	Incidence
Mathieu and Holman*	1931	USA	1/102
Traut and Ruder*	1940	USA	1/1045
Falk and Bunkin*	1947	USA	1/2500
Gustafson et al <sup>3</sup>	1954	USA	1/2222
Levine et Diamond <sup>4</sup>	1961	USA	1/2489
Sinnathuray <sup>2</sup>	1971	Malesia	1/6226
Struyk and Treffers <sup>6</sup>	1984	Holland	1/640
Ballard <sup>7</sup>	1984	USA	1/594
Thornton and Wells <sup>8</sup>	1987	England	1/346

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