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# Ovarian Germ Cell Tumor – A Clinical Profile and Management – 4 yrs study.

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**Objective** - To study the various types of ovarian germ cell tumors (OGCT), their clinical presentation and management. **Methods** - Thirteen women of ovarian germ cell tumors admitted during Jan 1997 to Dec. 2000 were clinically studied along with their USG; tumor markers and laparotomy findings and confirmed from HPE. **Results** - Eight women were within 20 yrs. of age. Benign cystic teratomas were observed in eight (71.54%) women, struma ovarii in two and malignant germ cell tumors in three. All these three expired within two months of laparotomy – two were cases of endodermal sinus tumor and the other had immature teratoma. All other patients are alive and having a regular follow up. **Conclusion** - OGCT are rare tumors seen mostly in young women who must have timely surgery and chemotherapy for good salvage.

**Key words :** ovarian germ cell tumor, laparotomy, benign cystic teratoma

## Introduction

Ovarian germ cell tumors (OGCT) are rare tumors, occurring primarily in teenagers and girls in their early twenties where preservation of reproductive function is desirable. The malignant germ cell tumors, form 2-5% of all ovarian malignancies. They are rapidly growing tumors attaining very large size and are highly responsive to timely treatrnent. Combination of surgical resection and systemic combination chemotherapy cures the majority of these patients and many may retain normal reproductive function after completion of therapy. The dermoid cyst accounting for one quarter to one third of all ovarian tumors is most common in young women, but is also encountered in children and occasionally in elderly women.

## Material and Methods

One hundred and seven patients of ovarian tumors were admitted in Unit-III from May 1997 to Dec. 2000. There were 13 cases of ovarian germ cell tumors (OGCT). Their histories , physical findings, investigations including haematological profile, x-ray chest, USG, (CT scan and tumor markers wherever possible) and pathological reports were scrutinized with analysis of age, parity and nature of tumor. All patients had laparotomy and surgical staging was carried out. Wherever required endometrial biopsy was taken. Further management was carried out according the histopathology. WHO classification was employed and patients were grouped as benign and malignant.

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## Observation and Results

Out of a total 107 ovarian tumors, 13 (12.5%) were diagnosed as OGCT and belonged to 18-38 yrs of age, with eight women upto 20 yrs of age.

Parity distribution is shown in Table-I. Most common complaint was pain in abdomen in 82%, lump in abdomen in 74% and menstrual disturbance in 13%. Benign cystic teratomas were found in eight patients, three were diagnosed as having malignant teratomas and two had struma ovarii (Table – II).

**Table I : Parity Distribution**

| Parity | No. of Cases | Percentage |
|---|---|---|
| $P_0$ | 4 | 30.77 |
| $P_1$ | 1 | 7.7 |
| $P_2$ | 5 | 38.46 |
| $P_3$ and above | 3 | 23 |
| Total | 13 | 99.93. |

**Table II : Type of Tumors**

| Type | No. of patients | % |
|---|---|---|
| Benign | 8 | 61.54 |
| Malignant | 3 | 23 |
| Struma Ovarii | 2 | 15.4 |
| Total | 13 | 99.94 |

Table – III shows the management of benign ovarian teratomas. One woman with dermoid cyst was 9 wks pregnant, two cases of twisted ovarian cyst had emergency laparotomy and gross examination of the mass had revealed dermoid cyst. The 35 years old P4 patient had presented with cystic to solid ovarian mass and had abdominal hysterectomy. Conservative surgery was carried out in the remaining seven benign cases.

There were two cases of struma ovarii. One patient had conservative surgery and the other woman had hysterectomy with right salpingo-oophorectomy and biopsy from contralateral ovary. She was 39 years old, had come with twisted ovarian cyst and emergency laparotomy was carried out, the right sided mass was a unilocular cyst, filled with grey semisolid secretions and some wart like tissue, the contralateral ovarian

**Table III : Management of Benign Ovarian Teratomas (Dermoid Cysts)**

| Case No. | Age (Yrs.) | Parity | Diagnosis | Management | H.P.E. |
|---|---|---|---|---|---|
| 1. | 18 | $P_0$ | Primi, 9 wks Preg with Ov cyst | Excision of | Inflammed dermoid cyst |
| 2. | 19 | $P_0$ | Twisted ovarian cyst | USO (3 twists) | Benign cystic teratoma |
| 3. | 18 | $P_1$ | Twisted ovarian cyst | USO[a] (2 twists) | Dermoid Cyst |
| 4. | 19 | $P_2$ | U.Ov. Cyst | Excision of cyst | Dermoid Cyst |
| 5. | 19 | $P_2$ | U. Ov. Cyst | Excision with D and C | Benign cystic teratoma. Sec. endometrium |
| 6. | 30 | $P_3$ | U. Ov. Cyst | Excision with bil tubal ligation | Benign cystic teratoma |
| 7. | 32 | $P_2$ | U. Ov. Cyst | Ovariotomy | - do – |
| 8. | 35 | $P_4$ | U. Ov. Tumor with cervical polyp | Abd. Hyst and USO and excision of Rt. ovarian cyst | Dermoid cyst Lt. Ov. C. L. cyst Rt. Ov. endometrial Polyp. Sec. endometrium Chr. cervicitis, both tubes were unremarkable. |

*a - unilateral salpingo - oophorectomy*

biopsy showed haemorrhage in a corpus luteum cyst on HPE.

Table IV shows the management of the 3 malignant OGCT. All these 3 women died within one to two months of surgery. Endodermal sinus tumor was detected on HPE in 2 patients. Case No. 1 had very large ovarian mass with ruptured capsule and haemorrhagic ascitis which was markedly adherent to and possibly involving the sigmoid colon. Hysterectomy with BSO, omentectomy and appendicectomy were carried out. About 2 cm x 2 cm part of the tumor adherent to the sigmoid had to be left behind and lymph node sampling, resection anastomosis could not be done, as she had excessive bleeding with marked fall in BP. She received chemotherapy but expired, within two months of surgery. Case No. 2 had emergency laparotomy as twisted ovarian mass. She had bilateral ovarian cysts The left cyst was 10 x 12 cm, with multiple thick adhesions posteriorly with bowel and anteriorly with bladder. The right mass was 6 x 7 cm. Excision of right cyst and left salpingo-oophorectomy was carried out ascitic fluid present was sent for cytology. Patien expired within 10 days, with post-operative complications. Cytology of fluid was positive for malignant cells. The third patient had been married

Table IV : Management of Malignant Ovarian Germ Cell Tumors

| Case No. | Age | Parity | Presentation & Diagnosis | Management | H.P.E. |
|---|---|---|---|---|---|
| 1. | 20 yrs. | $P_2$<br>LCB<br>9 mths | Pain with rapidly increasing abd. mass<br>USO/CT - abdomino pelvic mass of 21x16.5x11.2 cm AFP + ve | Laparotomy. Hysterectomy, Bil. S. O. with partial omentectomy and appendicectomy. Lymph node sampling was not possible due to poor general condition. | Lt. endodermal sinus tumor, Rt. ovary-cystic-follicle Lt. tube-chronic salpingitis, Rt. tube unremarkable. Nonsecretary Endo. Chr. cervicitis appendix normal. Omentum showing metastatic deposits |
| 2. | 20 yrs. | $P_0$<br>Married for 4 years, primary infertility | Solid mass with severe pain and swelling abd. | Emergency laparotomy with Rt. SO and excision of left ov. cyst and omentectomy One twist observed in the ovarian mass of 10 x 12 cm | Endodermal sinus tumor Rt. Ovary<br>C. L. cyst with haemorrhage in Lt. ovary<br>Omentum showed no-malignant deposits |
| 3. | 18 yrs. | $P_0$<br>Married for 2 months | Gradually increasing abdominal mass 13.5 x 14.3 x 10 cm in size. CA 125 + AFP + | Laparotomy<br>Left salpingo-oophrectomy, omentectomy | Immature teratoma<br>Omentum showed non-specific changes |

only for two months when diagnosis of immature teratoma was made on HPE after laparotomy and expired within a month due to toxicity of chemotherapeutic drug.

## Discussion

Daftary and Daftary[1] found 13.2% ovarian tumors in young girls of 20 yrs or less and 77% of them had germ cell tumor. 55.5% of their patients had malignant OGCT. Fusey et al[2] studied 63 ovarian tumors in teenage girls and found an incidence of 5% OGCT with malignancy in 36.6%. Jaccob et al[3] observed 11% germ cell tumors in their study of 90 cases of ovarian tumors. Couto et al[4] found 16.88% of ovarian teratomas in their study of 634 ovarian tumors; 45.33% were benign cystic teratomas and malignancy incidence was 3.74% while 0.93% were struma ovarii. Germ cell tumors as a group were observed in 12.15% cases of all ovarian tumors in the present study, with eight cases (61.54%) belonging to patients of 20 yrs or less of age Benign cystic teratomas were found in 61.54%, malignant OGCT in 23% and struma ovarii in 15.4%.

Pain and lump in abdomen were observed in 82% and 74% of cases respectively and 13% women had menstrual disturbance. Stephen[5] mentions that OGCTs have typical symptoms of abdominal pain associated with a palpable pelvic or abdominal mass while approximately 10% of patients present with acute abdominal pain usually caused by rupture, haemorrhage or torsion of ovarian mass and this is seen most commonly in patients with endodermal sinus tumors. In the present study, torsion was seen

in two benign cystic teratomas and in one woman with endodermal sinus tumor.

Dermoid cyst which accounts for 1/4th to 1/3rd of all ovarian tumors is most common in young women but is also encountered in children and occasionally in elderly women. In this study the eldest woman with dermoid cyst was 35 yrs old. All the benign cystic teratoma patients and the two women who had struma ovarii are having a regular follow up.

Initial treatment approach for a patient suspected of having a malignant OGCT is surgery for diagnosis, staging and further therapy. Institution of brief course of combination systemic chemotherapy has brought a remarkable improvement in the survival rate in OGCT cases. Unfortunately all our malignant OGCT cases expired even with chemotherapy. Bilateral ovarian involvement is rare in OGCT except in pure dysgerminoma, hence unilateral salpingo-oophorectomy and preservation of contralateral ovary and uterus can be carried out in most patients; biopsy from the ovary should be avoided if possible, as it may result in unnecessary infertility. In this study of malignant germ cell tumors, hysterectomy was carried out in one patient and ovarian biopsy was carried out only in one patient as she had large contralateral ovarian mass and frozen section facility was not available, corpus luteum cyst was observed in the biopsy report.

Conservative surgery, modern surgical staging and effective chemotherapy with acceptable toxicity have markedly improved the outcome of treatment of OGCT specially in women desiring future fertility.

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