

**Original Article****Ovarian Tumors under 20 Years of Age****1. Shahida Shaikh 2. Shazia Shaikh 3. Saleem Akhter Shaikh**1. Asstt. Prof., OBS Gynae Unit-I 2. Asstt. Prof., OBS Gynae Unit-II 3. Asstt. Prof. of Pathology,  
Chandka Medical College, Larkana**ABSTRACT**

**Purpose:** To analyze the cases of Ovarian Tumors in less than 20 years of age and to know its outcome in same patients.

**Study Design:** A Case Series Descriptive Study.

**Place and Duration of Study:** This study was conducted at Sheikh Zaid Women Hospital, Gynaecology Unit II, Chandka medical college Larkana over the of period of two years from December 2007 to December 2009.

**Patients and Methods:** Over the period of 2 years, a total of 30 patients with ovarian tumors of less than 20 years age were studied. Patients with more than 20 years of age were excluded.

All the patients received as out patient department except 4 cases, were admitted through emergency. Detailed history taken to know their presentation and all the patients were investigated for complete blood picture, ESR, Random Blood Sugar, Urine detailed report, Urea, Creatinine, Serum Electrolyte, LFTs, Ultrasound and X.Ray Chest. In some patients IVP, CT scan and Serological markers e.g. CA-125 were done. Management done in all patients noted and statistically analyzed.

**Results:** In two years period 30 patients under 20 years of age reported. Mean age of presentation was  $15 \pm 2$  years. Out of 30 patients 25 (83.33%) had benign ovarian tumors while 5 patients only (16.66%) had malignant tumors.

Of the benign ovarian tumors mature teratoma were 10(40%), serous cyst adenoma were 5(20%), mucinous cyst adenoma were 3 (12%), endometriotic cysts were 3 (12%), corpus luteal cysts were 3 (12%), para-ovarian cyst was 1 (4%). Of the malignant variants immature teratoma was 3 (60%), dysgerminoma was 1 (20%) and endodermal sinus tumor was 1 (20%).

Most of patients had benign ovarian tumors e-g germ cell tumors . Almost in all of the patient's diagnosis was confirmed by laparotomy and histopathology. No complication was encountered peroperatively and post operatively.

**Conclusion:** Patients, less then 20 years of age, had mainly benign ovarian tumors, and were germ cell tumors. For benign tumors adhesion prevention strategies should be used. Surgical intervention should as much as possible be directed towards preservation of ovarian tissue.

**Key Words:** Ovarian Tumors, Ovarian tissues, Germ cell tumor.

**INTRODUCTION**

Female genital tract represents ovarian tumors as the most frequent tumors of it through the first twenty years of female life.<sup>1</sup> The ovarian tumors report just about one (1%) of all tumors of this tender age children and adolescents. It has been noted in literature that 30% of all ovarian neoplasm occurring during childhood and adolescence are malignant and although malignant variants of pelvic tumors are uncommon but less than 5% of ovarian malignancies occur in this age group <sup>2</sup>. Types of ovarian tumor particular to child and adolescence patients includes germ cell and granulose cell tumor<sup>3</sup>. Benign neoplasm are the most common ovarian masses under 20 years of age <sup>3,4,5</sup>. Commonest benign ovarian tumors are mature cystic teratoma (dermoid cystic) and followed by cystadenoma<sup>5,6</sup>. Among the malignant ovarian tumors, dysgerminoma and endodermal sinus tumor are more common in this age group<sup>6,7,8,9</sup>. Exact incidence in Pakistan is not known but it is the 4<sup>th</sup> common cancer among female of

Pakistan (if including all age groups)<sup>10</sup>. About 15% of the patients with malignant ovarian tumors are asymptomatic at the time of diagnosis<sup>11</sup>. Tumors markers are extremely useful in the differential diagnosis, and to follow the patient's response to therapy and monitor for recurrence of diseases <sup>6,7,8,9</sup>. Knowledge of features of the disease which relate accurately to prognosis and survival could be helpful in manage .As ovarian tumors manifest a wide spectrum of morphological and histological types of primary ovarian tumor this study was under taken to study the types of ovarian tumors and outcome of those in women less than 20 years of age.

**PATIENTS AND METHODS**

This study was carried out in the department of Gynae Unit-2 Sheikh Zaid Women Hospital, Chandka Medical College Larkana from December 2007 to December 2009. 30 patients under 20 years of age of ovarian tumor either benign or malignant included in this study after informed consent. Each patient was evaluated with

detailed history and thorough physical, systemic and local examination. Investigation included blood complete picture, Random Blood Sugar, liver function test, blood urea and creatinine were done. Serological markers e-g CA-125, was done in 5 patients, it was not significantly high. Ultrasound was used to detect the ovarian tumors in almost all the cases to see the site and size of tumor. Diagnostic laparoscopy was not done in any of these patients. X-Ray Chest was done in every case for preoperative anaesthesia fitness.( No abnormality was detected either). IVP was done in 4 patients in whom pre-surgical suspicious of malignant ovarian tumors was made on clinical and U/S basis and was found normal. Planning of management was made on fertility of patients and stage of tumor. The management options were surgery and chemotherapy. Type of surgery was decided pre as well as peroperatively. In suspected benign tumors where adjacent structures were not involved or no vascularization or adhesion, in those cases conservative surgery was done. In malignant tumors ascitic fluid sent for cytology and debulking surgery was done. Findings were noted on check list. Figo classification was used to stage the tumor. In cases of malignant tumors patients were sent for chemotherapy post operatively. Patients were counseled about follow up visits till one year postoperatively

## RESULTS

Thirty patients were analyzed from December 2007 to December 2009.

In our study mean age of presentation with ovarian tumor was 16±2 years. In this study only three patients were married and they were nulliparous, 85% patients presented usually with pain in abdomen, distention of abdomen due to mass, and menstrual disturbances. Retention of urine and acute abdomen made the emergency in just 15% patients.

**Table-No.1: Types of Tumor in less than 20 years of age.(n=30)**

| S. No | Types of Tumor | No. of Cases | %      |
|-------|----------------|--------------|--------|
| 1     | Benign         | 25           | 83.33% |
| 2     | Borderline     | 0            | --     |
| 3     | Malignant      | 5            | 16.66% |

Of these 30 cases, benign ovarian tumors were commonest than malignant as shown in table No. 1. Of the benign ovarian tumors, mature teratoma were seen in 10(40%) patients followed by, serous cyst adenoma, mucinous cyst adenoma, endometriotic cysts and others as in table No.2. Again among malignant tumors immature teratoma overthrown seen in 3 patients compared to dysgerminoma and endodermal sinus

tumor confirmed in one each patient also tabulated in table II with the percentage.

**Table No.2: Histopathological typing of ovarian tumors**

| S. No            | Types of Tumor          | No. of Cases | %   |
|------------------|-------------------------|--------------|-----|
| <b>Benign</b>    |                         |              |     |
| 1                | Mature Teratoma         | 10           | 40% |
| 2                | Serous cyst adenoma     | 5            | 20% |
| 3                | Mucinous cyst adenoma   | 3            | 12% |
| 4                | Endometriotic cyst      | 3            | 12% |
| 5                | Corpus luteal cyst      | 3            | 12% |
| 6                | Para ovarian cyst       | 1            | 4%  |
| <b>Malignant</b> |                         |              |     |
| 7                | Immature Teratoma       | 3            | 60% |
| 8                | Dysgerminoma            | 1            | 20% |
| 9                | Endodermal Sinus Tumors | 1            | 20% |

**Table No.3: Operative procedures performed.**

| S. No | Types of Surgery                                             | No. of Cases | %   |
|-------|--------------------------------------------------------------|--------------|-----|
| 1     | Cystectomy                                                   | 4            | 16% |
| 2     | Cystectomy+Oophorectomy                                      | 6            | 24% |
| 3     | Salpingo-Oophorectomy                                        | 10           | 40% |
| 4     | Bilateral cystectomy                                         | 2            | 8%  |
| 5     | Drainage of Endometriotic Cyst + Reconstruction of ovaries.  | 1            | 4%  |
| 6     | Therapeutic ultrasound guided drainage of cyst               | 1            | 4%  |
| 7     | Salpingo – Oophorectomy with wedge resection of other ovary. | 1            | 4%  |
| 8     | Debulking Surgery TAH with BSO + Omentectomy + Appendectomy. | 3            | 60% |
| 9     | TAH with BSO                                                 | 2            | 40% |

Almost in all of the patient's diagnosis was confirmed by laparotomy and histopathology. Therapeutic ultrasound guided aspiration of cyst was done in one patient who was a diagnosed case of simple ovarian cyst on the basis of ultrasound. Otherwise laparotomy was done in all the cases. Most of the patients had benign ovarian tumor as evaluated intraoperatively and treated by conservative surgery. Unilateral cystectomy was done in 4 (16%) and bilateral cystectomy was done in 2 (8%) patients. Reconstruction of residual ovary done in above cases. Unilateral oophorectomy and cystectomy was done in 6 (24%) patients. Drainage of endometriotic cyst and reconstruction of ovaries was done in 1 (4%) patient. Unilateral salpingo/oophorectomy with wedge resection of other ovary was done in 1 (4%) patient. Total abdominal

hysterectomy was done in 2 (40%) patients as primary procedure in one woman of 18 years with bilateral ovarian involvement, ruptured capsule and moderate ascites. Debulking surgery (TAH with BSO + Omentectomy + Appendectomy) was done in 3 (60%) cases further detail in Table No. 3. Operative findings were noted on tick list. Frozen section facility is not yet available in our hospital. So surgery was decided at the time of laparotomy and then further management was decided on histopathological report. All of the patients with benign ovarian tumor were advised for 12 months follow-up and only 20 patients came for regular follow-up and further evaluation. Patients with malignant ovarian tumors sent for chemotherapy. 2 patients died due to recurrence of malignancy of endodermal sinus tumor and Dysgerminoma. 2 patients were in good condition after receiving 3 pulses of chemotherapy and 1 patient lost follow up. Mortality rate was difficult to assess because of non co-operation of the patients for follow-up. Patients are mostly irregular due to lack of knowledge and poverty.

Second look operation could not be done in any of the patients with malignant disease. Two of the patients who had regular follow up did not show any residual disease on ultrasound.

None of the patients showed complications related with surgery.

## DISCUSSION

Ovarian lesion are unusual in young age group.<sup>1</sup> Presenting with mass abdomen or vague pain in young girls is definitely worrying sign for parents and partners. As malignant granulosa cell tumor of ovary can also present as precocious puberty which is socially unacceptable. For girls and young women another issue arises regarding their ability to conceive and carry a pregnancy in the future once they are treated.

Presentation of ovarian tumor has been found different in various studies and make the diagnosis difficult as Pomeranz et al<sup>12</sup> reported that 38% of such patients of ovarian lesions had preliminary diagnosis of appendicitis and appendectomy was also carried in our 3 cases along with debulking due to associated pathology of appendix.

In our series almost 85% patients presented with pain in abdomen, pelvic pain, distension of abdomen due to mass and menstrual disturbances except four patients who came through emergency with acute abdominal pain and retention of urine and this has also been reported in study done at Lahore<sup>13</sup> While Lind fort's case series pain was the main presenting complaint followed by abdominal distension and torsion<sup>14</sup>

Preoperative evaluation of all cases is usually done best with ultrasound as benign and malignant tumors have

specific features. Computed tomography facility is not available at our setup so only tumor markers were sent in suspected malignant cases. Transvaginal ultrasonography has been recommended by the national Institute of Health as a preferred mean of diagnosis<sup>15</sup> but in current study all scans were transabdominal. Doppler U/S has also been found to be helpful in suspicious of malignancy<sup>15</sup>

Tumours of ovary are classified in into epithelial tumours, germ cell tumours, sex cord-stromal cell tumours, and metastatic tumour according to the cell of origin.<sup>16</sup>

In our study we found (83.33%) ovarian tumors were benign and (16.66%) were malignant and this shows a relationship with the data from European countries where benign ovarian tumors were in the range of 75-80%.<sup>17</sup> and also another study done in India by Pilli et al<sup>18</sup> had in same range data where they showed that 75.2% ovarian tumors were benign. Our figures are almost same to study conducted at Nepal.<sup>19</sup> Lind forte presented review of 81 cases of ovarian tumors where he found 35% of cases as malignant. Huffman<sup>20</sup> study reported malignancy in 30% of all of (999) his studied cases while Breen and Maxson also had seen malignant cases up to 27% tumors in children and adolescents were malignant after concluding their finding in 1309 cases.<sup>21, 22</sup> In another series from Nepal malignancy rates have varied from just 10%.<sup>19</sup> In the study conducted at our setup among 30 studied patients 16.66% of cases were malignant may be because of small sample size.

As far as histological features are concerned like international data germ cell tumors and sex cord stromal tumors were preponderate in adolescents.<sup>21,23</sup> Identical results are seen in our study, where we also found prevailing group as germ cell tumor about 44% and second variety seen as serous cystadenoma. However this figure was 59.2% in study carried in Pakistan by Ahmad et al.<sup>24</sup> Another study also uncovered the germ cell tumor as commonest tumors in young age group followed by serous cystadenoma.<sup>19</sup> Among malignant tumors again immature teratoma and dysgerminoma represented main diagnosed pathology also found same results in various studies.<sup>24,25</sup> Of the various treatment modalities available for ovarian tumor, primary surgery with complete removal of tumor burden can be considered as potentially curative. Gentle tissue handling is necessary and scrupulous hemostasis and adhesion prevention approaches are definitely required for fertility preservation.

Initial careful surgical staging is important for selection of appropriate subsequent therapy. Intraoperative decision making is crucial in preserving reproductive function in girls and young women with malignant ovarian tumors. While such tumors are rare,

gynecologists should be familiar with the natural history and current management. The judicious use of surgery followed by chemotherapy remained the mainstay of treatment in majority of our patients.. Outcome of our patients was also comparable with international studies.<sup>19,24,25</sup> The evolutionary development and fine-tuning of combination chemotherapy have resulted in the cure of a high percentage of patients with chemosensitive tumors, such as malignant ovarian germ-cell tumors. Post operative morbidity and mortality remained quite insignificant after surgery in our study.

## CONCLUSION

In women less than 20 years of age benign germ cell tumors are common, which are easily managed by surgical measures usually without complication. Malignant germ cell tumors are common in this age group but mostly diagnosed at advanced stage. Early diagnosis is key factor to improve the prognosis and need a proper screening program in this age group even with yearly ultrasound. Ovarian tumors under 20 years of age were mainly found in un-married and nulliparous women's. So that conservative surgery to retain the uterus and contralateral ovary should be preferred. It is desirable to embark upon a second look surgery if final pathology reveals a malignancy rather than proceed with radical surgery.

## REFERENCES

1. Marchetti M, Padovan P, Frances M. Conservative Surgery and quality of life. *EUR-J Gynaecol* 1999;20(2):124-6.
2. Breen JL, Maxson WS. Ovarian tumors in children and adolescents. *Clin Obstet Gynecol* 1977;20:607-23.
3. Ind T, Shepherd J. Pelvic tumors in adolescence. *Best Pract Res Clin Obstet Gynaecol* 2003; 17: 149-68.
4. Imai A, Furui T, Tamaya T. Gynecologic tumors and symptoms in childhood and adolescence; 10-years' experience. *Int J Gynaecol Obstet* 1994; 45:227-34.
5. Piippo S, Mustaniemi L, Lenko H, Aine R, Maenpaa J. Surgery for ovarian masses during childhood and adolescence: a report of 79 cases. *J Pediatr Adolesc Gynecol* 1999; 12: 223-7.
6. Peeyananjarassri K, Chichareon S, Wootipoom V, Buhachat R, Tochareonvanich S. Ovarian tumors in children and adolescents in Songklanakarind hospital: A 12-year review. *Songkla Med J* 2002; 20: 271-5.
7. McCall ML, Keaty EC, Thompson JD. Conservation of ovarian tissue in the treatment of carcinoma of the cervix with radical surgery. *Am J Obstet Gynecol* 1958;75:590- 600.
8. Anderson B, La Polla J, Turner D, et al. Ovarian transposition in cervical cancer. *Gynecol Oncol* 1993; 49:206-14.
9. Lovvorn HN, III, Tucci LA, Stafford PW. Ovarian masses in the pediatric patient. *Aorn J* 1998; 67: 568-76.
10. Parveen S, Ilyas N, Asghar S. Pattern of care for ovarian cancer. *J Med Sci April- June 1999; 15(2): 9-15.*
11. Rashid S, Sarwar G, Ali A. A clinico Pathological study of ovarian cancer. *Mother And Child* 1998;36: 117.
12. Pomeranz AJ, Sabnis S. Misdiagnoses of ovarian masses in children and adolescents. *Pediatr. Emerg. Care*.2004; 20(3):172-74.
13. Sohail R, Tariq S. Study of ovarian tumor in young girls. *Professional Med J Mar 2011;18(1):41-45.*
14. Pfeifer SM, Gosman GG. Evaluation of adnexal masses in adolescents. *Pediatr Clin North Am* 1999;46:573-92.
15. Sasaki H, et al. Follow up of women with simple ovarian cysts detected by transvaginal sonography in Tokyo metropolitan area. *Br J Obs Gyn* 1999;415-20.
16. Kwok KKM, Loke TKL, Hui JPK, Lai MHY, Chan JCS. Malignant Mixed Germ Cell Tumour of the Ovary in a 10-year-old Girl .Case Report *J HK Coll Radiol*. 2008;11:92-95
17. Goldstein DP, Laufer MR. Benign and malignant ovarian masses. In: Emails SJ, Laufer MR, Goldstein DP, editors. *Pediatric and adolescent gynecology*. Philadelphia: Lippincott-Raven; 1998.p.221-23
18. Pilli GS, Suneeta KP, Dhaded AV, Yenni VV. Ovarian tumors: a study of 282 cases. *J Indian Med Assoc* 2002;100: 420,423-4, 447.
19. Kayastha S. Study of ovarian tumours in Nepal Medical College Teaching Hospital. *Nepal Med Coll J* 2009;11(3):200-202.
20. Huffman JW. *The Gynaecolgy of children andadolescents*, 3<sup>rd</sup> ed. Philadelphia: Sanders; 1968.p.173-175
21. Warner BW, Kuhn JC, Barr LL. Conservative management of large ovarian cysts in children: the value of serial pelvic ultrasonography. *Surgery* 1992;112:749-55.
22. Schultz KA, Sencer SF, Messinger Y, Neglia JP, Steiner ME. Pediatric ovarian tumors: A review of 67 cases. *Pediatr Blood Cancer* 2005;44:167-71.
23. Cass DL, Hawkins E, Brandt ML, Chintagumpala M, Bloss RS, Milewicz AL, et al Surgery for ovarian masses in infants, children, and adolescents: 102 consecutive patients treated in a 15- year period. *J Pediatr Surg* 2001;36:693-9.

24. Choudry A, Bangash N, Malik A, Choudry H. adolescent ovarian tumors: a clinicopathological review of 15 cases. J Ayub Med Coll Abbottabad 2008;20(4)18-21
25. Hanprasertpong J, Chandeying V. Gynecologic Tumors during Childhood and Adolescence. J Med Assoc Thai 2006;89 Suppl. 4

**Address for Corresponding Author:**

Shahida Shaikh  
Assistant Professor,  
Banglow No:9 Type III New Staff Colony  
Chandka Medical College Larkana  
Mobile: 0333-7543377