



Original Article

# Histopathological diagnosis of ovarian mass

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## Keywords:

Benign;  
Malignant;  
Ovary;  
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Tumor ;

## ABSTRACT

**Background:** Ovarian cysts are common forms of gynecological problems that can be range from physiological cysts to highly aggressive neoplastic lesions. The purpose of this study was to investigate prevalence and frequency of different histopathological patterns of ovarian lesions and their correlation with various parameters in Ahvaz, Iran.

**Materials and Methods:** This is the retrospective study of patients with the ovarian masses at Ahvaz Imam Khomeini Hospital from 2010 - 2015. The relevant clinical details about the patient were retrieved from hospital data. Clinical characteristics of patients such as patient's age, presenting signs and symptoms, histopathological diagnosis, mass type, mass subtype, size of cysts and ovary which is involved were noted.

**Results:** Two hundred sixty seven specimens of ovarian tumor obtained for histopathological examination. Of these, 163(61.0%) were tumor like, 96(36.0%) were benign tumor and 8(3.0%) were malignant. The most common tumor like conditions was Corpus luteum cyst (43.4% cases), among benign and malignant tumors, mature cystic teratoma (17.2% of total) and Epithelial tumors (n=4) were most common. There is a statistically significant positive relation between age and various ovarian masses. (P= 0.002). Histopathological diagnosis wasn't correlated with ovarian involvement.

**Conclusion:** Benign tumors are more common than malignant tumors in all age groups. Germ cell tumors followed by surface epithelial cell tumors are the commonest tumor. Mature cystic teratoma was the most common tumor. Unilaterality is more frequently seen in ovarian tumors and various tumors are seen in various age groups.

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## INTRODUCTION

Ovarian cysts are extremely common forms of gynecological problems in females of all age groups,<sup>1</sup> that can be range from physiological cysts to highly aggressive neoplastic lesions.<sup>2</sup> A woman's chance of getting ovarian cancer during her lifetime is about 6.0-7.0%<sup>3</sup> and the lifetime risk of ovarian cancer in women with no family history is 1.6%.<sup>4</sup> Ovarian cancer is the sixth most common female cancer<sup>2</sup> and the fifth most common leading cause of cancer death in women worldwide ranked after lung and bronchus, breast, colorectal, and pancreatic cancers in United States and causes half of the deaths from female reproductive system.<sup>5,6</sup> Approximately 80-90% of all the pathological

ovarian masses are benign and mostly occur in young women between 20 and 45 years whereas the borderline and malignant tumors are common in postmenopausal women.<sup>2,7-9</sup> Ovarian tumors are divided into three major categories: epithelial, germ cell, and sex cord-stromal tumors.<sup>10</sup> and mostly, physiological cysts are follicular and luteal cysts.<sup>11</sup> The studies showed a large variation and diversity in prevalence, types of ovarian masses and histological patterns of them.<sup>4-12</sup>

Kayastha et al demonstrated the incidence of benign tumor as 90.5% in Nepal.<sup>13</sup> Pradhan SB et al showed the incidence of benign ovarian tumors as 86.8 percent.<sup>14</sup> In Iranian studies the incidence of benign ovarian tumors lies between 67- 69.77 percent.<sup>15-16</sup>

In this study, we aimed to find prevalence and frequency of different histopathological patterns of ovarian lesions and their correlation with various parameters in Ahvaz Imam Khomeini Hospital.

## MATERIALS AND METHODS

This is the retrospective, descriptive study of patients with the ovarian masses at Ahvaz Imam Khomeini Hospital from January 2010 to March 2015. The study was approved by Ahvaz Jundishapur University of Medical Sciences (AJMS) ethical committee. The sampling technique was non probability consecutive sampling. The cases included in the study were women with persistent ovarian cysts, both benign and malignant; the relevant clinical details about the patient were retrieved from hospital data. Clinical characteristics of patients such as patient's age, presenting signs and symptoms, histopathological diagnosis, mass type, mass subtype, size of cysts and ovary which is involved (unilateral or bilateral) were noted. All cases without complete records were excluded from the study.

A total of 643 cases fulfilled the inclusion criteria. We reviewed all the present histopathology reports of the cases in the study (267 cases). The Ovarian cysts were classified according to World Health Organization (WHO) system for ovarian neoplasms.<sup>17</sup>

Data analysis was performed by descriptive statistics (standard deviation, mean, percent, and frequency), chi-square (analysis of qualitative variables), Pearson's correlation and t test (quantitative variables analysis). Data were analyzed with IBM SPSS statistical software version 22. The significance level for all tests  $P < 0.05$  was considered.

## RESULTS

From the total 643 patients who enrolled in the study, only 267 specimens of ovarian tumor obtained for histopathological examination during period of January 2010 to March 2015.

The average age of the patients was  $32.41 \pm 12.19$  (min: 2, max: 78). The mean age of patients with tumor like

**Table 1: Nutritional status of anemic children according to IAP classification**

Mass type	Number (%)
<b>Tumor like conditions:</b>	
Simple cyst	26 (9.7)
Corpus luteum cyst	116 (43.4)
Endometriosis	21(7.9)
<b>Benign tumors:</b>	
Serous cyst adenoma	24(9.0)
Mature cystic teratoma	46 (17.2)
Mucinous cystadenoma	25(9.4)
Fibrothecoma	1 (0.4)
<b>Malignant tumors:</b>	
Epithelial tumors	4 (1.5)
Germ cell tumors	1(0.4)
Sex cord stromal tumors	2(0.7)
Sarcoma	1(0.4)
<b>Total</b>	<b>267(100)</b>

conditions was  $30.48 \pm 10.66$ , with benign tumors was  $35.46 \pm 13.79$  and for women with malignant tumors, it was  $35.12 \pm 14.7$  years.

The commonest presenting symptom in patients was abdominal pain (247 cases, 92.5%) followed by abdominal mass (7 patients, 2.6%), abnormal uterine bleeding (7 patients, 2.6%) and abdominal distention (6 cases, 2.2%).

Of these, 163(61.0%) were tumor like, 96(36.0%) were benign tumor and 8(3.0%) were malignant. In our study, we did not encounter any case of ovarian tumor with borderline malignancy. The most common tumor like conditions was Corpus luteum cyst (43.4% cases), among benign and malignant tumors, mature cystic teratoma (17.2% of total) and Epithelial tumors (4 patients) were most common. (Table 1)

Various ovarian masses are seen in various age groups which are shown in table 2. Most of the ovarian tumor was found in 21- 30 years age group (96 patients, 35.95%) and there is a statistically significant positive relation between age and various ovarian masses. (P value:0.002)

Among 267 patients, 89.5% were unilateral either right (51.3%) or left (38.2%) and 10.5% were bilateral. Histopathological diagnosis wasn't correlated with ovarian involvement which is shown in table3. (P value: 0.43)

## DISCUSSION

Ovarian lesions are one of the most common specimen that are received by pathologists<sup>14</sup> and because of the similar clinical presentation and non-specific symptoms of all lesions of ovary, it is important to differentiate between physiological and pathological cyst for further management.<sup>18</sup>

**Table 2. Age wise distribution of ovarian masses**

Age Group (Years)	Number (%)			Total n (%)	P value
	Tumor like conditions	Benign tumors	Malignant tumors		
≤20	23(67.6)	10(29.4)	1(2.9)	34(100)	0.002
21-30	67(69.8)	26(27.1)	3(3.1)	96(100)	
31-40	46(58.2)	32(40.5)	1(1.3)	79(100)	
41-50	21(58.3)	14(38.9)	1(2.8)	36(100)	
51-60	4(26.7)	9(60.0)	2(13.3)	15(100)	
>60	2(28.6)	5(71.4)	0(0)	7(100)	
<b>Total</b>	<b>163(61.0)</b>	<b>96(36.0)</b>	<b>8(3.0%)</b>	<b>267(100)</b>	

**Table 3. Histopathological diagnosis and site of involvement.**

	Number (%)			Total n (%)	P value
	Tumor like conditions	Benign tumors	Malignant tumors		
<b>Right ovary</b>	90(65.7)	43(31.4)	4(2.9)	137 (100)	0.43
<b>Left ovary</b>	57(55.9)	41(40.2)	4(3.9)	102(100)	
<b>Bilateral</b>	16(57.1)	12(42.9)	0(0)	28(100)	
<b>Total</b>	<b>163(61.1)</b>	<b>96(35.9)</b>	<b>8(3.0)</b>	<b>267(100)</b>	

In our study the age of the patients ranged from 2-78 years. The age range varied in different studies. In Chanu et al, the age range was 18-83 years<sup>19</sup> and in the Danish et al, study it was 5-72 years.<sup>18</sup> The age range in other study done in Iran was 11-85 years.<sup>20</sup>

In the present study, the incidence of tumor like conditions was 61.0%, and from all 39% of ovarian tumor obtained from histopathological examination, of which, benign tumors were 92.3% and malignant tumors were 7.7%. Similar to our finding Hassani et al reported 91.4% benign tumors and 8.6% malignant tumours.<sup>20</sup> In a study done by Khatri et al, 68.0% of ovarian tumors were benign and 32.0% were malignant.<sup>21</sup> The difference is probably because our study was undertaken in a referral hospital and malignant tumors diagnosed before surgery were referred to this center.

Most common benign tumor was mature cystic teratoma followed by serous cyst adenoma. Yogambal et al,<sup>22</sup> Yasmin et al,<sup>23</sup> and Hassani et al<sup>20</sup> found that the most common benign tumor was serous cyst adenoma which followed by mature cyst teratoma. Ahmed et al<sup>24</sup> and Pradhan et al<sup>14</sup> studies showed benign cystic teratoma was the commonest benign tumor.

In our study the most common presenting symptom was abdominal pain followed by abdominal mass and abnormal uterine bleeding. Similarly, Yogambal et al,<sup>22</sup> Yasmin et al,<sup>23</sup> and Rashid et al<sup>25</sup> observed abdominal pain followed by abdominal mass was the commonest presenting symptom. In contrast to our findings, S.N et al mentioned that menstrual irregularities/ abnormal vaginal bleeding followed by pain in abdomen was the most common clinical symptoms in women with ovarian tumors.<sup>12</sup>

In our study, 89.5% tumors were unilateral and 10.5% were bilateral. The incidence of unilaterality in S.N et al study (78.18%) was little less than our study.<sup>12</sup> In a study done by

Garg et al majority of the tumors were unilateral (95.3%).<sup>9</sup>

In our study maximum number of ovarian tumors was noted in 21- 30 years age group which concord with the study done by Pradhan et al.<sup>14</sup> However, Garg et al,<sup>9</sup> and Jindal et al.<sup>26</sup> observed that most common ovarian tumors were in 30-50 years age group.

## CONCLUSION

In our study, benign tumors are more common than malignant tumors in all age groups. Germ cell tumors followed by surface epithelial cell tumors are the commonest class of tumors. Mature cystic teratoma was the most common tumor in our study followed by serous cystadenoma. Unilaterality is more frequently seen in ovarian tumors and various tumors are seen in various age groups.

**Conflict of interest:** None

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