

## A study of ovarian cyst in a tertiary hospital of Kathmandu valley

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### ABSTRACT

Ovarian cysts are an extremely common gynecological problem. Majority of ovarian cysts are benign with few cases being malignant. This is a retrospective study of all the cases of ovarian cysts operated in a tertiary hospital (Kathmandu Medical College, KMC) from January 2006 to December 2008. In this 3 years duration, 102 cases (2.0%) were of ovarian cyst out of the total histopathological specimen processed in pathology department. The mean age of presentation was 38 years. Ovarian cysts (27.5%) were more commonly seen in the age group 21- 30 years. Bilateral ovaries were involved in 19 cases (18.6%). Among these ovarian cysts, 89 cases (87.3%) were benign and 13 cases (12.7%) were malignant. The most common type of ovarian cyst was serous cystadenoma (40.2%) followed by mature cystic teratoma (15.7%). Metastasis to ovary was seen in 6.9% (7 cases). The most common metastasis was adeno carcinoma from gastro intestinal tract (4 cases). Other metastases to ovary were 2 cases from endometrioid adeno carcinoma of endometrium and 1 case from Non Hodgkin's Lymphoma of small intestine.

**Keywords:** Ovarian cyst, benign, malignant, ovarian tumor.

### INTRODUCTION

Ovarian neoplasm is the most common lesion seen in females of any age group. Ovarian cancer accounts for approximately 23.0% of all gynecologic tumors and is the most fatal gynecologic malignancy.<sup>1</sup> Ovarian cyst can be physiological or pathological. Physiological cysts are mainly follicular cysts and luteal cysts which are benign in nature. Pathological cysts are mainly ovarian tumors which can be benign, borderline or malignant. Benign ovarian tumors are more common in young females and malignant tumors are more common in elderly females.<sup>2</sup> According to World Health Organization histological classification, ovarian tumors are sub divided into 5 main categories according to the tissue of origin- surface epithelial stromal tumors, sex cord stromal tumors, germ cell tumors, malignant and not otherwise specified and metastatic non ovarian tumors from nonovarian primary. Germ cell tumor (mature cystic teratoma) is the commonest benign tumor and epithelial cell tumor (serous cystadenocarcinoma) is the commonest malignant tumor.<sup>3</sup> However, the diagnosis could be made only after the histopathological examination of the ovarian cysts.

One study on ovarian tumors from Nepal (conducted in Kathmandu Valley) showed the incidence of benign tumor as 90.5%.<sup>4</sup> Another study of histologic pattern of ovarian tumors done in Kathmandu Valley showed the incidence of benign ovarian tumor as 83.9%.<sup>5</sup> In western countries the incidence of benign ovarian tumors lies between 75.0-80.0%.<sup>5</sup>

Ovarian cysts are one of the commonest gynecological problems in our set up. Hence this study was conducted with the aim of finding the profile of ovarian cyst in the Department of Pathology in a tertiary hospital (Kathmandu Medical College, KMC).

### MATERIALS AND METHODS

This is a retrospective study done in the Department of Pathology of KMC from January 2006 to December 2008. All the cases of ovarian cysts sent for histopathological examination were included in this study. Data including age, clinical presentation, related history, involvement (unilateral or bilateral) were obtained from the histopathological form. Gross findings of all cases were also noted from the histopathological form. Histopathology reports of all the cases were recorded from the data base. Hematoxylin and Eosin (H & E) stained slides of each case were studied. The available PAS (Periodic Acid Schiff) stained and mucicarmine stained slides were also studied. Microscopic and gross findings of these cases were then analyzed and  $p < 0.05$  was considered statistically significant.

### RESULTS

Out of 5,126 cases sent for histopathological examination in Pathology Department in KMC in 3 years (January 2006 to December 2008) duration, 102 cases were of ovarian cyst. The age range was from 6 years to 70 years with mean age of presentation of 38 years. The youngest patient (6 years old girl) presented with

**Table-1:** Types of ovarian cysts/tumors

Types	Total (102 cases)
Serous cyst adenoma	40.2%
Mature cystic teratoma	15.7%
Haemorrhagic corpus luteal cyst	13.7%
Mucinous cyts adenoma	9.8%
Endometriosis	5.9%
Serous cyst adenocarcinoma	4%
Mucinous cyst adenocarcinoma	1.9%
Others (Fibroma/ Fibrothecoma)	1.9%
Metastasis	6.9%

bilateral ovarian metastasis from Non Hodgkin's lymphoma of small intestine and the oldest patient (70 years old female) with fibrothecoma of right ovary. Ovarian cysts were more commonly seen in the age group 21- 30 years followed by the age group 31- 40 years and then in females above 40 years which is significant.

Among 102 cases, 89 (87.3%) of ovarian tumors were benign and 13 (12.7%) were malignant which is found to be insignificant in our study considering  $p < 0.05$ . Right ovaries were involved in 39 cases (38.2%). Left ovaries were involved in 44 cases (43.2%). Bilateral ovaries were involved in 19 cases (18.6%).

Among the ovarian cysts, the most common type was serous cyst adenoma 9 (40.2%) followed by mature cystic teratoma (15.7%), haemorrhagic corpus luteal cyst (13.7%) and others (Table-1). According to WHO classification of ovarian tumors, the most common type was surface epithelial stromal tumors (69.5%) followed by germ cell tumors (19.5%) (Table-2).

Metastasis to ovary was seen in 7 cases (6.9%). The most common metastasis was adeno carcinoma from gastro intestinal tract (4 cases). Other metastatic tumors seen as ovarian mass were endometrioid adeno carcinoma of endometrium (2 cases) and Non Hodgkin's Lymphoma with of small intestine (1 case).

Out of the 102 cases of ovarian cyst 19.6% cases were haemorrhagic corpus luteal cyst and endometriosis.

## DISCUSSION

Ovarian cyst and tumor presents with different clinical appearance and behavior. One has to depend on the microscopic appearance of the tumor for further management of the ovarian neoplasms.<sup>2</sup> The incidence of benign tumor was 87.3% and malignancy was 12.7% in our study. Similar finding was seen in study done by Jha *et al* where 83.9% of ovarian tumors were benign

and 16.1% of ovarian tumors were malignant.<sup>5</sup> However in a study done by Ahmad *et al*, the incidence of benign tumors was 59.2% and malignancy was 40.8%.<sup>3</sup>

In our study, the range of age was 6 to 70 years. This correlates well with many studies done in different parts of the world. In a study done in Baltimore, patients with ovarian tumors ranged from 6 to 98 years.<sup>6</sup> In another study done by Bhattacharya *et al*, the youngest patient was 10 years old girl and the oldest was 73 years old female.<sup>2</sup> Our study showed the peak incidence of ovarian tumors in age group 21 to 30 years which was comparable with study done by Kayastha *et al* where peak incidence of ovarian tumors was between 21 to 40 years.<sup>4</sup>

Maximum number of malignancy was seen in older age group. Similar finding was seen in our study where 53.8% cases of malignancy were seen in patients over 40 years. But in a study done by Kayastha *et al* 66.7% cases of malignancy were seen in patients over 40 years.<sup>4</sup>

Out of total cases of ovarian cyst (both benign and malignant), bilateral involvement was found in 18.6% cases. However among the 13 malignant cases, 6 cases (46.2%) had bilateral involvement. Similar finding was seen in a study done by Kayastha *et al*.<sup>4</sup>

In our study, the commonest type ovarian tumors according to WHO classification was surface epithelial tumors (69.5%) which was comparable to several studies.<sup>2,3,7</sup> And among the surface epithelial tumors, serous cyst adenoma was the commonest one (40.2%) followed by mucinous cyst adenoma (9.8%).

Second most common tumor seen in our study was germ cell tumor (19.5%). Several other studies showed that the germ cell tumor was the most common one.<sup>3,5,8,9</sup> In our study, mature cystic teratoma (15.7%) was the commonest type of germ cell tumor. However, in a study done by Prabhakar *et al* mature cystic teratoma was the third commonest tumor.<sup>7</sup>

In our study, malignancy was seen in 12.7% cases and serous cyst adenocarcinoma was the commonest malignancy (4%) and was seen in patient older than 40 years. This correlates well with other studies where maximum number of malignancy was seen in patient older than 40 years.<sup>3,5</sup>

Our study showed 2.5% cases of sex cord stromal tumors which include one case of fibroma (1.25%) and one case of fibrothecoma (1.25%). In a study done by Jha *et al* sex cord stromal tumors are seen in 3.1% cases.<sup>5</sup> In another study done by Maliheh *et al*, fibrothecoma was seen in 1.6% cases which was almost the similar finding seen in our study.<sup>10</sup> Similarly in another study done by

**Table-2:** Types of ovarian tumors (According to WHO Classification)

Types	Total (80 cases)
Surface epithelial stromal tumors	69.5%
Sex cord stromal tumors	2.5%
Germ cell tumors	19.5%
Metastasis	8.5%

Bhattacharya *et al*, 4 cases of fibromas and 2 cases of fibrothecoma were found out of 270 cases of ovarian tumors.<sup>2</sup>

Metastasis to ovary was seen in 6.9% out of 102 cases. This finding of our study was comparable with study done by Powari *et al* where 5% of ovarian tumor was metastatic tumor.<sup>11</sup> In our study, the most common metastasis was from gastro intestinal tract. Several other studies showed the similar finding.<sup>12-14</sup>

Other benign cysts found in our study were haemorrhagic corpus luteal cyst (13.7%) and endometriosis (5.9%). Haemorrhagic corpus luteal cyst is an ovarian cyst formed by bleeding into a corpus luteum cyst which is usually managed by observation only.<sup>15</sup> In a study done by Choi *et al*, corpus luteal cysts were the most common among hemorrhagic ovarian cysts.<sup>16</sup>

The incidence of endometriosis is estimated between 10.0-15.0% and approximately 75.0% endometriosis arises within the ovary.<sup>17,18</sup> Our study showed 5.9% cases of endometriosis in the ovary. Cohen *et al*<sup>19</sup> also showed that the ovary is the commonest site for endometriosis.

Though ovarian cyst and tumor can be diagnosed clinically, origin and nature of tumor cannot be determined clinically. Histopathological examination of the ovarian tumor is must to find out the origin and the nature of the tumor. Benign tumors can be safely removed by surgery and malignant tumors are managed according to the type, grading and stage of the tumor. Clinical evaluation, radiological evaluation and histopathological examination are important in the management of the ovarian tumors. The combined efforts of gynecologist, radiologist and pathologist will not only hit the right diagnosis but also track the patient to the right path of management.

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