ORIGINAL ARTICLE

# Frequency and Type of Ovarian Tumors in Gynecological Women presenting to DHQ Teaching Hospital Gujranwala

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## ABSTRACT

**Background:** Ovarian cancer (OC) average lifetime risk is 1 in 70(1.4%).Ovarian cancer is diagnosed in 7300 women every year in UK and 239,000 women world wide.There are variations in incidence with ethnicity, white women have the highest incidence approximately14/100,000 where as Asian women have a lower incidence at 10/100,000.

**Aim:** To find the frequency and different types of ovarian carcinomas in women presenting with pain lower abdomen.

**Methods:** This cross-sectional study was conducted in the Department of Obstetrics and Gynecology, DHQ Hospital Gujranwala from1st May 2020 to 31st October 2020.A total of 282 women presenting with pain lower abdomen were included.All women underwent ultrasonography and ovarian tumors were noted as per operational definition. Patients with ovarian tumor underwent laparotomy, the specimen of tumors were collected with excision biopsies and sent for histopathological analysis.

**Results:** The mean age of cases was 33.808±7.70 years, and the mean duration of complaint was 4.322±1.46 weeks and mean weight was 69.560±13.00 kg. Majority of the patients (82.3%) belonged to 20-40 years age groups. Ovarian Tumor was seen in 65(23%) patients. Among 65 patients with ovarian tumor, 72.3% were benign, 3.1% borderline and 24.6% were malignant.

**Conclusion:** It was concluded that ovarian tumors were common between the 20 and 40 years of age. The frequency of Malignant neoplastic lesions was higher than the benign neoplastic lesions.

**Keywords:** Women, Pain lower abdomen, Ovarian tumors

## INTRODUCTION

Ovarian cancer (OC) is diagnosed in approximately 7300 women every year in the UK and 239,000 women worldwide.It represents 2% of total cancer cases in UK and has 46.2% age standardized 5 year survival in the UK and USA, indicating that more than half of patients diagnosed with ovarian cancer die within 5 years.It is more common in developed countries such as Northern Europe and USA where rates exceed 9 per 100,000.Whereas China has a relatively low incidence rate , 4.1 per 100,000).

The disease has been described as a "Silent Killer", with approximately 75% of patients being diagnosed at late stage when the 5-year relative survival rate is only 29%. Few cases (15%) are diagnosed at early stage disease (stage 1) when 5-year survival rate is 84-94%. Strikingly, the overall 5-year relative survival rate generally ranges between 30%–40%.Screening has not been shown to be effective. Nearly all benign and malignant ovarian tumors originate from one of three cell types: epithelial cells, stromal cells, and germ cells. In developed countries, approximately 80-90% of malignant ovarian tumors are epithelial in origin, 10% of tumors constitute sex cord-stromal tumors (granulosa cell tumors, Sertoli-Leydig, Gynandroblastoma etc.) and 2%–3% are germ cell tumors (e.g., teratomas, dysgerminomas, etc.). Most epidemiologic research, including the present review, focuses on epithelial OC.

In a study by Khan MA et al., 78.9% of the tumors (75/95) were benign, 1.1% (1/95) were borderline and 20% (19/95) were malignant[8]. In another study by Shoail I, et al. the frequency of ovarian tumors was 7.1% while benign tumors were 74.8%, borderline 1.6% and malignant 23.4% in women with lower abdominal pain.

The rationale of the study was to see the frequency and type of ovarian tumors in our local population,itwill help clinicians to give targeted empirical management of ovarian tumors.About 5 and 15% of cases of Epithelial ovarian carcinoma are caused by inherited genetic factors so It will also help to spread awareness in the public about the disease and will also help devising screening programs by providing the age groups, and women at increased risk which need to be targeted.

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The objective of the study was to see the frequency and types of ovarian tumors in women presenting with pain lower abdomen.

**Operational Definitions:**

**Pain Lower abdomen**: It was defined as when women presented with pain (VAS >3) with duration of ≥ two weeks.

**Ovarian tumor**: It was defined as when pelvic ultrasound revealed anechoic and intraovarian mass with an imperceptible wall.

**Types of ovarian tumors:** It was defined as in terms of:

**Benign:**
1. Smooth Unilocular or multi-locular cystic area with regular thin wall lined by a single layer of tall columnar ciliated cells like cells of normal tubal epithelium or cuboidal non-ciliated epithelium like cells of ovarian surface epithelium.
2. Presence of acoustic shadowing.
3. No atypia, no solid component, no invasion
4. Adenofibromas and cystadenofibromas are composed predominantly of fibrous stroma, with glands and cysts forming a minor component
5. No blood flow

**Borderline:**
1. Microcystic pattern,Broad branching papillae (hierarchical branching) focally covered by stratified epithelium with mild to moderate atypia and few mitoses.
2. Epithelial cells may be columnar, polygonal or round with moderate to abundant eosinophilic cytoplasm
3. Thin walled fluid filled clusters
4. Stroma is fibrous and edematous with variable psammoma bodies
5. Solid component and/or septa.

**Malignant:**
1. Irregular multilocular, with diameter > 100mm.
2. Branching papillary, slit-like fenestrations, glandular complexity, marked nuclear atypia with marked pleomorphism, prominent nucleoli, stromal invasion.
3. Variable psammoma bodies (calcium concretions with concentric laminations, may be intracellular due to autophagocytosis)
4. Very strong blood flow
5. Increase in size by 20% on subsequent scan

## MATERIAL AND METHODS

This cross sectional study was conducted in the Department of Obstetrics and Gynecology, DHQ Hospital Gujranwala from 1st May 2020 to 31st October 2020. Sample size was calculated by following formula:

$$n = \frac{z^2 pq}{d^2}$$

By using reference study where proportion of (ovarian tumors) p= 7.1%.[9]

q= 1-p and d= 3% with 95% confidence level **n= 282**

Sampling technique used was non-probability consecutive sampling.

**Inclusion Criteria:**
- Woman age 20-60 years
- Presenting with lower abdominal pain as per operational definition
- Married/Unmarried

**Exclusion Criteria:**
- Pregnant patients on ultrasound
- Pelvic masses having origin other than ovary on ultrasound
- Ovarian masses with involvement of lymph node and distant metastasis on MRI
- H/o pelvic inflammatory disease on medical record

**Data Collection Procedure:** 282 patients fulfilling the inclusion criteria from Outpatient Department of Obsteric and Gynecology, DHQ Hospital Gujranwala were included in the study after permission from ethical committee. Informed consent was taken.

Basic demographics like age, duration of complain, marital status and weight on weighing machine were recorded. All women underwent ultrasonography and ovarian tumors were noted as per operational definition. Patients with ovarian tumor underwent laparotomy and the specimen of tumor was collected with excision biopsies and sent for histopathological analysis. All the procedures were performed by specialists or by 4th year residents under the specialist's supervision. Type of tumors was noted as per operational definition and was recorded on specially designed performa.

**Data Analysis:** Data was analyzed with SPSS version 23. Frequency and percentage was computed for qualitative variables like age groups, marital status, ovarian tumor, benign tumor, borderline tumor and malignant tumor. Mean ±SD was presented for quantitative variables like age, duration of complain and weight. Effect modifiers like age, marital status, weight and duration of complain were controlled by stratification. Post stratification chi square test was applied, p ≤0.05 was considered statistically significant.

## RESULTS

Age range in this study was from 20 to 60 years with mean age of 33.808±7.70 years, mean duration of complain 4.322±1.46 weeks and mean weight was 69.560±13.00kg. Majority of the patients (82.3%) belonged to 20-40 years age group.72% were married and 28% were unmarried. Ovarian tumors were seen in 65(23%) patients. Among 65 patients with ovarian tumor, 72.3% were benign, 3.1% borderline and 24.6% were malignant.

Figure 1: Frequency and type of ovarian tumors
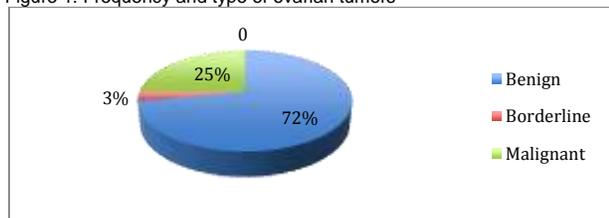


Stratification of ovarian tumor and its types with respect to age, marital status, weight and duration of complaint are shown in tables below:

Table 1: Stratification of Type of Ovarian Tumor with respect to age groups.

| Age (years) | Type of Ovarian Tumor | | |
|---|---|---|---|
| | Benign | Borderline | Malignant |
| 20-40 | 42(72.4%) | 2(3.4%) | 14(24.1%) |
| 41-60 | 5(71.4%) | 0(0%) | 2(28.6%) |
| Total | 47(72.3%) | 2(3.1%) | 16(24.6%) |

P value 0.864

Table 2: Stratification of Type of Ovarian Tumor with respect to marital status.

| Marital status | Type of Ovarian Tumor | | |
|---|---|---|---|
| | Benign | Borderline | Malignant |
| Unmarried | 16(84.2%) | 0(0%) | 3(15.8%) |
| Married | 31(67.4%) | 2(4.3%) | 13(28.3%) |
| Total | 47(72.3%) | 2(3.1%) | 16(24.6%) |

P value 0.333

Table 3: Stratification of Type of Ovarian Tumor with respect to weight.

| Weight(Kg) | Type of Ovarian Tumor | | |
|---|---|---|---|
| | Benign | Borderline | Malignant |
| ≤70 | 26(76.5%) | 0(0%) | 8(23.5%) |
| >70 | 21(67.7%) | 2(6.5%) | 8(25.8%) |
| Total | 47(72.3%) | 2(3.1%) | 16(24.6%) |

P value 0.301

Table 4: Stratification of Type of Ovarian Tumor with respect to duration of complaint

| Duration of complain (weeks) | Type of Ovarian Tumor | | |
|---|---|---|---|
| | Benign | Borderline | Malignant |
| 2-6 | 42(72.4%) | 2(3.4%) | 14(24.1%) |
| >6 | 5(71.4%) | 0(0%) | 2(28.6%) |
| Total | 47(72.3%) | 2(3.1%) | 16(24.6%) |

P value 0.864

## DISCUSSION

Ovarian carcinoma is the disease ofolder women,peak incidence is at age of 67 years.Epithelial ovarian carcinoma represents 2% of total cancers in UK,but its most lethal of all gynaecological carcinomas.It comprises at least five distinct histological subtypes(high grade serous, Endometriod, Clear cell, Mucinous, Seromucinous, Low grade serous),the most common is highgrade serous ovarian CA.

The results of our study showed among 65 women with ovarian tumor, 72.3% were with benign ovarian lesion, 3.1% borderline and 24.6% were malignant ovarian lesion. These results coincide with results of one studyconducted in Saudi Arabia in which 72.6% of all ovarian neoplasms were benign and 22% were malignant.Some studies that were conducted in Indiaand Nepal also showed the similar results,75.2% and 83.9% were benign, and malignant ovarian lesions respectively.This is also similar to data collected from Western countries where 75.0–80.0% of ovarian tumors were found to be benign. However, a similar study conducted in Pakistan in Agha Khan University Hospital, Karachi and one study in Peshawar showed a much lower percentage (10.29%) of malignant lesions.Discrepancies observed between the rates of malignant neoplasms reported in these studies maybe due to the different sample sizes and different sampling techniques used.

In a study by Khan MA, et al., 78.9% of the tumors (75/95) were benign, 1.1% (1/95) were borderline and 20% (19/95) were malignant[8].In another study by Shoail I, et al. thefrequency of ovarian tumors was 7.1% while benign tumors was 74.8%, borderline 1.6% and malignant 23.4% in women with lower abdominal pain[9].

In our study women of age between 20 and 60 years were included,and the mean age of diagnosis was 33.808±7.70 years.It was found that the women of age group 20-40 years had maximum incidence of ovarian tumors.Similar results were present in one of a study in Indiaand Nepal, where the maximum incidence of ovarian masses was between 21 to 40 years of age.However different results were seen in Western Countries where peak incidence is between 50 and 70 years.There is geographic variation probably because of dietary and lifestyle differences, exposure to environmental pollutants and carcinogens.Factors that interrupt ovulation like multiparity,breastfeeding,late menarche and menopause reduce the risk of Epithelial ovarian tumors.One analysis of epidemiological studies of Ovarian Cancers showed that 10 years of use of OCP gives a 33% reduction in risk of incidence of Epithelial ovarian cancer before the age of 75 years.More exploration is needed to evaluate the risk factors that might cause an earlier age of presentation of ovarian tumors in the developing world.

Accoring to one research conducted in Ayub Medical College the percentage of epithelial ovarian tumors was 76.5%, and in other studies the percentage of surface epithelial ovarian tumors were 64.71%, 63.50%, 62.35% respectively.

Through the results of our study, we found that the pattern of histologically confirmed benign and malignant lesions in the age group of 20-40 years is not similar to the trend seen in the other age groups, which means that the behavior of ovarian lesions in younger age group women is unique and need further detailed study.

## CONCLUSION

Through the findings of this study it was concluded that ovarian tumors were common between the age of 20 to 40 years.Among the ovarian lesions most were the benign neoplastic lesions. The highest rates of malignancy were in the 20-40 age groups.

**Contribution by Authors: Saima Iqbal:** Concept,Patient selection and paper writing, **Anam Waqar:** Data Collection and Data filling, **Faisal Ashraf:** Data interpretation and Paper writing, **Iram Inam:** Patient follow up and Data Filling

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