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Histopathological spectrum of ovarian neoplasms at tertiary health care hospital

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Abstract

Background: The aim of the study was to identify histopathological pattern involving in ovarian neoplasm which were received for histopathological evaluation at tertiary health care centre over a period of 2 year in Pathology department at Guru Gobind Government Hospital, Shri M. P. Shah Government Medical College, Jamnagar.

Materials and Methods: This Prospective and Retrospective study was conducted over a period of two year (January 2020 to December 2022) in the Department of Histopathology, Shri M.P, Shah Government medical college, Jamnagar. The study included 100 cases of ovarian neoplasms. After proper fixation and thorough gross examination, sections were routinely processed and examined. The distribution of the various histomorphological spectrum of ovarian tumors was studied according to the WHO classification.

Aims and Objectives

- 1) To study frequency of ovarian tumor.
- 2) To study their histopathological features.
- 3) To study age wise incidence of ovarian tumor.

Results: In the present study, a total of 100 cases of Ovarian neoplasm were analyzed, out of which Surface epithelial tumors were the most prevalent, comprising 70 cases (70%). Serous cystadenomas were the most common benign neoplasm encountered in our study. Germ Cell Tumors 22 (22%), Mature teratoma were most common germ cell tumor. Sex cord Stromal Tumors 07 (07%). The majority of our patients were in the age group 31-40 years (45 patients, 45% of patients).

Conclusion: The present study shows various histopathological features of ovarian neoplasm. Benign tumors are more common than malignant tumors. Among the benign tumors, serous tumors were most common of all. Thus, an accurate histological diagnosis is important to initiate a proper management plan.

Keywords: Surface epithelial tumors, sex cord-stromal tumors, germ cell tumors, Benign, Borderline, Malignant, ovarian cancer

Introduction

Ovaries are paired organs in the female reproductive system which can undergo various changes throughout an individual's life under the effects of different hormones. This could lead to different types of diseases, benign or malignant^[1]. Most of the Ovarian neoplasms are benign and usually diagnosed at 30-40 years of age, while malignant tumors are diagnosed at 60-70 years of age^[2]. Ovarian cancer has the worst prognosis among gynecological malignancies due to a lack of proper signs, symptoms, and presentation and is usually detected in the later stages of the disease. Most Ovarian neoplasms occur during the reproductive age group. Nulliparity, a high socioeconomic status, and environmental and genetic factors are all important risk factors^[3]. Ovarian neoplasms cannot be diagnosed alone on the basis of clinical, radiological, and gross findings. Hence, a precise histopathological diagnosis is required for starting definitive treatment^[4]. The present study was conducted with the aim to evaluate the histopathological spectrum of Ovarian neoplasms.

Classification of ovarian neoplasms given by WHO is based upon the tissue of origin^[5]. It includes a variety of entities like:

1. Surface epithelial tumors,
2. Mesenchymal tumors,
3. Mixed epithelial and mesenchymal tumors,

4. Sex cord stromal tumors,
5. Germ cell tumors,
6. Miscellaneous tumors,
7. Tumor like lesion.

Surface epithelial tumors are further classified into:

- A. Benign,
- B. Borderline, and
- C. Malignant.

Aims and Objectives

1. To study frequency of ovarian tumor.
2. To study their histopathological features.
3. To study age wise incidence of ovarian tumor.

Type of Study: Prospective & Retrospective Study of two Year. (From January 2020 to December -2022)

Material and methods

- **Place of Study:** At Guru Gobind Government Hospital, Shri M. P. Shah Government Medical College, Jamnagar.
- **Design of Study:** Prospective & Retrospective Study.
- **Duration of Study:** Two Year. (From January 2020 to December 2022)

- **Sample size:** 100.
- **Specimen Processing:** Grossing was done to see representative areas from the whole specimen than Fixation was done using 10% neutral buffered formalin followed by Passing, Dehydration, Embedding, Block Trimming and 3-5 um thick microtome Sectioning were taken and Slide were Prepared And Stain With Hematoxylin & Eosin Stain than examined by light microscopy and histopathological diagnosis given on the basis of microscopic morphology.
- **Inclusion Criteria:** All age group, Ovarian Neoplasm- Benign and Malignant.
- **Exclusion Criteria:** Non neoplastic lesion.

Results

In the present study, a total of 100 cases of Ovarian neoplasm were analyzed, out of which Surface epithelial tumors were the most prevalent, comprising 70 cases (70%). Serous cystadenomas were the most common benign neoplasm encountered in our study. Germ Cell Tumors 22 (22%), Mature teratoma were most common germ cell tumor. Sex cord Stromal Tumors 07 (07%). The majority of our patients were in the age group 31-40 years (45 patients, 45% of patients).

Table 1: Age wise distribution of ovarian neoplasm (n=100)

Age (years)	Surface epithelial tumors	Germ cell tumors	Sex cord stromal tumors	Metastatic tumors	Total
11-20	05	01	00	00	06
21-30	15	05	01	00	21
31-40	34	08	03	00	45
41-50	10	05	03	00	18
51-60	03	03	00	00	06
61-70	03	00	00	01	04
>70	00	00	00	00	00
Total	70	22	07	01	100

In present study maximum number of cases observed in 3rd decade (31-40).

Table 2: Distribution of ovarian Neoplasm According to the WHO Classification

Type	Number	Percentage (%)
Surface epithelial tumors	70	70
Germ cell tumors	22	22
Sex cord stromal tumors	07	07
Metastatic tumors	01	01
Total	100	100

In present study most common tumors Surface epithelial tumors (70%), followed by germ cell tumors (22%).

Table 3: Distribution of Surface epithelial tumors

Type of tumors	Benign	Borderline	Malignant	Total	Percentage (%)
Serous	40	02	05	47	67.1
Mucinous	12	01	04	17	24.2
Endometrioid	00	00	01	01	1.42
Brenner	02	00	01	03	4.28
Clear cell	00	00	01	01	1.42
Seromucinous	01	00	00	01	1.42

In present study most common surface epithelial tumors are Benign serous cystadenoma (57.1%).

Table 4: Distribution of Germ cell tumors

Type of tumors	Number	Percentage (%)
Mature teratoma	10	45.4
Immature teratoma	01	4.54
Mixed germ cell tumor	05	22.7
Dysgerminoma	02	9.09
Yolk sac tumor	01	4.54
Embryonal carcinoma	01	4.54
Choriocarcinoma	02	9.09
Monodermal teratoma (Struma ovarii)	00	-
Gonadoblastoma	00	-

In present study most common germ cell tumor is mature teratoma (45.4%).

Table 5: Distribution of Sex cord stromal tumors

Tumor type	Number	Percentage (%)
Fibroma	02	28.5
Thecoma	02	28.5
Juvenile granulosa cell tumor	00	-
Adult granulosa cell tumor	02	28.5
Sertoli-leyding cell tumor	01	14.2
Total	07	

Discussion

Ovarian lesions including non neoplastic lesions and neoplastic lesions may occur at any age, including infancy

and childhood [6]. Incidence rate, however increase with age, with the greatest number of new cases being diagnosed in 3th decade [6]. Ovarian cancer is the second leading cause of mortality among all gynecological cancers [7]. The structure of the ovary includes germ cells, follicular cells and the ovarian stroma. The function of the ovary is as complex as its structure. Any of these structures can give rise to a plethora of tumors [8]. The morphological and cytological characteristics of tumor cells are used to classify ONs [9]. Given their asymptomatic nature, late onset of symptoms, and lack of effective screening facilities, ovarian cancers are known as the “silent killer” [10]. Ovarian tumors were categorized according to the WHO classification of ovarian tumors into SETs, SSTs, GCTs, and metastatic tumors. On further subcategorization, SETs comprised serous, mucinous, endometrioid, clear cell, seromucinous, and Brenner tumors (benign, borderline, and malignant categories). GCTs comprised mature cystic teratoma, immature teratoma, dysgerminoma, yolk sac tumor, embryonal carcinoma, choriocarcinoma, mixed germ cell tumors, monodermal teratomas (struma ovarii and strumal carcinoid), and gonadoblastoma. Finally, SSTs included fibroma, thecoma, juvenile granulosa cell tumor, adult granulosa cell tumor, and Sertoli-Leydig cell tumor [5].

In the present study, a total of 100 cases of ovarian neoplasm were analyzed, out of which Surface epithelial tumors were the most prevalent, comprising 70 cases (70%). This is in concordance with the studies of Pilli *et al* (70.9%) [11] and Maru A *et al* (73.33%) [12]. Serous cystadenomas were the most common benign neoplasm encountered in our study. Germ Cell Tumors 22 (22%), this is in concordance with the studies of Pilli *et al* (21, 2%) [11] and Maru A *et al* (23.33%) [12] mature teratoma were most common germ cell tumor. Sex cord Stromal Tumors 07 (07%), this is in concordance with the studies of Bhuvanesh *et al* (7.14%) [13] Ayma Batool *et al* (6.92%) [14] and metastatic tumors one (1%).

The majority of our patients were in the age group 31-40 years (45 patients, 45% of patients). This is in concordance with the studies of Ayma Batool *et al* (31-40 year) [11].

Histopathology of serous cystadenoma

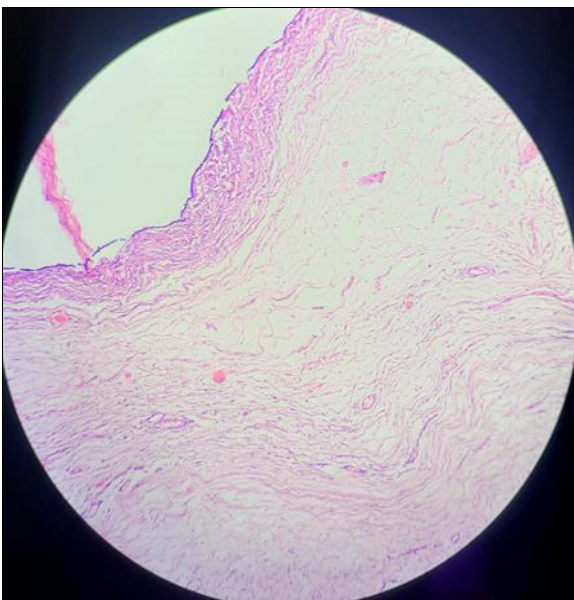


Fig 1: Serous cystadenoma (Cystic space lined by simple cuboidal epithelium in fibrous stroma)

Histopathology of mucinous cystadenoma

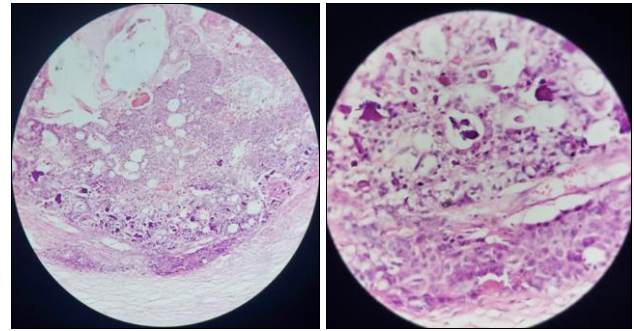


Fig 3: High grade Serous Carcinoma (complex papillae, gland as well as sheets of highly atypical cells invade into stroma, psammomatous calcification)

Histopathology of mature teratoma

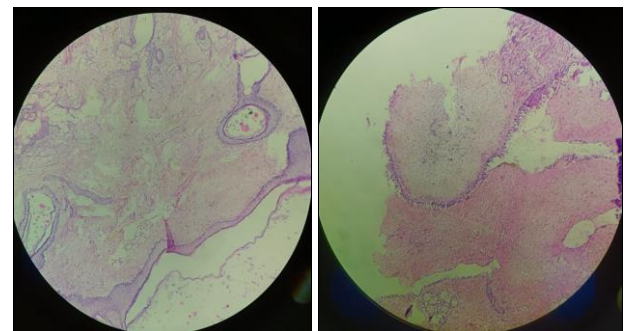


Fig 4: Mature Teratoma (Squamous epithelium with sebaceous gland, hair follicle, pseudostratified ciliated columnar epithelium)

Conclusion

The present study demonstrates a wide range of histopathological spectrum of Ovarian Neoplasms. Overall, benign tumors were more common than malignant tumors; in particular, Surface Epithelial Tumors were the most common neoplasm, followed by Germ Cell Tumors. Serous cystadenoma was the most frequent neoplasm in the benign category, and serous cystadenocarcinoma was in the malignant category. The majority of the cases were present in the 31-40 years of age group. Ovarian Neoplasms require an accurate diagnosis to be treated effectively.

Conflict of Interest

Not available

Financial Support

Not available

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