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Pathology of Ovarian Tumour-A Hospital Based Study

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Abstract: A total of 102 cases of ovarian tumours were studied with aim to evaluate the frequency of histopathologically diagnosed ovarian tumor cases attending a tertiary level medical facility based hospital in Guwahati. Abdominal mass was the most predominant clinical presentation. The cases were investigated and surgically treated. The formalin fixed specimens (simple oophorectomy or hysterectomy with unilateral /bilateral salpingo-oophorectomy) were examined grossly ,processed routinely and the sections were stained with H& E stain. The microscopic findings were noted and interpreted according to WHO classification of ovarian tumour. Surface epithelial tumour was the commonest tumour according to the histogenesis followed by germ cell tumour. Among the malignant surface epithelial tumours, the incidence of mucinous cystadenocarcinoma was 6.86% and serous cystadenocarcinoma was 2.94% . Serous cyst adenoma was the commonest tumour in benign category. In germ cell tumour category, benign cystic teratomas constituted highest numbers (26.47%), followed by dysgerminoma(1.96%). Six cases of sex cord stromal tumour (4 cases of granulosa cell tumour & 2 cases of Sertoli Leydig cell tumour) and 2 cases of kruckenberg tumour were also detected in the study.

Key Words: Surface epithelial tumour, Dysgerminoma, Sex cord stromal tumour, , kruckenberg tumour

INTRODUCTION

Tumors of the ovary are amazingly diverse pathologic entities due to the three cell types that make up the normal ovary: the multipotential surface (coelomic) covering epithelium, the totipotential germ cells, and the multipotential sex cord/stromal cells. Each of these cell types gives rise to a variety of tumors [1]. Each of these tumours can present as cystic, adenofibromatous or solid tumour. Depending on the tumour cell morphology, proliferative pattern and other associated finding (hemorrhage, necrosis and calcification & others), it may be graded as benign, borderline and malignant tumour [2]. Neoplasms of surface epithelial origin account for the great majority of primary ovarian tumors, and in their malignant forms account for almost 90% of ovarian cancers. Germ-cell and sex cord/stromal cell tumors are much less frequent and, although they constitute 20% to 30% of ovarian tumors, are collectively responsible for fewer than 10% of malignant tumors of the ovary [2]. Indian Cancer Registry data project ovary as an important site of cancer in women, comprising up to 8.7% of cancers in different parts of the country [3]. In Assam, relative proportion of ovarian cancers were detected was 4.9% [4]. The present study was carried out with aim to evaluate the frequency of histopathologically diagnosed

ovarian tumor cases attending a tertiary level medical facility based hospital in Guwahati.

II. METHODOLOGY

The present research is based on a study of 102 specimens of ovarian tumours received in the Department of Pathology, Gauhati Medical College from the gynecology OT during the period from 1st June 2011 to 31st May 2012. The study was cleared by Institutional ethical committee of GMCH prior to the start of the research. Written Consent of patient was taken. Most of the patients presented with mass abdomen followed by pain abdomen , irregular menstruation , amenorrhoea , Constipation and urinary complaints . Investigations were done according to patients' requirement and managed surgically. The Nature of specimen was either in the form of simple oophorectomy or hysterectomy with unilateral /bilateral salpingo-oophorectomy. For gross examination, we followed the guideline described by standard text book of surgical pathology[1]. Omentum was looked for any nodularity. Lymph nodes were also dissected out and all were processed for HPE. On the basis of the gross finding, the sections were taken, processed routinely and stained with

Haematoxylin & Eosin stain. The microscopic slides were viewed under low power field and high power field. The findings were noted and interpreted according to WHO classification.

III. RESULTS AND OBSERVATION

Out of the 102 ovarian tumours, 46 cases (45.09%) were cystic, 42 cases (41.17%) were solid/cystic and 14 cases (13.74%) were predominantly solid tumours. Bilaterality was detected in 8.86% of the total cases. Most of the benign ovarian tumour presented as cystic mass. Surface epithelial tumour was the commonest tumour according to the histogenesis (Cite Figure 1).Among the malignant surface epithelial tumours, the incidence of mucinous cystadenocarcinoma was 6.86% and serous cystadenocarcinoma was 2.94% . Serous cyst adenoma was the commonest tumour in benign category. In germ cell tumour category, benign cystic teratomas constituted highest numbers (26.47%), followed by dysgerminoma(1.96%). Six cases of sex cord stromal tumour (4 cases of granulosa cell tumour & 2 cases of Sertoli Leydig cell tumour) and 2 cases of krukenberg tumour were also detected in the study Cite Table 1). Germ cell tumour was found in age group-1 year -40 years

Table 1: Consistency of the Ovarian Tumour (n=102)

Consistency	No. of cases	Percentage
Cystic	46	45.09
Cystic/Solid	52	41.17
Solid	14	13.74

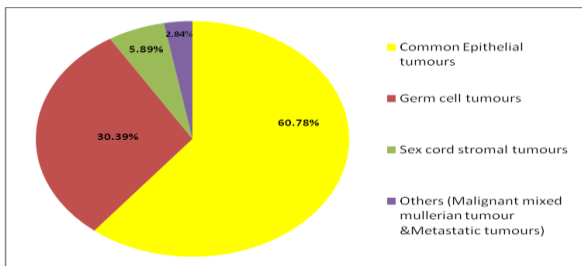


Figure 1. Frequency of Ovarian Tumour according to histogenesis

Table II Showing break-up of different ovarian tumours (Total- 102)

Tumours	Number	Percentage
Surface Epithelial tumours:	62	60.78
Benign	49	48.03

i.	Serous cystadenoma	35	34.31
ii.	Papillary serous cystadenoma	2	1.96
iii.	Mucinous cystadenoma	12	11.76
A.	Borderline Mucinous borderline	1	0.98
B.	Malignant	7	6.86
i.	Mucinous cystadenocarcinoma	3	2.94
ii.	Serous cystadenocarcinoma	2	1.96
iii.	Endometrioid carcinoma	27	26.47
Germ Cell tumours		1	0.98
i.	Benign cystic teratoma	6	5.89
ii.	Immature teratoma	4	3.92
iii.	Dysgerminoma	2	1.96
iv.	Yolk sac tumour	2	1.96
Sex cord stromal tumours		4	3.92
i.	Granulosa cell tumour	2	1.96
ii.	Sertoli Leydig cell tumour	2	1.96
Others		3	2.94
i.	Malignant mixed mullerian tumour	1	0.98
ii.		2	1.96
iii.	Krukenberg tumour	2	1.96

IV. Discussion:

The ovarian tumour is diagnosed as benign, borderline or malignant depending on the presence of predominant cell type, pattern of growth, amount of fibrous stroma and cellular atypia with invasiveness [1]. Histologically, surface epithelial tumors are the commonest which is consistent with Mondal SK et al[5]. Out of 102

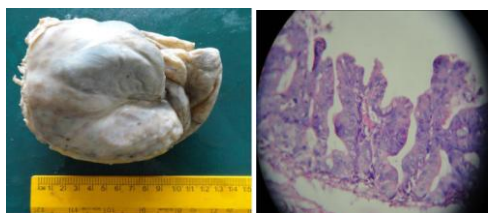


Figure 2: Borderline Mucinous Tumour: [A] Gross Picture; [B] Microscopy

cases, 78.4% were diagnosed as benign, 20.6% malignant and 0.98% cases as borderline ovarian tumour. Gupta *et al.* reported 72.9% benign, 4.1% borderline and 22.9% malignant tumors [6]. The major fraction of ovarian neoplasm in the study done by Mondal SK *et al.* (2011) comprises benign tumors (63.1%), followed by malignant (29.6%) and borderline tumors (7.3%) [5]. In another study, 80.3% of the true ovarian neoplasms were benign while malignant ovarian tumours constituted 19.7% [7]. Germ cell tumor was the second major group of tumors in the present study (31/102) which comprised of benign cystic teratoma (27/31), Dysgerminoma (2/31), Yolk sac tumour (1/31) and one case of immature teratoma. Germ cell tumor was the second major group of tumors in the study (23.1%) Mondal SK *et al.* [5]. However the germ cell tumours were the commonest ovarian neoplasm followed by surface epithelial tumours in most parts of Nigeria and Africa [7]. The proportion of mature teratoma was higher in this study, being the second most common benign tumor (after serous cystadenoma). Sex cord-stromal tumors, which comprise approximately 5% of all ovarian neoplasms, are tumors that differentiate in the direction of sex cords and/or the specialized ovarian stroma [8] which is consistent with our finding on sex cord stromal tumour. Two cases of Krukenberg tumours were also detected in which primary tumour was in stomach. One case of MMMT also detected in this period.

Conclusion

The main strength of this study is that it gives the most comprehensive picture of the current state of ovarian tumour incidence and histopathologic pattern. Surface epithelial tumours are the commonest followed by germ cell tumours. The major limitation of this study includes the small sample size and short study period. However a tentative conclusion can be drawn from the present study that ovarian tumours comprise one of the major neoplasms in female detected in this institution. Benign surface epithelial tumours are more common than malignant tumours.

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