Histomorphological Spectrum of Ovarian Tumours, 4 Years Experience in a Regional Institute

Mutum Reeta Devi[1], Keerthivasan V.[2], Junali Tikhak[3], Badrinath V.[4]

[1]Associate Professor, Department of Pathology, Regional Institute of Medical Sciences, Imphal, Manipur.
[2]Postgraduate Trainee, Department of Pathology, Regional Institute of Medical Sciences, Imphal, Manipur.
[3]Postgraduate Trainee, Department of Pathology, Regional Institute of Medical Sciences, Imphal, Manipur.
[4]Postgraduate Trainee, Department of Pathology, Regional Institute of Medical Sciences, Imphal, Manipur.

ABSTRACT

BACKGROUND

Worldwide, ovarian cancer is the sixth most common cancer in women and seventh most common cause of cancer death. For most western countries, ovarian cancer is the fifth most common cancer and ranks fourth in cancer mortality. For the western hemisphere it accounts for 4% of cancer in women and is the most frequent cause of death due to gynaecological cancer; whereas, in some European countries, and in parts of Eastern India, ovarian cancer is reported as the most frequent cause of death in women from gynaecological cancer. The present study was undertaken to analyse the histomorphological spectrum of ovarian tumours and their distribution in age groups in this region of the country.

METHODS

This combined retrospective and prospective study was carried out in the Department of Pathology, Regional Institute of Medical Sciences, Manipur for a period of 4 years i.e. from 1st January, 2016 to December, 2019. Representative tissues are processed routinely. Sections of tissue as well as sections from retrieved blocks are stain with Hematoxylin and Eosin stain. All slides are examined thoroughly. Tumours are classified according to WHO classification.

RESULTS

During the 4 years period, a total of 232 ovarian tumour specimens were received in the department. Out of these, 217 (93%) were benign, 3 (1.2%) were borderline and 12 cases (5.1%) were malignant. Surface epithelial tumours are the most common tumours encountered in the study. This is followed by germ cell tumours particularly mature cystic teratoma. Among the malignant tumours, granulosa cell tumour which is regarded as tumour with low malignant potential is the common one. Majority of tumours occurred in the age group of 31-40 years followed by 21-30 years and 41-50 years age groups. Youngest patient was 5 years old and oldest is 75 years old. Both are diagnosed as mature cystic teratoma.

CONCLUSIONS

Benign ovarian tumours are more common than the malignant tumours in all age groups. Serous cystadenoma is the most common tumour. Mature cystic teratoma is the 2nd most common tumour encountered. Thorough histopathological examination of any ovarian tumour is mandatory at any age.

KEYWORDS

Ovarian Tumour, Surface Epithelial Tumour, Germ Cell Tumour, Sex Cord Stromal Tumour

Corresponding Author:
Dr. Mutum Reeta Devi,
Department of Pathology,
Regional Institute of Medical Sciences,
Lamphelpat, Imphal- 795004, Manipur.
E-mail: rdmutum@gmail.com
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BACKGROUND

Worldwide, ovarian cancer is the sixth most common cancer in women and seventh most common cause of cancer death. For most western countries, ovarian cancer is the fifth most common cancer and rank fourth in cancer mortality.[1] For the western hemisphere, it accounts for 4% of cancer in women and is the most frequent cause of death due to gynaecological cancer. 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.[2,3] Ovarian cancer is reported as the most frequent cancer of death from gynaecological cancer in parts of Eastern India as well as in women of some country of Europe.[4,5] In general, ovarian tumour is more common in industrialized country where parity is low with the exception of japan which has low parity but with low rate of ovarian tumour. Incidence varies widely among different ethnic groups Migration studies have shown that the rate of ovarian tumour in immigrants' approach that of the place which suggests a possibility of environmental component to ovarian cancer risk It is also said that the rate of ovarian cancer increases as the patient become older. In the female genital tract, ovary is the site of primary cancer as well as the secondary cancer unlike other organs where those organs that are frequently the site of primary cancer are rarely involved in secondary malignancy and vice versa. The ovary is an exception for the dictum of Virchow. Mortality rate of ovarian tumours exceeds the combined mortality of both endometrium and cervical cancer. Late diagnosis of ovarian tumours because of their nonspecific clinical presentation often contribute to it. Disturbance in menstruation is often infrequent and acute pain is rare unless torsion of tumour pedicle occurs. As a consequence, the tumours had considerable time to grow and often involve the adjacent organs before symptoms develop to lead to diagnosis. Despite the new modalities of imaging and other new techniques of diagnosis, the diagnosis of ovarian tumours is primarily done by histopathological examination. The present study is carried out to find out the diverse histomorphological spectrum of ovarian tumours in this part of the country and their age distribution in the specimens of ovarian tumours in our regional institute.

METHODS

This retrospective and prospective study included 232 cases of ovarian tumours studied over a period of 4 years (January 2016 to December 2019) at the Regional Institute of Medical Sciences (RIMS), Imphal, Manipur. This prospective study included all the ovarian tumour specimen received in the Department of Pathology, RIMS during January, 2019 to December, 2019. The retrospective study was carried out from the records of the department, corresponding blocks were retrieved, any relevant data noted from the requisition forms.

Inclusion Criteria

All histologically proven ovarian tumours, it included both primary and metastatic tumours.

Exclusion Criteria

Incomplete data regarding the patient, tissues sent in improper fixatives and without consent are excluded from the study. After thorough gross examination of fresh specimens, representative tissue are processed routinely and stained with Hematoxylin and Eosin stain. Likewise, sections from the retrieved blocks are also stained with H & E stain. Special stains were done whenever necessary. Ovarian tumours are classified as per WHO classification (4th Edition).

RESULTS

During the period of 4 years from January 2016 to December 2019, a total of 232 ovarian tumour specimen were received in the Department of Pathology of our regional institute. Out of these, 217 cases (93%) were found to be benign, 3 cases (1.2%) were borderline i.e. 2 serous cystadenoma and 1 mucinous cystadenoma. There were 12 cases (5.1%) of malignant tumours. Out of these, 6 cases (2.7%) belonged to granulosa cell tumour. There were 4 cases of (1.7%) serous cystadenocarcinoma and only 1 case (.43%) of mucinous cystadenocarcinoma. There was only case of metastatic Krukenberg tumour. Majority of tumours occurred in the age group of 31-40 years (4th decade) followed by 21-30 years age group and 41-50 years age group. The youngest patient is 5 years old and oldest encountered in this study was 75 years old. Both are diagnosed as mature cystic teratoma. Ovarian tumour incidence is uncommon in the extremes of life. The most common histopathological diagnosis was serous cystadenoma (43.5%) which is followed by mature cystic teratoma (37.9%) and mucinous cystadenoma (1.2%). For malignant tumours, Granulosa cell tumour (adult type) which is described as a tumour with low malignant potential by WHO was encountered in 6 cases (2.7%) with age distribution from 2nd decade onwards. Granulosa cell tumour are composed of granulosa cells often with a variable number of fibroblasts and theca cells. Serous cystadenocarcinoma was diagnosed in 4 cases (1.7%) with 2 cases in the age group of 31-40 years followed by one mucinous cystadenocarcinoma (.43%). 2 borderline serous cystadenoma and 1 borderline mucinous cystadenoma were encountered in this study. Overall, surface epithelial tumours are the most common tumour encountered in our study. Among the germ cell tumours, mature cystic teratoma comprises the majority. There were no immature teratoma in the present study. Regarding age group distribution of mature cystic teratoma 32 cases occur in the 31-40 years age group followed by 21-30 years age group. (Table 1, Table 2).

Histopathological Types		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	Total
Benign Tumours	Serous cystadenoma		7	16	36	19	17	6		101
	Seromucinous cystadenom		2		1	1				4
	Mucinous cystadenoma		3	5	6		3	3		19
	Teratoma	1	4	29	32	16	3	1	2	88
	Brenner tumour						1	1		2
	Fibroma/Fibrothecoma			2	1					3
Borderline Tumour	Serous cystadenoma			1						1
	Mucinous cystadenoma						1	1		2
Malignant	Serous cystadenocarcinom			1	2		1			4
	Mucinous cystadenocarcinoma				1					1
	Granulosa cell Tumour			2	2	1		1		6
	Krukenberg Tumour					1				1

Table 1. Distribution of Histopathological Diagnosis in Various Age Groups

Surface epithelial tumours	Total	%	Benign	%	Borderline	%	Malignant	%
	134	57.7	125	53.8	3		5	2.1
Germ cell tumours	88	37.9	88	37.9				
Sex cord stromal tumours	9	3.8	3	1.2			6	2.5
Metastatic	1	.43%					1	.43%

Table 2. Histopathological Types of Ovarian Tumours

DISCUSSION

Ovarian tumours are regarded to have diverse histogenesis, clinical presentation and malignant potential. It represent the 6th most common cancer in women and seventh most common cause of cancer death.[1] Classification of ovarian tumours is based on the tissue of origin and they arise from one of the three components (1) Surface epithelial cells (2) the germ cells and (3) the sex cord stromal component. These tumours represent as one of the most complex tumours affecting women. The anatomy of ovary is complex and with its physiological changes i.e. the cyclical changes from menarche to menopause gives rise to a variety of cells, each of these cells can give rise to complex varieties of tumours, Histomorphological classification of ovarian tumours is an integral part for the evaluation of these neoplasms. Clinically, ovarian tumours usually have insidious onset. They may manifest as vague abdominal pain of dull and dragging type, acute pain when there is twisting of tumour stalk, sensation of fullness in the abdomen and menstrual irregularities may or may not be the complaint in premenopausal younger women etc. They may remain clinically silent till they grow to a large size and involve adjacent organs. They may be even diagnosed incidentally when the patient undergoes some investigation for some other causes. No clinical manifestation is specific for the diagnosis of ovarian tumour eventually contributing to its late diagnosis and thereby increased mortality.

In the present study, a total of 232 ovarian tumours were studied and majority of the tumours were benign (93%) which is followed malignant tumours (5.1%) and borderline tumours (1.2%). Our finding is similar with various studies conducted in different parts of India and Nepal.[6-11] Only one case of metastatic tumour is encountered in this study while the rest comprises primary ovarian tumour (99%). Similar observation was seen in the study of Bhagyalakshmi A et al (98.5%).[12] Majority of the tumours comprised of surface epithelial tumours (57.7%) followed by germ cell tumour (37.9%) and sex cord stromal tumour (2.5%). This finding is comparable with studies done by Jha et al,[11] Ahmad et al[13] and Mankar & Jain.[14] Histologically serous cystadenoma was the most common tumour accounting for 43.5% followed by mature cystic teratoma (37.9%) and mucinous cystadenoma (1.2%). Similar observation was commented by the study of Mondal et al.[2] Among the malignant tumour, we found that granulosa cell tumour is the most common (2.5%) which agrees with the record of Swamy et al. followed by serous cystadenocarcinoma (1.7%) and one case of mucinous cystadenocarcinoma (4.3%). One case of serous cystadenocarcinoma was detected in a 26 year old women in our study. Whereas in other studies serous cystadenocarcinoma predominates among malignant tumours and it usually occurs in slightly older age group. Regarding age distribution of ovarian tumours in our study, serous cystadenoma, teratoma and mucinous cystadenoma occurred most commonly in the age group of 31-40 years. Serous cystadenoma occurs in a wide range of 11 to 80 years. Likewise, teratoma occurs in a 5 year old as well as in a 75 year old in our study. 2 cases of serous cystadenocarcinoma were diagnosed in age group of 31-40 years, so also 2 cases of granulosa cell tumour. Only one case of metastatic Krukenberg tumour is found in 41-50-year age group. Regarding the bilaterality of the ovarian tumours, 6 cases of serous cystadenoma (2.5%) and 18 cases of teratoma (7.7%) are found to be bilateral in our study. This finding is consistent with the study of Mondal[2] et al who reported 3.8% in serous cystadenoma and 6.5% in teratoma. This is also consistent with finding of Pilli et al, Jha et al & Shah et al.[11,15,16]

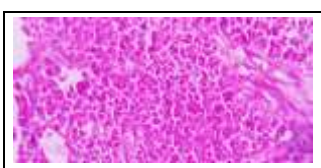

Figure 1. Photomicrograph Showing Granulosa Cell Tumour 40x, H&E Stain

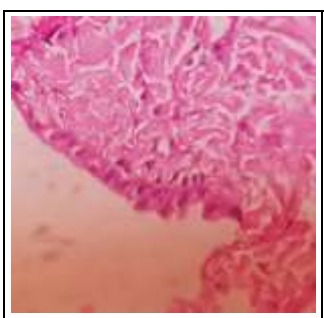

Figure 2. Photomicrograph Showing Serous Cystadenoma 40x, H & E Stain

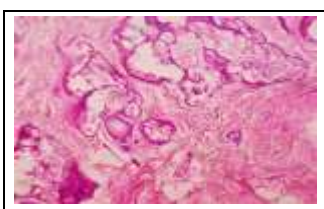

Figure 3. Photomicrograph Showing Mature Cystic Teratoma 40x H&E Stain

CONCLUSIONS

Ovarian tumours occurs over a wide range of age. It is more common in women of reproductive age group. Benign tumours were more common than malignant tumours. A thorough histopathological examination of ovarian tumour is of utmost importance in differentiating the benign from borderline and malignant tumours. It also helps in prognosis and further management of patients. This study concludes that surface epithelial tumours are the most common followed by germ cell tumours. Majority of the tumours were found among the age group of 31-40 years.

REFERENCES

[1] Seidman JD, Cho KR, Ronnett BM, et al. Surface Epithelial Tumours of Ovary. In: Kurman RJ, Ellenson LH, Ronnett BM, eds. Blaustein's pathology of the female genital tract. 6th edn. New York: Springer 2011:679-784.

[2] Mondal SK, Banyopadhyay R, Nag DR, et al. Histologic pattern, bilaterality and clinical evaluation of 957 ovarian neoplasms: a 10-year study in a tertiary hospital of eastern India. J Cancer Res Ther 2011;7(4):433-437.

[3] Murthy NS, Shalini S, Suman G, et al. Changing trends in incidence of ovarian cancer - the Indian scenario. Asian Pac J Cancer Prev 2009;10(6):1025-1030.

[4] Jacob IJ, Menon U. Progress and challengers in screening for early detection of ovarian cancer. Mol Cell Proteomics 2004;3(4):355-366.

[5] Sen U, Sankarnarayanan R, Mandal S, et al. Cancer patterns in eastern India: the first report of the Kolkata cancer registry. Int J Cancer 2002;100(1):86-91.

[6] Agarwal D, Kaur S, Agarwal R, et al. Histopathological analysis of neoplastic lesions of the ovary: a 5-year retrospective study at tertiary health care centre. International Journal of Contemporary Medical Research 2018;5(5):E14-E17.

[7] Vaidya S, Sharma P, Vaidya SA, et al. Spectrum of ovarian tumours in a referral hospital in Nepal. J Pathol Nep 2014;4(7):539-543.

[8] Pradhan A, Upreti D, Sinha AK. Histopathological patterns of ovarian tumours at BPKIHS. Health Renaissance 2012;10(2):87-97.

[9] Swamy GG, Satyanarayana N. Clinicopathological analysis of ovarian tumours--a study on five years samples. Nepal Med Coll J 2010;12(4):221-223.

[10] Pradhan SB, Chalise S, Pradhan B, et al. A study of ovarian tumours at Kathmandu medical college teaching hospital. J Pathol Nepal 2017;7:1188-1191.

[11] Jha R, Karki S. Histological pattern of ovarian tumours and their age distribution. Nepal Med Coll J 2008;10(2):81-85.

[12] Bhagyalakshmi A, Sreelekha A, Sridevi S, et al. Prospective study of histopathological patterns of ovarian tumours in a tertiary care centre. Int J Res Med Sci 2014;2(2):448-456.

[13] Ahmad Z, Kayani N, Hasan SH, et al. Histological pattern of ovarian neoplasma. J Pak Med Assoc 2000;50(12):416-419.

[14] Mankar DV, Jain GK. Histopathological profile of ovarian tumours: a twelve year institutional experience. Muller J Med Sci Res 2015;6(2):107-111.

[15] Pilli GS, Suneeta KP, Dhaded AV, et al. Ovarian tumours: a study of 282 cases. J Indian Med Assoc 2002;100(7):420, 423-24, 447.

[16] Shah S, Hishikar VA. Incidence and management of ovarian tumours. Bombay Hospital J 2008;50(1):30-33.