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Clinico Pathological Study of Ovarian Tumors- A Retrospective and Prospective 5 Years Study

(Research Article)

Authors

Vissa Shanthi MD[1], B.Venkata Sai Prasad M.D[2], B.Venkata Vaidehi MD[3], Byna Syam Sundara Rao[4], Bhavana Grandhi, MD[5], Madireddy Sushmalatha, MBBS, (MD) [6]

[1]Professor, Dept of Pathology, Narayana Medical College and Hospital, Nellore, Andhra Pradesh, India Dr NTR University of health Sciences, Vijayawada (A.P)
Email: *santhijp@gmail.com, Phone: 9849052179*

[2]Associate Professor, Department of pathology, Sri Venkateswara Medical College, Tirupathi, Andhrapradesh, India Dr. NTR University of Health Sciences, Vijayawada (A.P)
Email:*drsaiprasad64@gmail.com,* Phone: 7702597070

[3]Professor, Department of Pathology, Narayana Medical College and Hospital, Nellore, Andhrapradesh, India
Dr NTR University of Health Sciences, Vijayawada (A.P)
Email: *vydehiramana@gmail.com, Phone: 9989926096*

[4]Associate Professor, Department of Pathology, Narayana Medical college and Hospital, Nellore, Andhrapradesh, India, Dr. NTR University of Health Sciences, Vijayawada (A.P)
Email: *syam.byna@gmail.com, Phone : 9493517944*

[5]Assistant Professor, Dept of Pathology, Narayana Medical College and hospital Nellore, Andhrapradesh, India
Dr. NTR University of Health Sciences, Vijayawada (A.P)
Email: *drbhavana.grandhi@gmail.com, Phone : 9642111209*

[6]Tutor, Department of Pathology, Narayana Medical College and Hospital, Nellore, Andhra Pradesh, India
Dr NTR University of Health Sciences, Vijayawada (A.P)
Email: *dr.sushmareddy1990@gmail.com, Phone: 9573562049*

Corresponding Author

Dr V. Shanthi

Flat no. 301, Anjani SVGK Towers, Sri Hari Nagar, Ramalingapuram, Nellore, Andhra Pradesh, India
Email: *santhijp@gmail.com, Phone - +91-9849052179*

Abstract

Ovarian neoplasms have different cell origin and have various histopathologies. Increased mortality in ovarian malignancies is due to late presentation at advanced stage. During the period of 5 years (June 2011 to June 2016), 156 ovarian neoplasms were studied at Narayana Medical College. Out of them 143 were benign and 13 were malignant. Surface epithelial tumors (84.62%) were more common and next common were the germ cell tumors (10.9%). Among the malignant tumors, serous cystadenocarcinomas were more common. Benign tumors were common in 31-40 years of age group (30.07%) and malignant tumors were seen more in 41-50 years of age group (38.46%). High number of benign neoplasms constituted ovarian neoplasms in our study.

Key words: *Ovarian neoplasms, benign, epithelial tumors*

Introduction

Ovarian neoplasms have diverse histopathology which reflects the different cell origins. Ovarian carcinomas represents 6th most common cancer in females and is the 4th leading cause of cancer death in women [1]. Ovarian carcinomas are seen after 3rd decade and predominantly in post menopausal women. High mortality due to these tumors is due to lack of symptoms in early stages. At the time of presentation 70% of the tumors had spread outside the pelvis and prognosis is poor.

Ovarian cancer may develop denovo (90%) or arise from preexisting benign epithelial tumors (5-10%). Risk factors for ovarian cancer are nulliparity, talc exposure and ovulatory drugs for infertility. Factors that reduces the risk of ovarian cancer are multiparity, oral contraceptive pills, tubal ligation and prophylactic bilateral salpingo-ophorectomy in BRCA carriers. Determining the histogenesis of the tumor by studying histologic patterns is very important for effective treatment and predicting their behavior and prognosis. In our study we analyzed the incidence of benign and malignant ovarian tumors and clinical features of these tumors.

Materials and Methods

Prospective and retrospective study was done for a period of 5 years from June 2011 to June 2016 at the department of pathology, Narayana Medical College, Nellore. Detailed history with clinical features were recorded in the patients with the ovarian tumors. Specimens received (oophorectomy or hysterectomy with oophorectomy) were grossly examined after fixing them in 10% of formalin. Then the tissue blocks were prepared and 4 microns thick sections were cut. Sections were stained with Haematoxylin and Eosin.

All the cases with abdomino-pelvic masses on clinical examination and on imaging representing the ovarian masses were included in this study. Inflammatory conditions and other cysts like chocolate cysts and follicular cysts were excluded from this study.

Results

In our study, 156 cases of ovarian neoplasms were analyzed. We found that benign tumors were more common comprising 91.67% of ovarian tumors when compared to malignant tumors which comprised 8.33% (Table-1). Most common presentation in benign tumors were mass abdomen (39.16%) (Table–2).

Next common was pain abdomen and menstrual disturbances in decreasing order. Whereas malignant tumors presented mostly with pain abdomen (30.77%) and next in frequency was mass abdomen. Two cases presented with loss of weight and appetite. One case presented with ascites (Table-3).

Ovarian tumors were found to be more common in 31-40 years of age group (Table-4). Benign tumors were common in this age group whereas malignant tumors were common in 51-60 years age group (Table-5).

On analyzing the histological types of ovarian tumors, surface epithelial tumors (84.62%) were the commonest and in decreasing order of frequency was the germ cell tumor (10.9%), sex cord stromal tumors (3.85%) and metastatic tumor (0.64%) (Table – 6). Among the surface epithelial tumor serous tumors were more common. Mature cystic teratoma comprised the majority of germ cell tumors. Among the sex cord stromal tumors granulosa cell tumor and fibromas were common (Table – 7).

Discussion

Ovarian tumors have varied clinical, morphological and histological features. They have become important due to the increased mortality rates. Risk factors for the malignant ovarian tumors are nulliparity, gonadal dysgenesis, heritable mutations and family history. Mutations in both BRCA1 and BRCA2 increases the susceptibility for the development of ovarian cancer [2]. Mutations in the KRAS and BRAF are seen in low grade tumors where as mutations in the P53 are common in high grade tumors. Biological behavior of surface epithelial

tumors are associated with extension of epithelial proliferation.

Most of the tumors are diagnosed incidentally on imaging in patients who came to the gyneacology OP for the abdominal pain. In the early stages ovarian tumors remain silent. The symptoms are non-specific including feeling of abdominal discomfort, features of dyspepsia and dull aching pain. Ovarian tumors even though they are bilateral does not produce menstrual disturbances except the tumors which produce hormones like granulosa cell tumor and theca cell tumor. Ovarian tumors which get impacted in the pouch of Douglas or in the uterovesical pouch anterior to the uterus produces symptoms like increased frequency of micturition. Germ cell tumors occurring in the young women grow rapidly and causes abdominal pain, which may be the first symptom noticed in patients. Acute abdominal pain develops if the ovarian tumor undergoes torsion, rupture or hemorrhage. In the malignant tumors ascites may develop due to obstruction of peritoneal fluid.

In our study, commonest clinical presentation was pain abdomen (30.77%) in malignant tumors and mass abdomen in benign tumors (39.16%). Our results correlated with the study carried out by Rashid et al and Yasmin et al in whose studies abdominal pain was the commonest symptom followed by mass abdomen [(3) (4)]. In the studies done by Goff BA et al, commonest presentation in malignant tumors was mass abdomen [(5)]. The other less common presenting symptoms were, menstrual abnormalities, gastrointestinal disturbances, loss of weight and appetite and ascites. In contrast some studies have shown that the commonest presenting symptom was bleeding per vaginum, followed by other symptoms like abdominal mass, pelvic mass and gastrointestinal disturbances [(6)].

Clinical examination along with ultrasonography, Computed Tomography and Magnetic Resonance Imaging may not reveal the nature of the tumor. Microscopic examination is required to know the histogenesis of tumor and grade of the tumor which is helpful for further management and to know the prognosis of tumor.

Surface epithelial tumors are most common ovarian tumors comprising 58% of all ovarian tumors and among them serous tumors are common [(7)]. In our study, among the various histopathologic types of ovarian tumors, commonest were surface epithelial tumor followed by germ cell tumors. Among the surface epithelial tumors, serous tumors were more common than mucinous which correlated with the studies done by Pilli et al [(8)]. In our study benign tumors were common in 31-40 years of age group and malignancies were common in 51-60years of age group. In the studies done by Santhosh kumar mondal et al benign tumors were common in 21-30 years (41.3%) of age group and next common in the age group of 31-40 years (30.85%). Malignant tumors in his study were common in 41-50 years of age group (44.37%) https://netbanking.hdfcbank.com/netbanking/?_ga=1.126583630.2503260705.1465457044 In our study germ cell tumors were common in younger age group (11-30yrs) and ovarian malignancies in elderly age group (51-60yrs). This correlated with studies done by Mencezer et al [(10)]. Other non-neoplastic cystic lesions found in the ovary were follicular cysts, luteal hemorrhagic cysts and chocolate cysts.

Commonest malignant ovarian tumors in our study was serous cystadenocarcinoma followed by mucinous carcinoma. The survival rates among the carcinoma cases depend upon the stage of tumor. The 5 year survival rate among the stage I tumor is 85%, stage II tumor is 71%, stage III tumor is 41% and stage IV tumor is 22%. Grades of tumor also determines the prognosis of the tumor. Well differentiated tumors have better prognosis than poorly differentiated tumors. In our studies all the malignant tumors were in stage I confined to one ovary only.

Conclusion

Commonest ovarian tumors are the epithelial tumors (serous tumors) and next in frequency are germ cell tumors (teratomas being common). Germ cell tumors are common in younger age

group and surface epithelial tumors are common in middle age group. But malignant tumors are common in elderly age group and they presented at advanced stage. Commonest clinical presentation was mass abdomen and pain abdomen. Though the imaging technique and clinical examination help in detecting ovarian tumors, histopathological examination is the gold standard to determine the type of the ovarian tumor and its histogenesis which affects the treatment and prognosis of the tumor.

Table 1: Incidence of benign and malignant tumors

Type of neoplasm	Number of cases (n=156)	Percentage
Benign tumors	143	91.67%
Malignant tumors	13	8.33%

Table 2: Clinical presentation of Benign tumors

Clinical feature	Number of cases (n=143)	Percentage
Mass abdomen	56	39.16%
Pain abdomen	52	36.36%
Gastrointestinal disturbances	15	10.49%
Loss of appetite / weight	-	-
Ascites	-	-
Menstrual abnormality	20	13.99%

Table 3: Clinical presentation of malignant tumors

Clinical feature	Number of cases (n=13)	Percentage
Mass abdomen	3	23.08%
Pain abdomen	4	30.77%
Gastrointestinal disturbances	-	-
Loss of appetite / weight	2	15.38%
Ascites	1	7.69%
Menstrual abnormality	3	23.08%

Table 4: Distribution of tumors in different age group

Age group in years	Number of cases (n=156)	Percentage
1-10	-	-
11-20	16	10.26%
21-30	40	25.64%
31-40	45	28.85%
41-50	29	18.59%
51-60	15	9.62%
61-70	9	5.76%
70	2	1.28%

Table 5: Age distribution in benign and malignant tumors

Age group in years	Benign tumors (n=143)	Malignant tumors (n=13)
1-10	-	-
11-20	14 (9.79%)	2 (15.38%)
21-30	38 (26.57%)	2 (15.38%)
31-40	43 (30.07%)	2 (15.38%)
41-50	27 (18.89%)	2 (15.38%)
51-60	11 (7.69%)	5 (38.46%)
61-70	8 (5.59%)	-
>70	2 (1.4%)	-

Table 6: Histological types based on cell of origin

Tumor type	Number of cases	Percentage
Surface epithelial tumors	132	84.62%
Sex cord stromal tumors	6	3.85%
Germ cell tumors	17	10.9%
Metastatic tumors	1	0.64%

Table -7: Histological subtypes of ovarian tumors

Tumor subtypes	Number of cases	Percentage
Surface epithelial tumors (n=132)		
Serous cystadenoma	87	55.77%
Serous cystadenofibroma	7	4.49%
Papillary serous cystadenoma	7	4.49%
Mucinous cystadenoma	26	16.67%
Papillary serous cystadenocarcinoma	3	1.92%
Mucinous cystadenocarcinoma	1	0.64%
Mixed serous and mucinoustumors	1	0.64%
Sex cord stromal tumors (n=6)		
Fibroma	2	1.28%
Granulosa cell tumor	2	1.28%
Leydig cell tumor	1	0.64%
gynandroblastoma	1	0.64%
Germ cell tumor		
Benign cystic teratoma	14	8.97%
Immature teratoma	1	o.64%
Dysgerminoa	2	1.28%
Metastatic tumor	1	0.64%

References

1. Yogambal M, Arunalatha P, Chandramouleeswari K, Palaniappan V. Ovarian tumors – incidence and distribution in a tertiary referral centre in south India. IOSR Journal of Dental and Medical sciences 2014;vol13(2):74-80.
2. Narod SA, Boyd J. current understanding of the epidemiology and clinical implication of BRCA1 and BRCA2 mutations for ovarian cancer. Curr Opin Obstet Gynecol 2002;14:19.
3. Rashid S, Sarwar G, Ali A. A clinicopathological study of ovarian cancer. Departments of Radiotherapy and Oncology Sir Gangaram Hospital and Mayo Hospital Lahore. J Pak Med Assoc 1998;36:117-25.
4. Yasmin S, Yasmin A, Asif M. clinicohistological pattern of ovarian tumors in Peshawar region. J Ayub Med Coll Abbottabad 2008;20(4):11-3
5. Goff BA, Mundehl SJ, Huntz HG, Melancon CH. Ovarian carcinoma diagnosis. Cancer 2000;89:2068-2075.
6. Jamal S, Quddusi H, Mehmood A. A clinico Histopathological analysis of 110 ovarian tumors. Pak JMed Sci 1997;14:19-23.
7. Syam Sundar B, Shanthi V, Mohan Rao N, Bhavana Grandhi,, Chidananda Reddy V, Swathi S. Brenner tumor with serous cystadenoma- An unusual combination: A case report. Int J Med Res Health Sci 2015;4(1):248-250.
8. Pilli GS, Suneetha KP, Dhaded AV, Yenni VV. Ovarian tumors: a study of 282 cases. J Indian Med Assoc 2002;100:420,423-5.
9. Santosh kumar Mondal, Ranjana Banyopadhyay, Dipanwita Roy Nag,

Suprio Roy Chowdhary, Palash Kumar Mondal, Swapan Kumar Sinha. Histologic pattern, bilaterality and clinical evaluation of 957 ovarian neoplasms: A 10-year study in a tertiary hospital of eastern India. Journal of Cancer Research and Therapeutics, 2011;7:433-437.

10. Menczer J, Sadetzki S, Murad H, Barda G, Andreer H, Barchana M. Childhood and adolescent ovarian tumorsin Israel. A nation wide study. Acta Obstet Gynecol Scand 1999;78(9):813-7.