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Original Research Article

Histopathological spectrum of neoplastic lesions of female reproductive system seen at a Rural Tertiary Care Centre in India

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Abstract

Background: The present study was carried out with an objective to find out the spectrum of various histopathological types of neoplasms of different parts/organs of the female reproductive system (FRS) seen at Shri Vasantrao Naik Government Medical College (VNGMC) Yavatmal, Maharashtra. As there exists a worldwide wide variation in the distribution of various neoplasms, which appears largely due to exogenous factors rather than due to inherent differences between populations.

Method: A 1 year retrospective study conducted in the Department of Pathology, VNGMC, Yavatmal where in 375 specimens of FRS (uterine cervix, uterine body, ovary and breast) were subjected to histopathological examination and relevant clinical data was analyzed.

Result: Out of 375 cases of neoplasms of the FRS, 296 cases were benign and 79 cases were malignant. Among total cases of neoplasms of the FRS, 28 (7.46%) tumors were from uterine cervix, 121 (32.26%) tumors were from uterine body, 58 (15.46%) tumors were from ovary and 168 (44.8%) tumors were from breast. All these neoplastic lesions were commonly occurring in the age group of 21-50 years. Most common benign tumor was fibroadenomas of breast and most common malignant tumor was infiltrating duct carcinoma of breast.

Conclusion: Breasts are the commonest sites for neoplstic lesions in our study. The histopathology is mandatory for confirmed diagnosis and hence for ensuring optimal management.

Keywords: Histopathology, Spectrum, Neoplasm, Female Reproductive System, Benign, Malignant, Fibroadenomas, Carcinoma.

1. Introduction

The cancer of the female reproductive system (FRS) - namely cancer of the cervix uteri (cervical cancer), cancer of the corpus uteri, ovarian, vulval, vaginal, fallopian tube cancers, and choriocarcinoma - are an important cause of cancer morbidity and mortality worldwide [1]. The epidemiologic pattern of these cancers in developing countries differs in many aspects from those of the industrialized nations [2]. These international differences appear largely due to exogenous factors rather than due to inherited differences between populations [3]. The cause is mainly due to different genetic patterns, lifestyles, environmental, socio-cultural and economic factors. However, many of the FRS malignancies are known as “silent killers” because women are most of the time unaware of the signs and symptoms associated with these tumors [4].

On a global basis out of the first eight ranking cancers in females, the cancers of the female reproductive system rank as follows: 1st breast, 2nd cervix of the uterus , 7th ovary; and, 8th body of the uterus [3rd being colon/rectum, 4th stomach, 5th lung; and, 6th oral cavity] [5]. Among all gynecological malignancies, ovarian cancer has the highest mortality and in two-third of the cases, it is

detected in an advanced stage. In the developed countries of the world, ovarian and endometrial cancers are the leading forms of female genital tract malignancies, while in the third world nations, cervical cancer is the most common [2,6]. In some countries, it has surpassed breast cancer as the leading cause of cancer-related death among women [7].

In addition, the incidence and pattern of various FRS cancers is known to vary from region to region. Incidence, pattern, histopathological variants of neoplastic lesions are an important aspect for knowing the magnitude and nature of cancer in a particular area. The present study was carried out to find out the frequency of various histopathological types of neoplasms (both benign and malignant) of female reproductive system.

2. Materials and Methods

This was a retrospective study, carried out in the Department of Pathology, at Shri Vasantrao Naik Government Medical College Yavatmal, Maharashtra, India for the period of September 2016 to October 2017. Patient's clinical data with respect to age, clinical manifestation, USG findings and basis of diagnosis as well as their histopathological findings were retrieved and collected from the data available in the pathology department and were analyzed. As per protocol, on receiving the hysterectomy specimens' were labeled, numbered and fixed in 10% buffered formalin. Large specimens were cut and after appropriate fixation for 10- 12 hours. The gross examinations of surgical specimens were done in the department of histopathology by the pathologist and gross features were recorded. Multiple representative bits were taken, processed and paraffin embedded blocks were prepared. Tissue sections from these blocks were then stained with Hematoxylin and Eosin stains (H & E Staining), mounted with distyrene, a plasticizer and xylene (DPX). After thorough microscopic examination a histopathological diagnosis was given. All the tumors were classified according to the standard set by World Health Organization-Classification of Tumours of the Breast and Female Genital Organs.

3. Observations and Results

During the study period, total of 3608 specimens were examined among them 724 cases having neoplastic lesions, of these neoplastic cases, 375 cases having neoplasm of female reproductive system. 296 cases were benign and 79 cases were malignant. Of total neoplasms of the FRS, 28 (7.46%) tumors were from uterine cervix, 58 (15.46%) tumors were from ovary, 121 (32.26%) tumors were from uterine body and 168 (44.8%) tumors were from breast, (Table 1).

Table 1: Distribution of neoplastic cases in various organ of FRS (375 CASES)

Organ	Total no of cases	Benign neoplasm	Malignal neoplasm
Uterine cervix	28 (7.46%)	10 (3.37%)	18 (22.78%)
Uterine body	121 (32.26%)	113 (38.17%)	08 (10.12%)
Ovary	58 (15.46%)	47 (15.87%)	11 (13.92%)
Breast	168 (44.8%)	126 (42.56%)	42 (53.16%)
Total	375 (100%)	296 (100%)	79 (100%)

The benign and malignant tumors were commonly occurred in the age group of 21-50 years. Youngest age of the patient showing neoplastic lesion was 13 years old girl with fibroadenoma in right breast and the oldest patient was 88 years old female with invasive ductal carcinoma in right breast. The observation of various age groups of benign and malignant tumor is mentioned in Table 2.

Table 2: Distribution of a Benign and malignant tumors in various age groups

Age in Years	Benign	Malignant
11-20	43	-
21-30	68	3
31-40	82	12
41-50	31	33
51-60	12	19
61-70	-	5
>70	-	6

Histological types of various neoplasms in different organs of FRS were shown in table 3. Most common benign tumor was fibroadenomas of breast comprising of (114 cases) 30.4% of the total tumor of FRS and most common malignant tumor was infiltrating duct carcinoma of breast comprising of (34 cases) 9.06% of the total tumor.

Table 3: Histological types of various neoplasm in different organs of FRS

I- Uterine cervix		II-Uterine body	
Benign (10 cases)	**Malignant (18 cases)**	**Benign (113 cases)**	**Malignant (8 cases)**
1) Cervical Leiomyoma- 3 cases 2) Papillary variant -4 cases 3) Cervical Polyp- 3 cases	1) Squamous cell carcinoma (SCC) 13 cases i) Well differentiated SCC – 6 cases, ii) Moderate SCC- 4 cases iii) Poorly SCC-3 cases 2) Adenocarcinoma- 4 cases 3) Adenosquamous Carcinoma-1 case	1) Leiomyoma- 106 cases 2) Adenomyoma- 3 cases 3) Endometrial polyp- 4 cases	1) Adenocarcinoma- 7 cases 2) Leiomyosarcoma- 1 case
III- Ovary		**IV- Breast**	
Benign (47 cases)	**Malignant (12 cases)**	**Benign (126 cases)**	**Malignant (42 cases)**
1) Serous cystadenoma- 17 cases 2) Mucinous cystadenoma-13 cases 3) Teratoma- 10 cases 4) Cystadenofibroma- 2 cases 5) Thecomafibroma - 3 Cases 6) 1 case of Brenner tumors 7) 1 case of Sclerosing stromal tumor	1) Serous cystadenocarcinoma- 3 cases 2) Mucinous cystadenocarcinoma-2 cases 3) Dysgerminoma- 1 case 4) Malignant Brenner tumor- 1 case 5) Malignant mixed germ cell tumor- 2 cases 6) Yolk sac tumor- 1 case 7) Granulosa cell tumor - 2 cases	1) Fibroadenoma-114 cases 2) Benign Phyllodes tumor - 6 cases 3) Duct Papilloma- 2 Cases 4) Apocrine adenoma- 2 cases 5) Lactating adenoma- 2 cases	1) Infilterating duct carcinoma- 34 cases 2) Intraductal carcinoma- 2 cases 3) Lobular carcinoma- 3 cases 4) Medullary carcinoma- 1 case 5) Papillary carcinoma- 1 case

4. Discussion

The neoplastic lesions of the female reproductive system constitute a vast majority of the various surgical biopsy specimens received in the pathology department. The patients get operated for both benign and malignant lesions. It is very difficult to diagnose malignancy before surgery. Though clinical history, signs and symptoms, Ultrasonography and fine needle aspiration cytology (FNAC) helps in provisional diagnosis. But histopathological examination is mandatory for confirmation of diagnosis, correct categorization of tumor and further staging of the tumor [4].

Breast cancer is the most common non-skin malignancy in women and has the highest fatality rate of all cancers affecting women. In current study also breast cancer was the most common among total neoplasm of FRS, which comprised of 44.8%. The reason for more breast lesions in rural population is thought to be due to lack of knowledge about consequences of breast lump and also patients are shy to show their breast lump to doctor, unless it is very painful or ulcerated. Also, in early stages they go to “Hakims” and come to hospital only in late stage. To improve this situation they suggest establishment of special breast clinics in hospitals. Such clinics should also be involved in the early detection programs through newspaper or electronic media and also, educate women in regular self-examination of the breast, as more than 80% of breast cancers are discovered as a lump found by the patient herself [8].

The most common benign tumor seen in present study was fibroadenoma of breast which comprised of 30.4% of the total neoplasm of FRS and 67.85% of the total neoplasm occurring in breast. This was in accordance with other studies in literature [9,10]. Six cases were seen as the benign phyllodes tumor of breast, two cases of duct papilloma, 2 cases of apocrine adenoma and two cases was seen as the lactational adenoma of breast. This is also a benign tumor of breast which shows proliferation of tubules with prominent secretary changes in lactating women.

The second commonest benign tumor occurring in the FRS was leiomyoma, which accounted for 29.06% of the total neoplasms. The most common site of occurrence was the uterine body (106 cases) and three was seen in the cervix. Leiomyoma are benign neoplasm composed of smooth muscle with variable amount of connective tissue. It is commonly seen in the women of reproductive age [11-14]. Most of the studies showed leiomyoma as the most common presentation [15-17]. The incidence of adenomyosis and endometrial polyp of uterine body was found to be 0.8% (3 cases) and 1.06% (4 cases) respectively, this incidence was very less than incidence found in previous studies [18-20]. Papillary squamous cell carcinoma of the cervix is a rare and distinct form of cervical carcinoma [21] while cervical polyps are benign growths protruding from the inner surface of the cervix [22]. In current study, 4 cases were observed with papillary cervix and 3 cases with cervical polyps.

Serous cystadenoma was the commonest benign neoplasm of ovary in our study which comprised of 28.81% (17 cases) of the total neoplasm occurring in ovary followed by mucinous cystadenoma 22.03% (13 cases) and Teratoma 16.94% (10 cases). Our findings were correlated with the study done by Thakkar *et al* [23], in which they reported very high incidence of these lesions compared to our study. Studies done among Malaysian women also showed that mature cystic teratoma was the commonest benign tumor of ovary [24]. The serous cystadenoma and mucinous cystadenoma tumors (surface epithelial tumor) were cystic in nature. On gross examination, serous neoplasm show uniloculated cyst filled with serous fluid and mucinous neoplasms showed multiloculated cysts filled with gelatinous material. Microscopically serous

cystadenoma showed cysts lined by single layer of ciliated columnar epithelial cells and mucinous cystadenoma reveal cysts lined by tall columnar epithelial cells with presence of apical mucin. None of these tumors reveal nuclear atypia and any other features suggestive of malignancy.

The commonest malignant tumor in current study was infiltrating duct carcinoma of breast comprising of (34 cases) 9.06% of the total tumor followed by squamous cell carcinoma of cervix which accounted for 3.46% of the total neoplasms. This finding was correlated well with the study done by Singh *et al* [4]. Next common malignant tumor occurring in the FRS was adenocarcinoma, which accounted for 2.93% (11 cases) of the total neoplasms. The most common site of occurrence was the uterine body (7 cases) and four was seen in the cervix.

5. Conclusion

In present series various neoplasms of different parts/organs of the female reproductive system were studied, among these various neoplasms fibroadenomas of breast was the most common benign tumor and infiltrating duct carcinoma of breast was the commonest malignant neoplasm. Thus, breasts are commonest sites for neoplstic lesions in our study. Leiomyoma and adenomyosis remain the leading cause of morbidity in uterus among rural population of Maharashtra. A lesion of ovary is equally important and should undergo histopathological evaluation. Frequency of malignant lesions is low in rural population. The study suggested that histopathology is mandatory for confirmed diagnosis and hence for ensuring optimal management.

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