**Histopathological spectrum of neoplastic tumours of female reproductive system – A two year study in a rural tertiary care centre in India**

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**Abstract**

**Aim:** This study summarises the frequency of occurrence of various neoplastic lesions (benign and malignant) of the female reproductive system which includes uterus, cervix, ovaries, vagina, vulva and breasts in a rural tertiary care centre in a period of two years.

**Materials and Methods:** This is a retrospective study carried out in TSM medical college, Lucknow. Two hundred and twenty three formalin fixed surgical specimens of female reproductive system from Sep 2016 to Sep 2018 were subjected for histopathological examination under light microscopy. All neoplastic lesions were included and non-neoplastic lesions were excluded from the study.

**Result:** A total of 223 cases representing various neoplastic lesions of female reproductive system were studied. Out of which 186 were benign and 37 were malignant. Among total neoplasms 71 cases were from breast, 12 cases were from cervix, 102 were from uterus, 37 cases were from ovaries and 1 case from vulva. Out of benign, majority were from uterus 98 cases (all leiomyomas). Out of malignant, maximum cases were of Infiltrating Ductal Carcinoma breast (10 cases) followed by cervical cancer (8 cases) and then carcinoma ovary (5 cases) followed by carcinoma endometrium (4 cases).

**Conclusion:** Benign tumour, leiomyoma is the commonest neoplasm in female reproductive system. Infiltrating ductal carcinoma breast is the commonest malignant tumour followed by cervical carcinoma.

**Keywords:** Benign tumour, Leiomyoma, Malignant tumour, Infiltrating ductal carcinoma breast.

**Introduction**

Female reproductive system includes uterus, cervix, ovaries, fallopian tube, vagina, vulva and breasts. Breast cancer and cervical cancers are the two commonly occurring cancers in women.¹ On a global basis out of the first eight ranking cancers in females, the cancers of the female reproductive system ranks as follows⁻¹⁻¹¹ breast, ²ⁿᵈ cervix, ₃ʳᵈ body of uterus.² Cervical cancers were the commonest female genital tract malignancy followed by ovarian cancers and endometrial cancers.³

The present study is done to know the frequency of occurrence of various benign and malignant neoplastic tumours of the female reproductive system and also their changing trends in their frequency in that region.

**Materials and Methods**

A total of 223 cases of neoplastic lesions of female reproductive system which came to the histopathology lab from Sep 2016 to Sep 2018 were retrieved and reviewed. These cases included specimens of mastectomy, lumpectomy, hysterectomy, cervical biopsies and cystectomy. These specimens were previously fixed in 10% formalin, embedded in paraffin, sectioned and stained with H & E stains. Clinical information and presentation of the tumours, age of the patients and site of the tumours were noted from the requisition forms.

**Results**

During the two years period from sep 2016 to sep 2018, a total of 223 cases representing various neoplastic lesions of female reproductive system were studied. 152 cases were from female genital tract and 71 cases were from breast.

Overall 186 were benign and 37 were malignant. Among total neoplasms 71 cases were from breast, 12 cases were from cervix, 102 were from uterus, 37 cases were from ovaries and 1 case from vulva as shown in table 1. Out of benign, majority were from uterus 98 cases (all leiomyomas). Out of malignant, maximum cases were of Infiltrating Ductal Carcinoma breast (10 cases) followed by cervical cancer (8 cases) and then ovary (5 cases) followed by endometrium (4 cases).

**Table 1:** Shows the distribution of the neoplasms of female reproductive system in various organs:

<table>
<thead>
<tr>
<th>Organs</th>
<th>Benign Cases</th>
<th>Malignant Cases</th>
<th>Total Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREAST</td>
<td>55</td>
<td>16</td>
<td>71</td>
</tr>
<tr>
<td>CERVIX</td>
<td>01</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>UTERUS</td>
<td>98</td>
<td>04</td>
<td>102</td>
</tr>
<tr>
<td>OVARY</td>
<td>32</td>
<td>05</td>
<td>37</td>
</tr>
<tr>
<td>VULVA</td>
<td>-</td>
<td>01</td>
<td>01</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>37</td>
<td>223</td>
</tr>
</tbody>
</table>

Most commonly involved organ in Female reproductive system was uterus (102 cases) with maximum number of benign neoplasms (98). Followed by breast (71 cases) with maximum number of malignant neoplasm (16 cases).
Both benign and malignant tumours were common in ages 41-50 years as shown in table 2.

Table 2: shows the Agewise distribution of benign and malignant tumours of female reproductive system:

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Benign</th>
<th>Malignant</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-20</td>
<td>22</td>
<td>01</td>
</tr>
<tr>
<td>21-30</td>
<td>34</td>
<td>02</td>
</tr>
<tr>
<td>31-40</td>
<td>55</td>
<td>08</td>
</tr>
<tr>
<td>41-50</td>
<td>62</td>
<td>14</td>
</tr>
<tr>
<td>51-60</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>61-70</td>
<td>03</td>
<td>02</td>
</tr>
</tbody>
</table>

Maximum number of ovarian neoplasms were surface epithelial tumors and among that serous cystadenoma were the commonest (15 cases) as shown in table 6.

Discussion
Female reproductive system includes ovaries, fallopian tubes, uterus, cervix, vagina, vulva and breasts while female genital tract excludes breasts. Common sites for the occurrence of tumors are breast, ovaries, cervix and endometrium. Regular screenings, self examinations, patient awareness of family history and life style changes results in the decline of many types of these malignances.5

Breast cancer is the most common non-skin malignancy in women. In their study by Khandekar s et al in 2018 they found that most common among total neoplasms was breast cancers which comprised 44.8%. In our study also breast carcinoma formed the majority of all the neoplasms of female reproductive system (43.2%)

The commonest malignancy in female reproductive system was infiltrating ducal carcinoma in our study followed by carcinoma cervix. Similar to a study by Vani Dayanand et al in 2015. In females cancer breast (21.3%), cancer cervix(19.9%), ovary (6.3%) gall bladder (5.83%) and esophagus (2.83%) were the five leading sites.7

In our study squamous cell carcinoma was the most common invasive malignancy of the cervix and vulva while adenocarcinoma was most frequent in uterus and mucinous cystadenocarcinoma in ovary was the dominant malignancy. Similarly in a study done by Nasreen F, squamous cell carcinoma was the most common invasive malignancy of cervix and vulva while adenocarcinoma most common uterine malignancy.8

In a study done by Kyari et al in 2004 cancers of uterine cervix accounted for majority of all the female genital tract malignancies followed by ovarian cancers and uterine cancers.9 similar to our study.
Malignant lesions of the breast occurs mostly between 30-40 years and 50-60 years in our study similar to a study done by Kiran HS et al who also found peak ages of malignant lesions between 30-50 years.\textsuperscript{10}

Malignant tumors of cervix and the uterus occurs most commonly in the fifth decade of life and ovarian cancers in fourth decades in a study done by Mohammed A et al in 2006.\textsuperscript{11} In our study also carcinoma cervix and endometrial carcinoma were mostly seen in the ages 40-49 y and 50-59 y respectively.

Among the female genital tract malignancies ovarian cancers constituted 20.6% next to the cancer of the cervix (61.2%) noted in a study by Agrawal P et al in 2015.\textsuperscript{12} In our study ovarian cancers constituted 23.8% next to the cancer cervix (52.3%) of all female genital tract malignancies. In a study done by Jeph et al in 2017, 67.2% Cases were of cervical cancers.\textsuperscript{13}

Incidence of endometrial carcinoma in our study was 4/223 cases (1.8%). Similarly in a study done by Dalsanya et al in 2015, endometrial carcinoma was noted in 5/565 cases (0.88%).\textsuperscript{14}

Squamous cell carcinoma was the commonest histologic type in cervical, vaginal and vulval cancers whereas serous adenocarcinomas and endometrioid adenocarcinoma was commonest histological types in ovary and endometrium respectively.\textsuperscript{15} Similarly in our study also commonest malignancy in female genital tract was squamous cell carcinoma in cervix, mucinous adenocarcinoma in ovary and villoglandular adenocarcinoma in endometrium.

**Conclusion**
Among the various neoplasms of female reproductive system, leiomyoma of the uterus was the commonest benign tumour. Overall, infiltrating ductal carcinoma of breast was the commonest malignant tumours in female reproductive system followed by carcinoma cervix. And among all female genital tract malignancies carcinoma cervix was the commonest.
Fig. 5: Mucinous cystadenocarcinoma of Ovary (H & E 20X)

Conflict of Interest: None.

References

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