

## Original Research Article

# Prevalence of female reproductive tract cancer in a teaching hospital of Rohtas District, Bihar, India

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### ABSTRACT

**Background:** The organs of female reproductive tract are involved by various ailments up to malignancy and different types of malignancy involve these organs causing unbearable symptoms to the patient and harassment to the affected family. However, the incidence varies, and cervical carcinoma is more common in Asian countries even after use of screening tests in specialized hospitals. The study was undertaken to assess the prevalence of malignancy of these organs among females in this location of Rohtas district of Bihar.

**Methods:** A study of female reproductive system was done retrospectively for a period of 3 years and the suspected 1409 patients underwent operative procedures and tissues were microscopically examined of haematoxylin and eosin stained slides by conventional methods.

**Results:** Of the 58 malignant cases of female reproductive organs, cervical carcinoma emerged as the commonest with 56.9%, followed by endometrial carcinoma (22.4%), and ovarian cancers (15.5%). The vaginal and vulval cancers were found to be the lowest with 3.4% and 1.7% cases respectively.

**Conclusions:** The squamous cell carcinoma (67%) was the commonest malignancy of cervical cancers whereas adenocarcinoma (85%) was the most common involvement of endometrial carcinoma histologically diagnosed.

**Keywords:** Cervical carcinoma, Endometrial carcinoma, Female reproductive tumors, Ovarian cancers, Vaginal cancers

### INTRODUCTION

The various types of lesion of female reproductive tract vary depending upon factors like age, parity, socio-physical activities, hormonal status and geographical location. Some of these factors are more significant in underdeveloped parts of globe. Inflammatory conditions are by far the most common, but dependable no. of glandular hyperplasia is also seen in endometrium. Benign lesions particularly affecting ovaries in the form of cysts, and intraepithelial neoplasia are also very common.<sup>1</sup> Malignant tumors of cervix and endometrium are the commonest lesions among female reproductive organs. The incidence of endometrial carcinoma is more

common in western world and cervical carcinoma is most frequent in Latin America and Asian countries. In different parts of India and adjacent countries, studies related to female genital organs were attempted and almost all of them concluded with cervical carcinoma as the commonest malignant neoplasm.<sup>2,3</sup> In some patients, multiple organs are involved simultaneously causing unbearable symptoms. Late presentations of cases are also a considerable problem due to lower literacy rate, shyness and social stigma among females especially rural ones. In combating the incidence, the role of preventive measures is immense. In the developing world, health education to females is indispensable to overcome it.<sup>4</sup> Clinical conditions like obesity and hyperglycemia favor

risk of cancer development and mortality is increased in cancer patients.<sup>5</sup> The gynecology cases are reported and managed in the teaching hospital.

The present study was undertaken for the first time to know the prevalence of malignancy of these organs in this location of Rohtas district of Bihar.

**METHODS**

**Study period**

The present study was a teaching hospital based retrospective study for a period of three years from January 2014 to December 2016 conducted in the Department of Pathology of Narayan Medical College & Hospital, Sasaram.

**Inclusion criteria**

All female reproductive tract surgery specimens received for diagnosis on histopathology and out of these confirmed malignant cases were included in this study.

**Exclusion criteria**

- All medically treated cases.
- The reproductive tract surgical patients in whom benign, carcinoma-in-situ or intraepithelial neoplasia cause was established,
- The borderline cases which were anyhow confusing and unconfirmed.
- The breast lesions were completely excluded from study.

**Study population**

The female patients consulting Gynecology outpatient department and indoor admitted cases which underwent clinical examination, symptoms and signs were noted, After proper and required investigations like cervical smear examination, ultrasound and CT scan as and when required, surgical interventions were done in total 1409 cases and to confirm the diagnosis, the tissues were sent in 10% formalin for histopathology study in the Department of Pathology of Narayan Medical College & Hospital, Sasaram. Grossing of tissues with detailed examinations according to standard protocol were performed. The tissues were properly fixed for 24 hours, processed and slides of sections of paraffin embedded blocks stained with haematoxylin and eosin by conventional methods were studied. Data like age, parity, gynecologic, personal and family history and geographical location were recorded.

All these slides were reviewed and diagnosis was done in consultation with senior Pathologist. Finally, 58 malignant cases were confirmed. The data of these were analyzed on the basis of age, commonest clinical

presentation, location of involved organ and histological diagnosis. According to WHO classification diagnosis of different organs were established. With the help of tables/charts and photographic document and data expressed in this study. The statistical data of variables were analyzed on the basis of t-test. Values of  $p > 0.05$  were considered significant.

**RESULTS**

During this period in this teaching hospital, 1409 cases of gynecology histopathology were recorded and finally 58 malignant cases detected in this retrospective study. The age range of the patients was ascertained 22-89 years. The highest no. of malignant cases was found between 30-50 years.

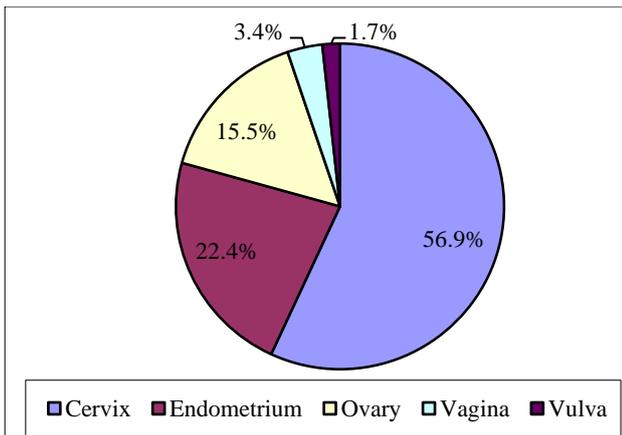
The malignant tumors were uncommon below the age of 30 years except a few cases of ovarian cancer. The distribution of cases below and above 30 years is shown in Table 1. The overall involvement of organs is depicted in Figure 1 and the histological diagnosis of different organs is shown in Table 2.

**Table 1: Showing distribution of cases above and below 30 years.**

Organs involved	Age <30 years	Age >30 years	Total
Cervix	1	32	33
Endometrium	0	13	13
Ovary	3	6	09
Vagina	0	2	02
Vulva	0	1	01
Total	4	54	58

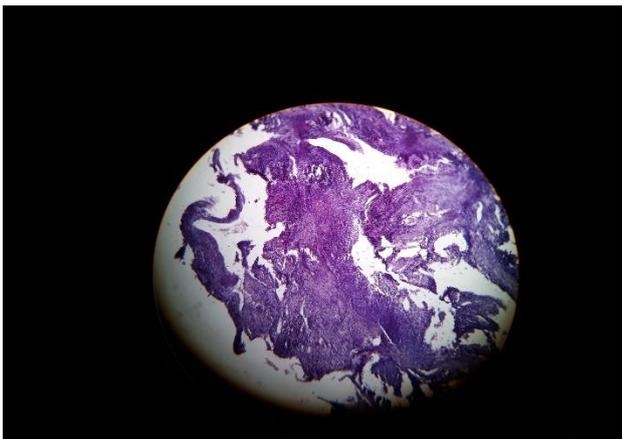
**Table 2: Distribution of histological type of malignancy in different organs.**

Organs/histological type	No. of cases
<b>Cervix</b>	33
Squamous cell carcinoma	22
Papillary variant	6
Adenocarcinoma	3
Adenosquamous carcinoma	2
<b>Endometrium</b>	13
Adenocarcinoma	11
Squamous cell carcinoma	2
<b>Ovary</b>	9
Serous cystadenocarcinoma	5
Mucinous cystadenocarcinoma	1
Granulosa cell tumor	1
Krukenberg's tumor	2
<b>Vagina</b>	2
Squamous cell carcinoma	2
<b>Vulva</b>	1
Basal cell carcinoma	1



**Figure 1: Prevalence of malignant tumors of different organs of female reproductive tract.**

Cervix emerged as the most common organ (56.9%) to be involved by malignant tumors in this study. Most of them 66.6% were of squamous cell carcinoma. This includes seven cases of poorly differentiated type and moderately differentiated was also detected in the same no. of cases. Papillary variant was detected in 18.2% including one case of papillary squamotransitional carcinoma in a 69-year patient with papillary architecture consisting of multilayered and atypically lined fibrovascular core invading stroma (Figure 2). Adenocarcinoma was detected in three cases including one case of papillary villoglandular adenocarcinoma. The cases were in the range of 29-75 years with 49.5 year as the average age of presentation and highest no. of cases were equally distributed in 30-40 and >40-50 years age. The majority of them were multiparous and clinically presented with pain and discharge of blood. Three cases were found to be taking oral contraceptive pills.



**Figure 2: Fibrovascular core and papillary structures lined by mixed squamous and transitional epithelial cells. Atypical mitosis and stromal invasion present in cervical tissue (H and E, 100x).**

The endometrium was the second involvement in this study (22.4%) in the range of 30-89 years with mean age

of presentation 59.4 year indicating a relatively higher age group involvement in comparison to cervical cancer. Most of them were of adenocarcinoma (84.6%). Two cases of poorly differentiated squamous cell carcinoma were ascertained respectively in 35- and 40-year aged patients. In three cases (23%) polypoidal masses were found. All the malignant endometrial cases were involving above 30 years. The commonest presentation was found to be vaginal bleeding and leukorrhoea. One case of recurrence was ascertained with a history of surgical management 3½ years back.

There were 15.5% cases of ovarian malignancy in the series. The age range was 22-50 years with 37.7 year as the mean age of presentation pointing a relatively younger age group involvement. Epithelial carcinoma was diagnosed microscopically in most of the cases. Lower abdominal discomfort and change in bowel habits were ascertained as chief complaints in almost all cases. No case of recurrence of ovarian malignancy was found in this study. One patient used to take oral contraceptive pills for the last five years. Two cases of Krukenberg's tumor were detected which included one case involving ovary bilaterally with presence of signet ring cells. One case of poorly differentiated mucinous papillary adenocarcinoma metastasizing to mesentery/omentum was diagnosed. Serous cystadenocarcinomas were diagnosed in five cases including a case of synchronous lesion of endometrial intraepithelial carcinoma, and one case of poorly differentiated granulosa cell tumor was verified.

Two cases of vaginal carcinoma in the patients of 62- and 66-years age were detected in this study. Squamous cell carcinoma was diagnosed in both the cases including one of moderately differentiated type. They had complaints of frequent micturition and vaginal bleeding as the commonest clinical features.

Only one case of vulval involvement was ascertained in a 57-year female with clinical history of pruritus vulva. This was diagnosed a case of basal cell carcinoma microscopically.

Malignancy of fallopian tube was not detected in any case in this study. No case of radiation exposure was ascertained. The t-test was significant at level of 0.05 among the age groups ( $t = 2.94735$ ,  $p = 0.0185$ ), average age of presentation of different lesions ( $t = 11.7603$ ,  $p = 0.001$ ) and different malignancy of organs ( $t = 2.73029$ ,  $p = 0.01957$ ).

## DISCUSSION

The females constitute almost half of general population and analysis of cancer pattern in their reproductive organs was conducted to make gynecologists familiar with prevalence and preventive as well as treatment measures be tightened up. The most common age group recorded in this series resemble with findings (40-60 years) of Gaur

et al, whereas Dhakal and Pradhan also recorded highest no. of cases in the same age group.<sup>6,3</sup>

Cervical carcinoma emerged as the commonest malignant tumor in this study. In a study it was recorded up to 72.2%.<sup>2</sup> The variation may be due to relatively smaller no. of cases in this series. Cervical cancer was determined most frequent tumor among females in literatures on cancer pattern in other parts of India and adjacent country.<sup>7,8</sup> Most of the cases were histologically confirmed as squamous cell carcinoma. This was determined in almost all cases in other studies.<sup>2,3</sup> Average age of presentation was alike determination of Pradhan et al (50.10m).<sup>9</sup> Most common age range in this study was similar to the findings of other studies (40-59 years).<sup>3,7</sup> A rare case of papillary squamotransitional cell carcinoma was diagnosed in an old patient as was detected in another study.<sup>10</sup> Vaginal bleeding was ascertained in near about three-fourth cases and 63% had complaints of fluid discharge. Vaginal bleeding was ascertained 64-84% in other studies.<sup>11,12</sup> Incidence of cervical carcinoma is more common in developing countries and almost half of cervical carcinoma cases were presented in advanced stage of disease in the form of poorly and moderately differentiated types in this analysis. However, prevention and consequently survival is better for cervical carcinoma due to early detection by cytology smear screening test which play important role in comparison to other reproductive organs of female.<sup>13</sup>

The involvement of endometrium was next to cervix diagnosed in this study. This constituted as low as 4.3% and 1.9% in other studies, and adenocarcinoma was found to be the most common malignant tumor.<sup>7,9</sup> Polypoid lesions were found in approximately one-fourth cases, and in one case poorly differentiated type of squamous cell carcinoma was determined. Malignant polyps were reported in almost one-third cases in a study of Farrell et al, endometrial carcinoma is most frequent malignant tumor of female reproductive organs in western countries.<sup>14,15</sup>

The ovarian malignant tumors were ascertained in relatively younger age group. The average age was recorded 44 years in a study.<sup>9</sup> Surface epithelial tumors are the most common involvement as was evident in this series also. One case of Krukenberg's tumor was surprisingly detected involving ovaries bilaterally. The clinical features of metastatic tumors of nongenital primary tumors are usually more marked compared to malignant tumors of genital origin.<sup>16</sup> Sometimes, synchronous lesions are also detected as was seen of endometrial intraepithelial carcinoma in a case of our study. Involvement of ovary and endometrium is the commonest.<sup>17</sup> Occasionally, uterine tube and endocervix are also involved. Ovarian cancer has worst prognosis of all cancers of female reproductive organs, however, some studies have reported use of oral contraceptive pills reduce its incidence.<sup>18</sup>

The vaginal carcinoma is usually rare and this comprised of two cases in the present study. All these cases were found histologically of non-keratinizing squamous cell carcinoma. Irregular vaginal bleeding is the prominent feature with two peak incidence in extreme age groups.<sup>19</sup> Some studies showed up to 3.7% vaginal cancers.<sup>9</sup> Vulvar carcinoma is a disease commonly of older age and this was seen in only one case in this study. Being the outermost part of genital system, pruritus is the commonest complication.<sup>20</sup> This is such a type of tumor which has high recurrence rate as was ascertained in some studies.<sup>21</sup>

## CONCLUSION

The retrospective study of female reproductive organs in this teaching hospital revealed squamous cell carcinoma as the commonest malignancy of cervix which requires mass female education to present at an early stage and massive cytological screening tests from around 30 years of age covering rural females especially so that measures of prevention can be discharged judiciously and promptly.

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