



## CHANGING TRENDS IN THE PROFILE OF FEMALE GENITAL TRACT MALIGNANCIES: A DECADE WISE COMPARATIVE ANALYSIS IN A TERTIARY GYNAECOLOGICAL CENTRE

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### ABSTRACT

**INTRODUCTION:** Gynaecological malignancies are among the most common malignancies in women and hence an important public health issue. They are among the leading causes of cancer deaths worldwide in women. The objective of this study is to analyze the changing trends in female genital tract malignancies in Institute of Obstetrics and Gynaecology, Chennai, over a period of three decades.

**MATERIALS AND METHOD:** In this retrospective, observational study data of all cancer patients registered at Department of Pathology, Institute of Obstetrics and Gynaecology, Chennai, for the years 1999, 2009 and 2019 have been included.

**RESULTS:** In the present study, out of 4918 gynaecological cases reported in 1999, 1102 cases were malignant. Out of 4104 cases reported in the year 2009, 994 cases were malignant. Out of 4029 cases reported in the year 2019, 532 were malignant. Squamous cell carcinoma of the cervix was the most common malignancy followed by carcinoma endometrium and carcinoma ovary in the above 3 study years.

**CONCLUSION:** There is a decrease in rate of female genital tract malignancies over the decades with a special mention of decreasing rates of carcinoma cervix over years. However, carcinoma cervix is being the most common female genital tract malignancies followed by carcinoma endometrium and carcinoma ovary respectively.

### KEYWORDS

Changing trends, Cancer cervix, 3 decades, Female genital tract malignancies.

### INTRODUCTION:

One of the common sites of tumour in females is the genital tract<sup>(1)</sup>. They are among the leading causes of cancer deaths worldwide<sup>(2)</sup>. The common sites of female genital tract malignancies are the cervix, the endometrium and the ovaries but their distribution varies worldwide<sup>(3)</sup>. Cervical and ovarian cancers are the most common gynaecological cancers in women in India<sup>(4)</sup>. Lately due to advanced screening and proper treatment modalities in developing countries, there has been a drastic fall in the incidence and mortality associated with cervical cancer<sup>(5)</sup>.

The aim of this present study is to reveal the changing trends in female genital tract malignancies over decades in a tertiary gynaecological centre.

### MATERIALS AND METHODS:

The present study was conducted at Department of Pathology, IOG, Chennai. Total 1102 cases of female genital tract malignancies received in the year 1999 (Group 1) were studied and the results were compared to 994 female genital tract malignancies received in the year 2009 (Group 2) and 532 female genital tract malignancies received in the year 2019 (Group 3).

WHO classification of histopathological typing of tumours was used. Data was sorted for the site of the lesion and different histopathological diagnosis.

### RESULTS:

On analysing the data we realised that, carcinoma cervix was the most common malignancy in all the three groups, accounting for 95%, 90.74% and 71.85% in the years 1999, 2009 and 2019 respectively.

In all the three groups, endometrial carcinoma was the second most common malignancy, accounting for 1.18%, 3.52% and 12.6% in the years 1999, 2009 and 2019 respectively.

Even-though carcinoma cervix is the first most common malignancy in all the three groups, it shows a declining trend over decades, while endometrial and ovarian carcinomas show an increasing trend. Squamous cell carcinoma is the most common type of cervical carcinoma.

**Table 1: Total Female Genital Tract Malignancies And Percentage**

| YEAR | TOTAL GYNAECOLOGICAL CASES REPORTED | FEMALE GENITAL TRACT MALIGNANCIES | PERCENTAGE (%) |
|------|-------------------------------------|-----------------------------------|----------------|
| 1999 | 4918                                | 1103                              | 22.4           |
| 2009 | 4104                                | 994                               | 24.2           |
| 2019 | 4029                                | 532                               | 13.2           |

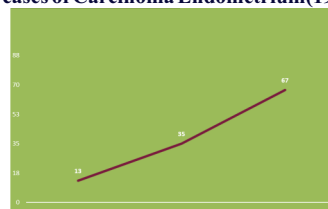
**Table 2: Site Wise Distribution Of Malignant Tumours Of Fgt**

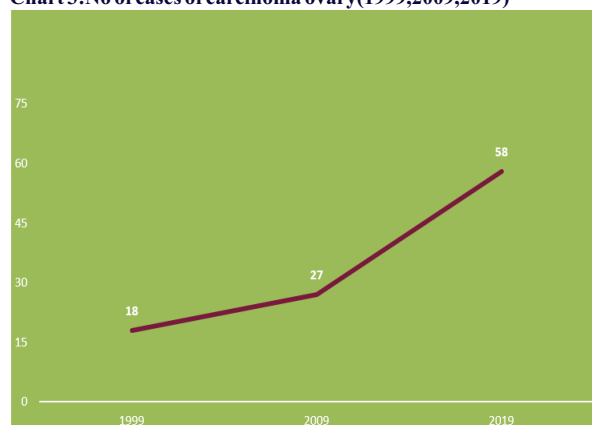
| Site of tumour | No of cases: group 1 (year 1999) | No of cases: group 2 (year 2009) | No of cases: Group 3 (year 2019) |
|----------------|----------------------------------|----------------------------------|----------------------------------|
| Cervix         | 1047                             | 902                              | 388                              |
| Endometrium    | 13                               | 35                               | 67                               |
| Ovary          | 18                               | 27                               | 58                               |
| Vulva          | 10                               | 9                                | 13                               |
| Vagina         | 3                                | 4                                | 2                                |
| Vault          | 10                               | 17                               | 4                                |
| GTN            | 2                                | -                                | 1                                |
| Total          | 1103                             | 994                              | 532                              |

**Chart 1: No of cases of carcinoma cervix (1999, 2009, 2019)**

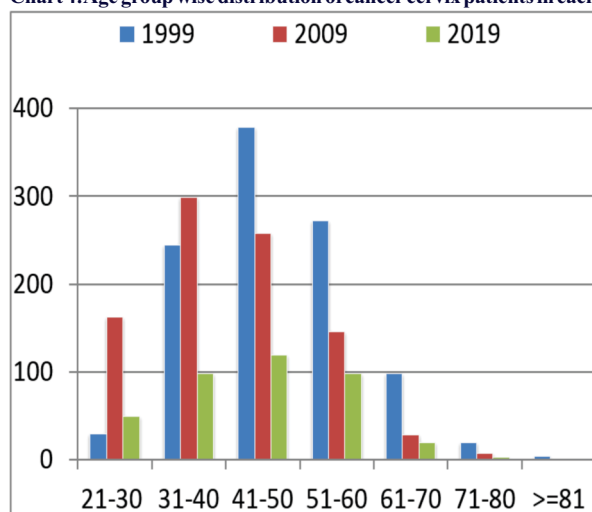


**Chart 2: No of cases of Carcinoma Endometrium (1999, 2009, 2019)**



**Chart 3: No of cases of carcinoma ovary (1999, 2009, 2019)****Table 3: Age group wise distribution of cancer cervix patient in each study year**

| Age(years) | 1999 | 2009 | 2019 |
|------------|------|------|------|
| 11-20      | -    | -    | -    |
| 21-30      | 30   | 162  | 50   |
| 31-40      | 245  | 299  | 98   |
| 41-50      | 378  | 258  | 119  |
| 51-60      | 272  | 146  | 98   |
| 61-70      | 98   | 29   | 20   |
| 71-80      | 20   | 8    | 3    |
| >=81       | 4    | -    | -    |
| Total      | 1047 | 902  | 388  |

**Chart 4: Age group wise distribution of cancer cervix patients in each****Table :4 Distribution Of Malignancies Of Fgt For The Year 1999(group 1), 2009(group 2), 2019(group 3)**

| Site   | Histopathological typing             | No of cases: 1999 | No of cases: 2009 | No of cases: 2019 |
|--------|--------------------------------------|-------------------|-------------------|-------------------|
| Cervix | -Squamous cell carcinoma             | 1027              | 851               | 308               |
|        | -Adenocarcinoma                      | 18                | 25                | 20                |
|        | -Clear cell carcinoma                | -                 | 6                 | 2                 |
|        | -Malignant mixed mullerian tumor     | -                 | 1                 | 1                 |
|        | -Cervical intraepithelial neoplasia  | 17                | 91                | 97                |
|        | -Anaplastic carcinoma                | -                 | 11                | 4                 |
|        | -Adenosquamous carcinoma             | 1                 | 4                 | 4                 |
|        | -undifferentiated carcinoma          | 1                 | 1                 | -                 |
|        | -surface epithelial tumors:malignant | 13                | 18                | 24                |
| Ovary  | -germ cell tumours                   | 4                 | 5                 | 26                |
|        | -sex cord stromal tumours            | -                 | 3                 | 5                 |
|        | -metastasis                          | 1                 | 1                 | 3                 |
|        |                                      |                   |                   |                   |

|             |                                 |    |    |    |
|-------------|---------------------------------|----|----|----|
| Endometrium | -Type 1                         | 3  | 26 | 52 |
|             | -Type 2 Papillary               | 4  | 1  | 2  |
|             | Clear cell                      | -  | 1  | 2  |
|             | Mucinous                        | -  | -  | 1  |
|             | Endometrial stromal sarcoma     | -  | 3  | 3  |
|             | Leiomyosarcoma                  | 1  | 2  | 1  |
|             | Malignant mixed mullerian tumor | 1  | 1  | 5  |
|             | Mullerian adenosarcoma          | -  | 1  | 1  |
|             | Choriocarcinoma                 | 1  | -  | -  |
|             | Squamous cell carcinoma         | 1  | -  | -  |
|             | Poorly differentiated carcinoma | 2  | -  | -  |
| Vulva       | Carcinoma in situ               | 1  | -  | -  |
|             | Squamous cell carcinoma         | 9  | 6  | 10 |
|             | Adenocarcinoma                  | -  | 1  | -  |
|             | Others: Granulocytic sarcoma    | -  | 1  | -  |
|             | Anaplastic carcinoma            | -  | -  | 2  |
|             | Malignant melanoma              | -  | 1  | 1  |
| Vault       | Carcinoma in situ               | -  | -  | 1  |
|             | Squamous cell carcinoma         | 10 | 16 | 3  |
|             | Adenocarcinoma                  | -  | 1  | -  |
| Vagina      | Squamous cell carcinoma         | 3  | 4  | 2  |

**DISCUSSION:**

In India, female genital tract malignancies contribute to a significant proportion of total cancer patients<sup>(5)</sup>. The commonest malignant tumor in female population is found in the genital tract, the cervix. But it remains the second most common cancer in females next only to carcinoma Breast<sup>(5)</sup>.

One of the indicator of health inequities is mortality due to cervical cancer, as 86% of all deaths due to cervical cancer are in developing , low and middle income countries. Most of the patients presenting to the tertiary care centre belong to rural areas ,as these women were unaware of the signs and symptoms of genital Cancers and thus there was a delay in seeking treatment<sup>(6,9)</sup>.

HPV infection is associated with high risk of developing carcinoma cervix. A study conducted in Maharashtra, India reported that high-risk HPV was associated with increasing age, low education level, labour class, early age at first sexual intercourse, multiple sexual partners and co infection with HIV<sup>(10-11)</sup>.

Some Indian studies Came out with the fact that socioeconomic status, education and cultural beliefs were the variables which influenced women from reaching health care facilities<sup>(12)</sup>

According to our study, cervical carcinoma was the commonest malignancy in all the three groups. There were 1047 cases(95%) in the year 1999, 902 cases(90.74%) in 2009 and 388 cases(72.93%) in the year 2019. Most common type of cervical cancer was squamous cell carcinoma in all the three groups. The most common age group affected in all the three years are between 35-45 years. Our study shows a significant decrease in carcinoma cervix by 28% over a period of three decades.

Similar trends were reported by the Bangalore registry, India, the age-adjusted rate fell from 32.4 in 1982 to 18.7 in 2009, in Chennai from 41 to 16.7 in 2009, and in Thiruvananthapuram from 9.2 in 2005 to 7.7 in 2011<sup>(13)</sup>. This is mainly attributed to increasing health education for genital hygiene and intense screening programs(PAP smear)

Rajendra A Badwe et al(2014) reported similar trends. The rate of cervical cancer is uniformly decreasing in urban and rural registries<sup>(13)</sup>. Balasubramaniam G and others (2013) found that endometrial cancer is common in western women. In India the rates are much less compared to western countries<sup>(14)</sup>.

In our study endometrial carcinoma was the second most common female genital tract malignancy in all three groups. There were 13 cases(1.18%) in the year 1999, 35 cases (3.25%) in the year 2009 and 67 cases (12.59%) in the year 2019. There is a significant increase in the rate of endometrial carcinoma by 47% over three decades.

Takiar et al reported that cancer corpus uteri as the new emerging site for cancer in many cities of India<sup>(15)</sup>. Studies indicate that both exogenous and endogenous estrogens play a major role in endometrial carcinoma<sup>(16)</sup>. Increased or prolonged exposure to estrogen either because of early menarche, late menopause, nulliparity, anovulation, obesity or estrogen producing neoplasm keeps a women at increased risk of endometrial cancer. Low parity, use of combined oral contraceptive pills, lactation, diet low in fat and increased physical activity decreases the risk of endometrial carcinoma<sup>(17)</sup>.

Ovarian cancer is the sixth most common cancer and seventh most common leading cause of cancer deaths among women world wide<sup>(18)</sup>. The risk factors for ovarian cancer might be related to nulliparity and a shift towards increased westernization of dietary patterns such as increased fat intake. Furthermore, earliest age at menarche and late menopause might also increase the risk of ovarian carcinoma by increasing the number of ovulations<sup>(19-20)</sup>.

According to our study there is an increase in incidence of ovarian cancer over decades. There were 18 cases(91.63%) reported in 1999, 27 cases(2.71%) reported in 2009 and 58 cases(10.90%) reported in 2019.

The frequency of vulval, vaginal and vault carcinoma showed no significant change in all three study years. Squamous cell carcinoma was the most common histopathological type.

### CONCLUSION:

Carcinoma cervix is the most common female genital tract malignancy followed by endometrial and ovarian cancers in the study period. The most significant changing trend in our study is that the frequency of cervical cancer decreased by 28% over three decades. Endometrial and ovarian cancers are on the rise. Malignancies from other sites of female genital tract showed no significant change. Pattern and type of common cancers remained unchanged.

### LIMITATIONS:

The data presented in this study does not accurately represent the community prevalence rates as it is only a tertiary gynaecological centre based data.

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