

Histopathological Spectrum of Female Genital Tract Malignant Tumors

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Abstract

Background: Female genital tract diseases, which include pregnancy difficulties, inflammations, malignancies, and hormonally driven consequences, are particularly prevalent in clinical and pathological practice. Lesions of the female genital tract are among the most prevalent illnesses for which women seek medical attention, and they are also highly related with gynecological and reproductive morbidity. For successful and comprehensive treatment to be implemented and to stop future lifetime consequences, early and accurate diagnosis of female genital tract lesions is crucial. In order to streamline efficient ways for its management and diagnostics, it is consequently desirable to investigate the range of lesions of the female genital tract. Lesions of the female genital tract (FGT) are among the most prevalent illnesses that lead women to seek medical attention, and they are also highly related with gynecological and reproductive morbidity. To simplify efficient approaches for its care and diagnosis, it is therefore desirable to research the range of lesions associated with FGT.

Aim: This study's objective is to assess the histological range of female malignancies with a view to comprehending the general patterns of this complicated illness.

Material and Method: The Department of Pathology conducted a retrospective and prospective investigation to identify the histological range of cancers in females. The information was gathered from all of the histopathology reports kept in the department's histological section. Each patient's location, age, parity, clinical symptoms, and histological type of female genital cancer were all recorded in the data. The samples were prepared by fixing them in 10% formalin, dehydrating them with progressively stronger alcohol, clearing them in xylene, and then embedding them in paraffin. Before the study began, an Institutional Ethics Committee Clearance (IECC) was attained.

Results: In our study, 100 cases of malignant tumors on females were examined. Most of the patients in the study were between the ages of 40 and 69; cases between the ages of 50 and 59 and cases between the ages of 40 and 49 were closely behind. The most frequent type of cervical cancer was squamous cell carcinoma, which accounted for instances. Adenocarcinoma, neuroendocrine carcinomas, and undifferentiated endocervical sarcoma were next in prevalence. Approximately 70% of initial ovarian cancers occurred in patients between the ages of 40 and 70. Surface epithelial tumors made up the bulk of ovarian malignancies, followed by germ cell tumors and sex cord-stromal cancers.

Conclusion: Our study includes details on the numerous histological forms of malignant tumors of the female genital tract that are common in our area. The reason why cancers occur so frequently is because healthcare services are inaccessible, there is a lack of awareness, and there are no good screening tools like the pap smear. The overall cancer prevalence is

impacted by the unreported cases. Synchronous gynecological cancers are rare clinical entities, but because of the earlier age of presentation, they raise serious concerns. Doctors must receive vigorous training in screening techniques, and the general public must also be made aware of them.

Keywords: Carcinoma, Genital Cancer, Genital Tract Malignancies, Ovarian Cancers And Benign Tumor.

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Introduction:

Worldwide, cancers are now the number one factor in female morbidity and mortality. About thirty years ago, the developed world had a higher incidence of cancer; today, the burden is disproportionately falling on the developing world. [1]

The uterus, cervix, ovaries, fallopian tube, vagina, vulva, and breasts are all parts of the female reproductive system. The two cancers that affect women most frequently are breast cancer and cervical cancer. [2] The female reproductive system malignancies rank first breast, second cervix, and eighth body of uterus globally out of the top eight cancers in females. [3] The most frequent cancer of the female genital tract was cervical cancer, which was followed by ovarian and endometrial cancers. [4] The female genital system exhibits morphological variety over the course of a lifetime. In Indian women, gynecological malignancies are the main cause of years lost. Due to racial, environmental, and geographic differences, female genital tract malignancies are distributed differently over the world. The most frequent genital cancer in women is endometrial cancer, followed by cervical cancer. The lower organization of health programs is the cause of the increased prevalence of cervical cancer. The high prevalence and death are further influenced by low socioeconomic position, illiteracy, HIV/AIDS, and the high prevalence of

HPV, as well as several cultural and religious variables. [5]

The female genital canal has a complicated anatomy. There are numerous structures and epithelial surfaces that make up the female genital tract (FGT). The mons pubis, labia majora, labia minora, Bartholin's gland, and clitoris are among the external genital organs. The genital tract is a passageway made up of the internal genital organs. [6] The fallopian tubes, ovaries, cervix, endometrium, uterus, and vagina make up this route. Different FGT neoplasms are distributed differently over the globe. Out of the top eight malignancies that affect women worldwide, the female reproductive system cancers are ranked as follows: first breast, second uterine cervix, seventh ovary, and eighth uterus body (third being colon/rectum, fourth stomach, fifth lung, and sixth oral three cavities). Nearly 80% of cervical cancer cases that are newly diagnosed take place in developing nations. [7] On the other hand, in the industrialized world, ovarian and endometrial cancers are the most common types of female genital tract malignancies. [8]

Approximately 0.3 million people die from cancer each year, making it the second most prevalent disease in India and the cause of the highest mortality. This is mostly because there aren't many preventive, diagnostic, and treatment options for this illness. According to studies, cancer prevalence differs not just

from nation to nation but also among various population segments within a single nation. As a result, many developing countries, including India, may not be accurately represented in global statistics. Therefore, in order for the healthcare system to operate more efficiently, it is essential to understand the epidemiology and demographics of cancer in a specific area. [9] Regional or institution-based studies have greater value in this context.

Instead of hereditary variations between populations, these global variances seem to be mostly caused by exogenous influences. Different lifestyles, as well as environmental, sociocultural, and economic reasons, are the main causes. However, because women are generally ignorant of the signs and symptoms linked to these tumors, many female reproductive system cancers continue to be silent killers. They typically don't seek medical care until they get larger or have reached a more advanced stage of the illness. [10]

Numerous studies have been conducted on astrology, prevention tactics, and ideal treatment. In order to prioritize different strategies linked to cancer prevention and treatment, it is crucial to develop a pattern of distribution and different presentations of female genital cancers.

Material and Methods

The Department of Pathology conducted a retrospective and prospective investigation to identify the histological range of cancers in females. The information was gathered from all of the histopathology reports kept in the department's histological section. Each patient's location, age, parity, clinical symptoms, and histological type of female genital cancer were all recorded in the data. The samples were prepared by fixing them in 10% formalin, dehydrating them with progressively stronger alcohol, clearing them in xylene, and then embedding them in paraffin. On a rotary microtome, 3-to-5-

micron thick sections were cut, dewaxed, and stained using the Bancroft and Gamble's hematoxylin and eosin technique (2002). [11] Before the study began, an Institutional Ethics Committee Clearance (IECC) was attained. The study included all female patients with lesions that were histopathologically determined to have malignancy; benign lesions were not included.

Specimen Preparation

Surgery operations such as mastectomy, excision biopsy, trust biopsy, pan hysterectomy, hysterectomy, cystectomy, and cervical biopsies produced a variety of surgical specimens. Ten percent formalin was used to fix the specimens. The pathologist performed the gross inspections of surgical specimens in the histopathology department. Sections from the representative locations were used. Blocks made of paraffin were ready. The slides were sliced, then mounted with styrene, a plasticizer, and xylene before being stained with hematoxylin and eosin stains (DPX). The investigation includes all histological tissues exhibiting neoplastic lesions.

To conduct a histological examination, tissue fragments from the representative area were removed, and paraffin blocks were created. Depending on the size and form of the tumors, different numbers of blocks were created. Hematoxylin and eosin staining was regularly used to routinely stain several sections that were 5 microns thick. The microanatomical details were examined and documented. Finally, wherever they were found, accompanying microscopic lesions in the endometrium, cervix, fallopian tubes, and ovaries were examined.

Over several years, the histological results of 100 female patients with malignant tumors were examined. Clinical information was recorded, including signs and symptoms, local and systemic exam results, radiographic findings, and

significant laboratory tests such tumor markers, if they were carried out. Where available, immunohistochemical reports and any further test results were examined and noted. For HPE, samples were submitted to the Department of Pathology, where they underwent meticulous examination and standard processing. Where appropriate, special stains like PAS, reticulin, and IHC were used.

Each patient's histology report was carefully examined. Standard statistical techniques were employed to examine the test results. Analysis, tabulation, and comparison of study findings and observations with evidence-based medicine literature were performed. Examples of mastectomy, lumpectomy, hysterectomy, cervical biopsies, and cystectomy were present in these patients. These samples were previously embedded in paraffin, sectioned, fixed in 10% formalin, and stained with H & E stains.

The requisition forms provided clinical details, including the presentation of the tumors, the age of the patients, and the location of the tumors.

Statistical Analysis

The statistical program SPSS, version 22, was used to compile, tabulate, and evaluate the data that had been gathered. Calculating descriptive statistics used percentages, the mean, and the standard deviation (S. D). As necessary, the chi-square test was used.

Result: -

In our study, 100 cases of malignant tumors on females were examined. 70% of the patients in the study were between the ages of 40 and 69; cases between 50 and 59 and cases between 40 and 49 were closely behind in terms of age. Only 15 of the cases involved people under the age of 20 and 85 involved people who were above the age of 70.

Table 1: Distribution of Female Genital Malignant tumors.

Female Genital Tumors	No. of cases
Uterine - Corpus Tumors	21
Uterine - Cervix Tumors	40
Ovarian Tumors	27
Vulvovaginal Tumors	08
Choriocarcinoma	01
Synchronous Tumors	01
Metastatic Tumors other than ovarian	02

Table 2: Clinical Features of Patients of Cervical Carcinomas

Features/ Symptoms	No. Of Cases	%
Abnormal Bleeding Per Vaginum	23	67.70
Foul Smelling Watery Discharge	12	29.23
Post Coital Bleeding	04	10.77
Pain	03	9.23
Cervical growth	01	4.61

Between the ages of 40 and 59, cervical cancers affected more than 50% of patients. The most frequent type of cervical cancer was squamous cell carcinoma, which accounted for instances. Adenocarcinoma, neuroendocrine carcinomas, and undifferentiated endocervical sarcoma were next in prevalence.

Table 3: Clinical Features of Patients of Uterine Corpus Tumors

Features/ Symptoms	No. of Cases	%
Bleeding P/V	10	58.33
Purulent Discharge per Vaginum	01	8.33
Pain	7	45.83
Pressure symptoms	02	16.67

In the study group, more than 30% of the patients with uterine corpus cancers were over 50. These instances were mostly adenocarcinomas. Other histological categories were squamous cell carcinoma, malignant mixed mullerian tumor, and myometrial sarcoma.

Table 4: Clinical Features of Patients of Ovarian Carcinomas

Features/ Symptoms	No. Of Cases	%
Abdominal Mass	19	70.97
Abdominal Pain	11	51.61
Post-Menopausal Bleeding	02	16.13
Ascites	02	16.13
Weight Loss	03	19.35

Approximately 70% of initial ovarian cancers occurred in patients between the ages of 40 and 70. Surface epithelial tumors made up the bulk of ovarian malignancies, followed by germ cell tumors and sex cord-stromal cancers. These instances were mostly caused by serous adenocarcinoma, which was followed by mucinous adenocarcinoma and transitional cell carcinoma.

Discussion

Women's genital cancer accounts for a significant number of surgical cases worldwide, particularly in poorer nations. Due to a lack of information and inadequate health policies, the prevalence is rising in emerging nations. Similar to Chhabra et al. [12] (35-49) years, the peak incidence of malignant tumors is seen between the ages of 40 and 49, but lower than N'Dah KJ et al. [13]

In their study, Aradhna et al. found that uterine lesions contributed to nearly three-fourths of the benign tumor burden, which makes up the bulk of tumors. 4 Uterine lesions, which made up over half of all benign tumors of the female reproductive system in our study, were responsible for the majority of benign tumors. Leiomyoma was found to be the most prevalent in both

investigations. This study demonstrates that the uterine cervix (49.24%) is the most frequent location for malignant tumors of the female genital tract, with rates that are closest to the 48.6% reported by Yakasai IA et al. [14] and lower than the 65.8% reported by Nwankwo KC et al. [15] and the 78% reported by Ugwu EU et al. [16] The majority of instances (46.15%) are recorded in people between the ages of 40 and 49, which is lower than the 50 to 69 reported by Chen MQ et al. [17] (30-49yrs). Similar to Krishnaappa C et al. [18] and Ninan RM et al. [19], these patients most frequently appear with abnormal vaginal bleeding (67.7%) and foul-smelling discharge P/V (29.23%). Contrary to Arya A et al., [20] squamous cell carcinoma (92.3%) and adenocarcinoma (7.69%) are the two most prevalent histological types of cervical cancer.

The second most frequent malignancy of the female genital tract in India is ovarian cancer. With a mean age of 51.25 years, this study's bimodal distribution of ovarian cancer is greater than that of N'Dah et al. [13] and Nwankwo KJ et al. [15] but similar to that of Mohammad A et al. [21] in the 4th and 6th decade. According to Tejeswini V et al. [22] and this study,

ovarian tumors manifest most frequently as an abdominal mass (70.97%), followed by abdominal pain (51.61%), in contrast to Aggrawal P et al. [23]

According to research by Mankar DV et al. [24], surface epithelial tumors (70.96%) and germ cell tumors (12.90%) are the two most frequent histological types of ovarian cancer. The most frequent surface epithelial cancers are serous tumors, which are followed by squamous tumors (Tejeswini V et al. [22]). In Nnadi D et al. [25], dysgerminoma make up 64.52% of germ cell tumors with an 80% or lower survival rate. This finding contrasts with that of Singh S et al. [26], who found that teratoma was the most prevalent germ cell tumor. Compared to our observation of 3.23%, Alverado Cabrero A et al. [27] reported 23% of patients had Krukenberg's tumor.

In a study done by Kyari et al 2004 [28] cancers of the uterine cervix accounted for the majority of all female genital tract malignancies followed by ovarian cancers and uterine cancers. similar to our study.

According to a study by Mohammed A et al. [21], ovarian cancer strikes women most frequently in their fourth decade of life, while malignant uterine and cervix tumors most frequently strike women in their fifth decade. In our analysis, endometrial cancer and cervical cancer were both most frequently seen in women between the ages of 50 and 59. According to a study by Agrawal P et al. [23], ovarian cancer made up 20.6% of all female genital tract malignancies, while cervix cancer made up the majority (61.2%). In our analysis, ovarian tumors made up 23.8% of all female genital tract malignancies, second only to cervix cancer (52.3%). In a study published in 2017 by Jeph et al. [29], 67.2% of cases involved cervical cancer.

While serous adenocarcinomas and endometrioid adenocarcinomas were the most prevalent histological kinds in the

ovary and endometrium, respectively, squamous cell carcinoma was the most common histological type in cervical, vaginal, and vulval malignancies. [30] Similar to other studies, ours found that squamous cell carcinoma in the cervix, mucinous adenocarcinoma in the ovary, and glandular adenocarcinoma in the endometrium were the most prevalent malignancies in the female genital tract. The majority (87.50%) of vulvovaginal cancers are squamous cell carcinomas, which is consistent with the findings of N'Dah KJ et al. [13] and Dittmer C et al. [31] Chorio-carcinoma constitutes 0.75% of all genital cancers in females presenting most commonly as amenorrhea and pain abdomen at the age of 24 years matching the observations of Forae GD et al 2013 [32] and Dhakal HP et al 2009 [33] but was much lower than Yakasai IA et al 2013 [14].

In this investigation, there were 2 cases of metastases (1.51%), one from a GIST of the ileum to the uterus and fallopian tube and the other from a moderately differentiated adenocarcinoma to the uterus alone. [34] With a median age of 47.4 years, one case (0.75%) demonstrates the co-existence of granulosa cell tumors in the ovary and papillary serous adenocarcinoma in the endometrium.

Conclusion

Our study includes details on the numerous histological forms of malignant tumors of the female genital tract that are common in our area. The reason why cancers occur at such a high rate is because health care facilities are inaccessible, there is a lack of awareness, and there are no efficient screening tools like the pap smear. The overall cancer prevalence is impacted by the unreported cases. Despite being rare clinical entities, synchronous gynecological cancers are very concerning because of the earlier age of presentation. Doctors must receive vigorous training in screening techniques,

and the general public must also be made aware of them. The most frequent benign tumor of the female reproductive system was a leiomyoma of the uterus. The most frequent malignant tumor in the female reproductive system overall was infiltrating ductal carcinoma of the breast, which was followed by carcinoma cervix. The most common malignancy of the female genital tract was carcinoma of the cervix.

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