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CLINICOPATHOLOGICAL PATTERN OF GYNECOLOGICAL MALIGNANCIES IN TERTIARY HEALTH CARE CENTRE, A CROSS SECTIONAL STUDY

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ABSTRACT

Background: Gynecological malignancies, which include cancers of the ovary, cervix, uterus, vulva, vagina, and gestational trophoblastic tissues, are major causes of cancer related deaths. Their prevalence varies regionally due to environmental, lifestyle, genetic, and socioeconomic factors, low awareness, poverty, limited healthcare access, and competing health issues contribute to higher rates in developing countries. This study aims to deliver a thorough overview of gynecological malignancies in a tertiary care setting by analysing their frequency, associated sociodemographic factors, and the stage and histopathological types at diagnosis. **Materials and Methods:** A cross sectional study was conducted with a sample size of 117 patients selected from department of obstetrics and gynaecology in Tertiary Care Centre in Central India from september 2022 to february 2024. Details regarding patients demographics, details of obstetric history, and clinical presentation were recorded. Details of examination findings, radiological investigations were entered in the questionnaire. surgical details and chemo and radiotherapy details were noted. Descriptive statistics analysis was carried out including frequency and percentage. The results of the study were tabulated. **Results:** The study explored the demographic and clinical characteristics of gynecological cancer patients. Most patients were aged 41-50, from rural areas, with lower socioeconomic status, and had 3 or more children. Common symptoms included vaginal discharge, abdominal issues, and irregular bleeding, depending on the cancer type. Cervical cancer was typically diagnosed at stage II, while ovarian cancer was often found at stage III. Histopathological results showed squamous cell carcinoma in cervical and vulvar cancers, and adenocarcinomas in endometrial and vaginal cancers. Treatment mainly involved chemoradiotherapy, with surgery for endometrial cancer. Recurrence occurred in a small percentage of patients. **Conclusion:** In conclusion, cervical cancer was found in majority of patients followed by ovarian, endometrium, vulval, vaginal carcinomas, Early diagnosis and targeted treatments remain crucial to improving patient outcomes.

KEYWORDS

INTRODUCTION

Gynecological malignancies, which include cancers of the ovary, cervix, uterus, vulva, vagina, and gestational trophoblastic tissues, are major causes of cancer-related deaths.[1] Their prevalence varies regionally due to environmental, lifestyle, genetic, and socioeconomic factors.[2] Risk factors for cervical cancer include early marriage, early childbirth, multiple pregnancies, poor genital hygiene, and chronic pelvic infections from sexually transmitted diseases, with HPV infection further increasing risk, especially with early sexual activity and multiple partners.[3] Factors such as low awareness, poverty, limited healthcare access, and competing health issues contribute to higher rates in developing countries.[4] This study aims to deliver a thorough overview of gynecological malignancies in a tertiary care setting by analyzing their frequency, associated sociodemographic factors, and the stage and histopathological types at diagnosis. The results will enhance current knowledge and may help shape strategies for early detection and better management of these cancers

MATERIALS AND METHODS

The present study is a cross sectional study, conducted from 2022 to 202 In the Department of obstetrics and gynaecology, of tertiary health care centre with all patients diagnosed with carcinoma of the female genital tract were traced; after taking Written informed consent from patients history was asked The clinical records of the patients from Department of Gynaecology & Obstetrics were reviewed with factors including age, parity, site of cancer, staging and histological type.

Sample Size Estimation:

Syed Fiza Mustaqueem et al[11] reported Females with genital tract malignancies presented with bleeding per vaginum 81.8%

Formula: $n = [DEFF*Np(1-p)]/ [(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$

Where n is the required sample size.

Z α is the standard normal deviation, which is equal to 1.96 at a 95% confidence interval.

p is the prevalence in the population of the factor under study.

q = 100-p

d = Absolute precision is taken as 7%

p = 81.8%

q = 18.2%

n = number of samples to be studied

$n = z\alpha^2 * pq / d^2$

$= (1.96)^2 * 81.8 * 7 / ()^2$

= 117

Inclusion Criteria

1. All patients with metastasis with primary malignancy of female genital tract
2. All the patients on radiotherapy and chemotherapy for gynecological malignancy during the study period.
3. All admitted patients with gynecological malignancies, whether diagnosed clinically, radiologically or surgically.

Exclusion Criteria

1. Patients with precancerous lesion.
2. All benign tumors of female genital tract.
3. Patients with carcinomas diagnosed only on aspiration or cervical scrape smears, not followed by histologic confirmation.
4. Patients with metastasis to female genital organs from other primary sites.
5. Patients not willing to participate in the study

RESULTS

Table 8: Association of Sites of Malignancy with Presenting Symptoms

Presenting symptoms	Sites of malignancy						p
	Cervix (n=69)	Ovary (n=30)	Endometrium (n=10)	GTN (n=4)	Vagina (n=2)	Vulva (n=2)	
Contact bleeding	11 (15.94%)	0 (0.00%)	1 (10.00%)	0 (0.00%)	1 (50.00%)	0 (0.00%)	0.371
Irregular, heavy or prolonged vaginal bleeding	27 (39.13%)	4 (13.33%)	4 (40.00%)	3 (75.00%)	2 (100.00%)	0 (0.00%)	0.010
Postmenopausal bleeding	26 (37.68%)	0 (0.00%)	7 (70.00%)	0 (0.00%)	1 (50.00%)	0 (0.00%)	0.150
Excessive, offensive with or without blood-stained vaginal discharge	64 (92.75%)	4 (13.33%)	4 (40.00%)	1 (25.00%)	2 (100.00%)	2 (100.00%)	<0.0001
Lump in abdomen	1 (1.45%)	23 (76.67%)	0 (0.00%)	2 (50.00%)	0 (0.00%)	0 (0.00%)	<0.0001
Abdominal distension or discomfort	2 (2.90%)	23 (76.67%)	2 (20.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.0001

Abdominal pain	20 (28.99%)	14 (46.67%)	2 (20.00%)	1 (25.00%)	0 (0.00%)	0 (0.00%)	0.269
Vulval growth	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (100.00%)	<0.0001
Pruritus vulvae	2 (2.90%)	1 (3.33%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (100.00%)	<0.0001

Table 8 and Figure 8 illustrate the association between sites of malignancy and presenting symptoms. For cervical malignancy, the most common symptom was excessive and offensive vaginal discharge, with or without blood staining (92.75%). In ovarian malignancy, patients frequently reported a lump in the abdomen and abdominal distension or discomfort (each 76.67%). Postmenopausal bleeding was the primary symptom in endometrial malignancy (70.00%), while in GTN, irregular and heavy or prolonged vaginal bleeding was noted by 75.00% of patients. Patients with vaginal malignancy reported both irregular and heavy or prolonged vaginal bleeding and excessive and offensive vaginal discharge (each 100%). For vulvar malignancy, the symptoms of excessive and offensive vaginal discharge, vulvar growth, and pruritus vulvae were all present in 100% of patients.

Statistical analysis revealed that irregular, heavy, or prolonged vaginal bleeding was significantly more common among patients with vaginal cancer ($p = 0.010$). Moreover, excessive and offensive vaginal discharge was observed in a significantly higher proportion of patients with vulvar and vaginal malignancies ($p < 0.0001$). Additionally, a greater proportion of patients with ovarian malignancy presented with a lump in the abdomen and abdominal distension or discomfort ($p < 0.0001$). Likewise, a significantly higher proportion of patients with vulvar malignancy reported vulvar growth and pruritus vulvae (both $p < 0.0001$). Other presenting symptoms did not show a significant association with the sites of malignancy ($p > 0.05$).

Table 9: Association Of Sites Of Malignancy With Stage Of Malignancy

Sites of malignancy	Stage of malignancy				p
	I (n=3)	II (n=42)	III (n=59)	IV (n=11)	
Cervix (n=69)	2 (66.67%)	29 (69.05%)	34 (57.63%)	4 (36.36%)	<0.0001
Ovary (n=30)	0 (0.00%)	10 (23.81%)	17 (28.81%)	3 (27.27%)	<0.0001
Endometrium (n=10)	1 (33.33%)	3 (7.14%)	5 (8.47%)	1 (9.09%)	0.301
GTN (n=4)	0 (0.00%)	0 (0.00%)	1 (1.69%)	1 (9.09%)	0.049
Vagina (n=2)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (18.18%)	<0.0001
Vulva (n=2)	0 (0.00%)	0 (0.00%)	2 (3.39%)	0 (0.00%)	0.242

Figure 9: Distribution Of Patients According To Stage Of Malignancy

Table 9 and Figure 9 depict the association of sites of malignancy with stage of malignancy. Stage I, II, III, and IV malignancies were most frequently observed in patients with cervical malignancy, with proportions of 66.67%, 69.05%, 57.63%, and 36.36%, respectively. Chi-square test analysis revealed a significantly greater proportion of patients with cervical malignancy at stage II compared to other stages ($p < 0.0001$). Similarly, a significantly higher proportion of patients with ovarian malignancy presented with stage III ($p < 0.0001$). Additionally, a greater proportion of patients with GTN and vaginal malignancy had stage IV compared to other malignancies, with p-values of 0.049 and < 0.0001, respectively

Table 10: Association Of Sites Of Malignancy With Histo-pathology Types

Histopathology types	Sites of malignancy						p
	Cervix (n=69)	Ovary (n=30)	Endometrium (n=10)	GTN (n=4)	Vagina (n=2)	Vulva (n=2)	
Squamous cell carcinoma	64 (92.75%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (100.00%)	0.693
Adenocarcinoma	5 (7.25%)	0 (0.00%)	8 (80.00%)	0 (0.00%)	2 (100.00%)	0 (0.00%)	<0.0001
Choriocarcinoma	0 (0.00%)	0 (0.00%)	0 (0.00%)	4 (100.00%)	0 (0.00%)	0 (0.00%)	<0.0001
Clear cell carcinoma	0 (0.00%)	0 (0.00%)	2 (20.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.0001
Serous cystadenoma	0 (0.00%)	14 (46.67%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.0001
Mucinous cystadenoma	0 (0.00%)	6 (20.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.0001
Dysgerminoma	0 (0.00%)	4 (13.33%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.0001
Teratoma	0 (0.00%)	3 (10.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.0001
Mixed germ cell tumor	0 (0.00%)	1 (3.33%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.0001
Sex cord stromal tumor	0 (0.00%)	1 (3.33%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.0001
Granulosa cell tumor	0 (0.00%)	1 (3.33%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.0001

Figure 10: Association Of Sites Of Malignancy With Histo-pathology Type

Table 10 and Figure 10 depict the association of malignancy sites with histopathological types. The results indicate that cervical (92.75%) and vulvar (100.00%) malignancies were predominantly SCC. In contrast, cervical (7.25%), endometrial (80%), and vaginal malignancies (100%) were most frequently diagnosed as adenocarcinoma. Additionally, GTN was exclusively represented by choriocarcinoma (100%). The Chi-square test revealed significant associations: a greater proportion of patients with cervical and vulvar malignancies had SCC ($p < 0.0001$). Patients with endometrial and vaginal malignancies were significantly more likely to present with adenocarcinoma ($p < 0.0001$). Furthermore, a significantly higher proportion of patients with GTN had choriocarcinoma ($p < 0.0001$). Among patients with ovarian carcinoma, significant occurrences of mixed germ cell tumor, sex cord stromal tumors, and granulosa cell tumor (each $p < 0.0001$). Additionally, patients with ovarian carcinoma had serous cystadenoma, mucinous cystadenoma, dysgerminoma, and teratoma (each $p < 0.0001$).

DISCUSSION

This study aims to provide a thorough overview of gynecological malignancies in a tertiary care setting by analyzing their frequency, associated sociodemographic factors, and the stage and histo-pathological types at diagnosis. The results of this analysis will not only enhance current knowledge but also help inform strategies for early detection and improved management of these cancers.

In the present study, among all patients, the majority of the patients were in the age group of 41-50 years (51.28%) followed by 21-30 years (19.66%), and 31-40 years (14.53%). While the least number of patients were in the age group of 11-20 years (0.85%). The age of patients ranged from 20 to 72 years with a mean of 43.15 ± 11.60 years. Most patients were middled aged. With maximum from rural areas (68.38%), while the rest were from urban areas (31.62%). Chhabra et al. reported majority of patients were residence of rural India (76.47%).(5) With majority belonging to the lower class (29.06%), followed by the upper lower class (27.35%), and the lower middle class (25.64%). While the least number of patients belonged to the upper middle class (17.95%).

The majority had a parity ≥ 3 (57.26%) followed by parity 2 (29.91%), and parity 1 (8.55%). The least number of patients had parity 0 (4.27%). In their study irregular, heavy, or prolonged vaginal bleeding was significantly more common among patients with cervical cancer ($p = 0.010$). Moreover, excessive and offensive vaginal discharge was observed in a significantly higher proportion of patients with vulvar and vaginal malignancies ($p < 0.0001$). Additionally, a greater proportion of patients with ovarian malignancy presented with a lump in the abdomen and abdominal distension or discomfort ($p < 0.0001$). Likewise, a significantly higher proportion of patients with vulvar malignancy reported vulvar growth and pruritus vulvae (both $p < 0.0001$). Other presenting symptoms did not show a significant association with the sites of malignancy ($p > 0.05$).

In the present study, significantly greater proportion of patients with cervical malignancy at stage II compared to other stages ($p < 0.0001$). Similarly, a significantly higher proportion of patients with ovarian malignancy presented with stage III ($p < 0.0001$). Additionally, a greater proportion of patients with GTN and vaginal malignancy had stage IV compared to other malignancies, with p-values of 0.049 and < 0.0001, respectively. Stage I, II, III, and IV malignancies were most frequently observed in patients with cervical malignancy, with

proportions of 66.67%, 69.05%, 57.63%, and 36.36%, respectively, Agarwal et al. demonstrated that ovarian and uterine malignancies had significantly higher stage I conditions among their study population ($p < 0.05$). while, no significant difference between all stages and cervical malignancies ($p > 0.05$).(6)significantly greater proportion of patients with cervical and vulvar malignancies had Squamous Cell Carcinoma (SCC) ($p < 0.0001$). Patients with endometrial and vaginal malignancies were significantly more likely to have adenocarcinoma ($p < 0.0001$). Furthermore, a significantly higher proportion of patients with GTN had choriocarcinoma ($p < 0.0001$). Among patients with ovarian carcinoma, significant occurrences of mixed germ cell tumor, sex cord stromal tumors, and granulosa cell tumor (each $p < 0.0001$). Additionally, patients with ovarian carcinoma had serous cystadenoma, mucinous cystadenoma, dysgerminoma, and teratoma (each $p < 0.0001$).

Significantly greater proportion of patients with cervical (85.51%), ovarian (56.67%), GTN (100.00%), vaginal (100.00%), and vulvar malignancies (100.00%) were treated with chemoradiotherapy. In contrast, a higher proportion of patients with endometrial malignancies received surgical treatment (90.00%), with a p-value of < 0.0001.

CONCLUSION

gynecological malignancies were predominantly seen in patients aged 41-50 years, mainly from rural areas and lower socioeconomic backgrounds, with many exhibiting high parity, indicating potential reproductive risk factors. Symptoms varied by cancer type, with vaginal cancer linked to irregular bleeding and ovarian cancer often presenting as abdominal lumps. Many cervical cancers were diagnosed at stage II, while ovarian cancers were often stage III, emphasizing the need for early detection. Chemoradiotherapy was common for cervical, ovarian, and vulvar 85 cancers, whereas endometrial cancer was mainly treated surgically. Squamous cell carcinoma (SCC) was prevalent in cervical and vulvar cases, while endometrial and vaginal cancers were typically adenocarcinomas (ADC). No significant associations were found between malignancy sites and factors like oral contraceptive use or family history, suggesting a need for further research. Overall, the study highlights the importance of early diagnosis and targeted treatments to improve patient outcomes

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