ORIGINAL ARTICLE

Frequency of Gynecological Malignancies in a Tertiary Care Centre in Karachi, Pakistan

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Abstract

Introduction: In Pakistan, females comprise almost half of the total population and thus gynecological malignancies affecting the female population have an impact on the overall health and economic budget of the country. As we do not have our data thus we need to ascertain the pattern of malignancy in our population so that awareness pertaining to the commonest type of gynecological malignancies, in our population can be formulated. This can help formulate screening guidelines for our region of the world and help us in planning programs to spread awareness for their early detection and recognition.

Material and Methods: It was a retrospective review of 367 patients' data attending the Medical Oncology Clinic of Liaquat National Hospital from January 2016 to January 2020.

Results: The most common site of gynecological cancer was Ovarian 181 (49.3%), followed by Uterine 124 (33.8). Cervix was the 3rd most common tumor with 33 (9%). 8 patients had dual ovarian and uterine primary tumors (2.2%). Thirteen patients (3.5%) had Gestational Trophoblastic Disease, four patients (1.1%) had a primary peritoneal disease and four patients (1.0%) had Vulvo-Vaginal cancers.

Conclusion: As our results are different in comparison to a western population with Ovarian cancer being the most common cancer, followed by uterine cancer and cancer of the cervix, thus more research is warranted regarding different factors, like the age-related incidence of different sites of gynecological cancers, stage at presentation, disease-free and overall survival of gynecological cancers according to the site so that proper awareness regarding early detection can be formulated and implemented.

Keywords: *Gynecological cancer, frequency of cancer, histopathological types, female reproductive system.*

INTRODUCTION

Gynecological malignancies encompass a group of different cancers of the female reproductive system, the most common type being ovarian, uterine and cervix. Gestational trophoblastic disease, vulval and vaginal malignancies are other less common cancers, included in this.

In the majority of western countries, the most common gynecological malignancy is Uterine cancer. This is followed by ovarian cancer being the second-most common cancer. Cervical cancer is the third most common type [1]. Ovarian cancers happen to be the fifth most common cause of mortality in the West [2]. It is seen that the characteristics and histological types of gynecological malignancies differ in various geographical areas owing to a different environment, lifestyle, genetics and socioeconomic background [3]. Black people are more likely to develop cancer and have higher mortality than whites, Asian Pacific Islanders, American Indians, or Hispanics [4]. Literature shows that every region has disparities in the frequency of commonly occurring cancers. A study done in Bangladesh showed cervix cancer to be most commonly occurring followed by ovarian cancers [5]. A similar Turkish study showed a similar frequency trend as West with the most common gynecological cancers being uterine corpus cancers, which were followed by ovarian and cervical carcinomas [6]. In India, the cervix still is the commonest site of affliction among gynecological cancers, followed by ovarian cancers and then uterine cancers [7]. As there is so much diversity in data according to different populations thus we expect differences in statistics in our population also. Unfortunately, there is a lack of authoritative, consolidated data on the Pakistani population and institution-based statistics are the most we have.

In Pakistan, females comprise almost half of the population [8] and thus play a major role in all walks of life. A structured women's health system [9] that focuses on treatment and diagnosis of diseases and conditions relevant to women's physical and emotional well-being, has to be developed in Pakistan. Therefore, we believe that our data will help us in building and initiating steps for comprehensive care in regards to the prevention and treatment of cancers.

Liaquat National Hospital is one of the leading tertiary care centres for oncological services and thus receives a huge number of patients affected with different cancers. We reviewed our data for ascertaining the frequency of different sites of gynecological cancers and their histopathological types so that we can assess the similarities and/or differences with other studies' populations.

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Received: February 04, 2021; Revised: March 04, 2021; Accepted: September 30, 2021
DOI: https://doi.org/10.37184/lnjcc.2789-0112.3.3

MATERIAL AND METHODS

It was a retrospective analysis of data of patients registered for gynecological carcinoma in Oncology OPD, Liaquat National Hospital from January 2016 to January 2020. The clinical record of all the patients was reviewed with factors including primary site of gynecological malignancy and histopathological type. Results were presented as numbers and percentages.

RESULTS

Records for 367 patients were reviewed. According to that, ovarian carcinoma (49.3%) was the most frequently occurring female genital malignancy. Uterine cancer (33.7%) was the second most common malignancy and carcinoma of the cervix (8.9%) was the third most common site. Gestational trophoblastic diseases were found to be about 3.5%,of gynecological malignancies and thus were the fourth most common type. Interestingly there were 2.1% cases with dual primaries in ovarian and uterine sites. The least common entity was the primary peritoneal carcinomatosis (1.0%) and vulvovaginal cancers (1.0%) **(Fig. 1)**.

Fig. (2) shows that the most common histological type of ovarian carcinoma was serous adenocarcinoma, which is an aggressive histological type. This was followed by Endometrioid Adenocarcinoma (21.5%). Sex cord-stromal tumors were about 8.84% and mostly consisted of Adult Granulosa cell tumors.

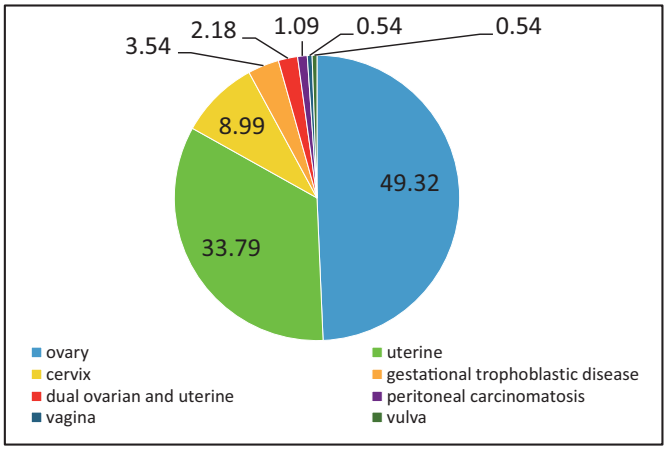

Fig. (1): Site wise distribution of gynecological malignancies.

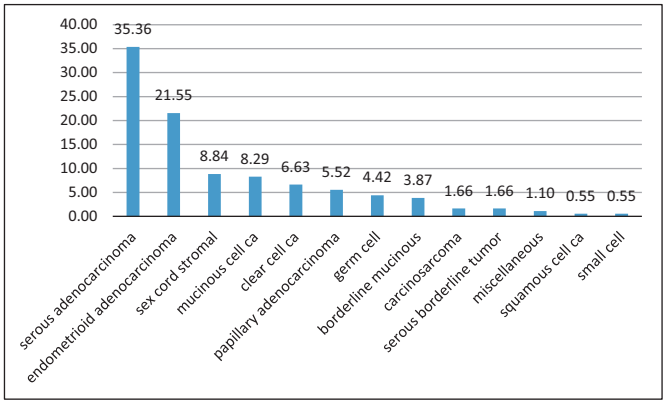

Fig. (2): Histopathological types of Ovarian Carcinoma.

Clear cell carcinoma of ovaries which is also an aggressive cancer was 6.63% of all ovarian tumors. Germ cell tumors constituted about 4.42%. A small cell ca of the ovary, the squamous cell ca ovary and borderline tumors were rare histological that were found.

Uterine cancers mostly consisted of endometrioid histology (about 56.45%). Tumors with both epithelial and mesenchymal histology, *i.e* carcinosarcoma of the uterine cavity were about 15.3%, serous adenocarcinomas were 12.1%. Endometrial stromal sarcoma was more common (2.4%) than leiomyosarcoma of the uterine cavity (1.6%) **(Fig. 3)**.

Ca cervix and vulvovaginal cancers were almost exclusively squamous cell carcinoma with just 1 case found of the rare small cell ca of the cervix.

As half of our population consists of females, thus we need to know the true burden of women's health, and gynecological malignancies constitute a major part of it. So by knowing the pattern of gynecological malignancies we can devise a plan regarding screening of malignancies and creating awareness for taking preventive measures and acquiring a healthy lifestyle. This may consecutively reduce the economic burden too on the already exhausted health care structure.

DISCUSSION

Both developed as well as developing countries are experiencing a surge in malignancies, either because of obesity, sedentary lifestyle or environmental factors; the exact cause though needs to be ascertained. About five million new cancer cases are being diagnosed each year [10]. According to Global Cancer Observatory [1], cancer of the cervix is the most commonly occurring gynecological cancer. In contrast, institutional data from Pakistan has shown Ovarian cancer to be the most frequently occurring cancer among gynecological malignancies [11]. Observation also confers that almost half of the time, females diagnosed with gynecological cancer are harboring an ovarian carcinoma. On histological diagnosis, epithelial tumors were predominant, with serous adenocarcinoma **(Fig. 2)** being the most common epithelial type (35.3%), then endometrioid histology followed by sex cord-stromal and mucinous carcinoma. The finding of serous adenocarcinoma as the commonest type was similar to the study by I A Malik [12] in which the most common type of ovarian carcinoma was serous adenocarcinoma. His study showed that mucinous type was the second most common type; contrary to which endometrioid adenoca was the second most common in our data.

International literature also shows that serous carcinoma is the most common tumor with frequency up to 60 % and is generally a more aggressive type [13]. According to the 2003 World Health Organization classification scheme, Ovarian epithelial cancers on the basis of histopathologic features are serous (~60%), endometrioid (~10%–20%),

clear cell (<10%), transitional (6%), mucinous (<5%), and undifferentiated (<1%) subtypes [14].

According to our data, the second most common cancer in occurrence among gynecological malignancies are Uterine cancers; which according to International data too is cancer of Corpus Uteri [1]. Referring to our textbooks also, endometrioid carcinoma constitutes about 70-80% [15] of the uterine cancers, whereas aggressive histologies like serous carcinoma, clear cell, squamous and undifferentiated carcinoma constitute less than 20%. Such varieties, though, do constitute a higher rate of mortality. Endometrioid adenocarcinoma was about half of all the cases (56%). Interestingly carcinosarcomas which are said to constitute less than 5% of uterine cancers usually [16] were found in higher frequency in our patients with about 15.3 % patients. Serous adenocarcinoma was 3rd common histological type(12%). There were non-epithelial cases including endometrial stromal sarcomas and leiomyosarcomas also **(Fig. 3)**.

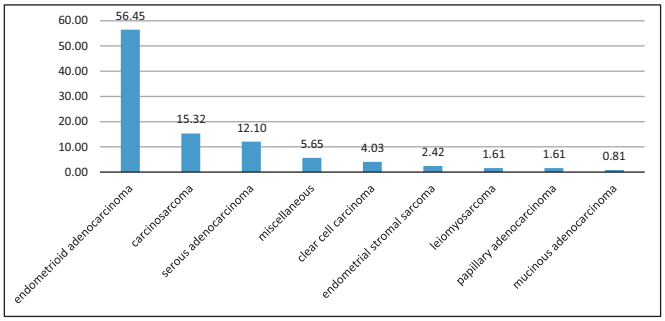

Fig. (3): Histopathological types of Uterine Carcinoma.

Cervix cancer which is the most common cancer in the United States and the second most common cancer in Europe [17], stood third in occurrence in our study. Almost all cases on histological diagnosis were Squamous cell cancer, with only 1 patient having unusual histology of Small cell Carcinoma of cervix. A small cell ca of the cervix is a neuroendocrine tumor and has a frequency of less than 3% [18]. Similarly, vulvovaginal cancers were found in 4 of the cases, and all were squamous cell cancers. According to literature, the incidence of vulvar carcinoma has been calculated between 2 to 7 cases per 100,000 women, and that of vaginal carcinoma 0.6-1.0 cases per 100,000 women [19]. In our study population, it was 2 cases (0.5%) of each site. The fourth most common gynecological malignancy was Gestational trophoblastic diseases (GTD). They comprise a group of disorders encompassing premalignant conditions like a partial and complete mole through to malignant conditions of invasive mole, choriocarcinoma, Placental Site trophoblastic tumor (PSTT) and epithelioid trophoblastic tumor (ETT) [20]. If we search literature, it is difficult to ascertain the frequency of GTD, due to the rarity of disease and data comprised of individual hospital reports and case series. In the US, the prevalence of GTD is 122 per 100,000 pregnancies [21]. South African study estimates the incidence of choriocarcinoma to be 0.5 cases per 1000 deliveries [22]. In our study there were 13 cases (3.54%) of Gestational trophoblastic disease, four had Choriocarcinoma, three had Invasive mole and there was one complete mole. 5 cases did not have a histological diagnosis but met criteria according to raised beta HCG when they first visited us. They further lost to follow so their histology was not known by us.

Although primary peritoneal carcinomatosis (PPC) is treated as ovarian cancer still it is a separate entity, thus we did not include these cases in Ovarian cancers. There were 4 cases (1.1%) in our study which were apt in the definition of PPC with no ovarian involvement and had greater extra ovarian site involvement (peritoneum/ omentum) [23]. According to a study [24], its incidence is 0.4 and 0.07 /100 000 in the American and European population respectively and thus is labeled among rarer malignancies.

In our study, 8 cases (2.2%) cases were found to have dual primaries *i.e* a single patient harboring malignancies at both uterine and ovarian cancers and with different histopathological diagnoses at each site [25]. This is also a rare finding with less than 6% of all gynecological cancers. It is proven that this should be investigated whether a patient has dual primary or metastatic disease as the prognosis of dual primaries is better than that of metastatic site, and recent molecular studies have shown that synchronous endometrial and ovarian cancers are clonally related [26]. Among our patients, 5 patients had a dual ovarian and uterine origin, both sites had early-stage endometrioid adenocarcinoma. One patient had early-stage uterine endometrioid adenocarcinoma with mucinous ovarian carcinoma. One patient had early-stage endometrioid adenocarcinoma with advanced-stage serous carcinoma of the fallopian tube. One patient had serous carcinoma of the advanced stage so there was ambiguity regarding there being dual primary or metastatic disease.

As our study shows that there are differences in frequency of gynecological malignancies in our population in comparison with the Western population, thus it is the need of the hour that we do clinical trials to identify the risk factors that are causing some histological types to be more common in our population than others. We will have to ascertain whether it is the lifestyle of our population, dietary habits, quality of food we are consuming, genetic design of our population- or maybe all of these, that is causing these gynecological malignancies.

CONCLUSION

From our study, we conclude that ovarian carcinoma is the most common female genital tract malignancy in females presenting with gynecological malignancy in Liaquat National hospital followed by uterine carcinoma. Improvement in awareness of the symptoms of ovarian cancer can be helpful in diagnosing the condition at an early stage so the need for public education regarding it is imperative.

ETHICS APPROVAL

For this type of study formal consent is not required.

CONSENT FOR PUBLICATION

Not applicable.

FUNDING

None.

CONFLICT OF INTEREST

Authors have no conflict of interest to declare.

ACKNOWLEDGEMENT

None

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