# PROFILE OF GYNECOLOLGIC CANCERS AT A TERTIARY HOSPITAL ADDIS ABABA, ETHIOPIA, A 4 YEARS REVIEW

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## ABSTRACT

**BACKGROUND:** Gynecologic cancers are related of to morbidity and mortality among women globally. The trend and incidence, however, varies according to different geographical settings and demographic differences. The main aim this study was to review the profile of gynecologic cancers managed at a Saint Paul Hospital Millennium Medical College, in Addis Ababa, Ethiopia.

**METHODS:** A retrospective chart review was done for all patients managed at the hospital from 2016 to 2020. The relevant information was retrieved from patient charts and pathology reports; the data was entered and analyzed using SPSS software version 24.

**RESULT:** A total of 768 Gynecologic cancer cases were seen at the hospital and 700 of them were analyzed, the rest were excluded because of chart incompleteness. The most common primary tumor origin was cervix 339 (48.35%) followed by ovarian 194 (27.67%), gestational trophoblastic malignancies (GTN) 90 (12.8%), uterine 46(6.56%), and vulvar 29(4.1%). Most patients with cervical cancer present in a late stage. Only 37.5 % were early stage and surgically operable and the median age was 46 years. The majority of ovarian cancer patients present at advanced stage.

**CONCLUSION:** Cervical cancer emerged as the most common gynecologic cancer in women requiring admission, constituting a substantial cause of cancer-related morbidity. Despite being largely preventable through effective screening programs, cervical cancer remains insufficiently addressed. Awareness creation for people from rural area is essential so that early health seeking behavior will be established.

**KEY WORDS:** Cervical cancer, gynecologic cancer, Ethiopia

(The Ethiopian Journal of Reproductive Health; 2024; 16; 44-51)

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## INTRODUCTION

Gynecological malignancies are those involving the genital tract and include cancers of the ovary, cervix, uterus, vulva, vagina and gestational trophoblastic neoplasia (GTN). These are the second most common cancer of females after breast cancer, accounting for about 17% of all new malignancies in women[1].The burden of gynecological cancers in developing countries appears large, at approximately 25 percent of all cancers, compared to 16 percent in developed countries. Gynecologic cancers continue to be a serious public health problem as an important cause of cancer related mortality in women[2, 3]

Globally, cervical cancer is the most common gynecologic cancer, accounting for 6.9% of all women's cancer and 41% of female genital tract malignancy, followed by ovarian and uterine corpus[4]. The proportion of cervical cancer is even much higher in low income countries which account for 80% of new gynecologic cancers. And this is despite cervical cancer being largely preventable. This prevention is challenging due to the absence of effective nationally organized screening and vaccination programs in developing countries. But in high income countries, uterine corpus and ovarian cancer are the most common cancers of female genital tract[5].

Globally, cervical cancer constituted 487,300 new cases and 269,500 new deaths; uterine cancer had 233,300 new cases and 61,400 new deaths; ovarian cancer was 230,00 new cases and 140,100 new deaths. Many patients are unable to access complete preventive, diagnostic and therapeutic services due to inadequate health care financing. There is an increasing trend in the incidence of gynecological cancer over the past three decades[3, 4]

Studies from African countries like Nigeria, Ghana, and Mozambique reported cervical cancer as the most common gynecologic cancer followed by ovarian cancer and uterine cancers[6, 7] In Ethiopia, data from Tikur Anbessa Specialized Hospital oncology center and Gondar university hospital showed genital cancers are the most common cancers in females, followed by breast cancer., Cervical cancer was the most common gynecologic cancer [8-10].

The pattern of gynecological malignancies and associated risk factors varies across geographic areas and population demographics. However, in Ethiopia, the lack of a cancer registry makes it challenging to obtain accurate data. Currently, hospital-based data remains the primary method for estimating the burden of this health issue. Notably, only one study has been conducted in southern Ethiopia, focusing on patients referred for medical oncology treatment. Unfortunately, this study may not accurately reflect the actual pattern of gynecological malignancies.

To address this gap, our study aims to include all gynecologic oncology cases treated at Saint Paul Hospital Millennium Medical College (SPHMMC) for both surgical and medical purposes. The evidence generated from this comprehensive approach will contribute valuable insights into disease patterns and risk factors. The primary objective of this review is to assess the profile of different gynecologic cancers at SPHMMC, a tertiary-level center where many cases are referred.

## METHODS AND MATERIALS:

This hospital-based retrospective study covers the period from September 2016 to August 2020. We reviewed the charts of all patients with gynecologic malignancies registered at SPHMMC during this timeframe, ensuring availability of case notes in the hospital registration archive. Patients with incomplete information and those with benign tumors were excluded from the study. The inclusion criteria focused on admitted patients with gynecological malignancies diagnosed pathologically, excluding GTN. Data collected included information on ages, clinical presentations, physical examinations, investigations, necessary surgical procedures, staging (clinical, surgical, or histopathological), and the final histological type of cancer. Confirmation of diagnosis relied on

histopathology of samples obtained during surgery or, in the case of GTN, on either beta HCG levels or histopathology. Data were entered and analyzed using SPSS version 24, with descriptive statistics such as frequencies, percentages, means, medians, and standard deviations utilized to characterize the data.

## RESULT

A total of 768 new cases of gynecologic malignancies were reported and treated at St. Paul's Hospital Millennium Medical College gynecologic oncology unit between January 2016 and December 2020. For the current study, 67 patient charts were excluded because of incomplete histologic findings or lack of major variables that were important to characterize the patient profile.

The age of 701 cases ranges from 13 to 83 with a mean age of 46.28 years with SD+ 13.4. The median age for cervical cancer was 50 years and for ovarian cancer 45 years. About two-third (67.1%) of gynecological cancers occurred in women older than 40. 53.8 % of patients were of reproductive age, while 45.6% were post- menopausal. Only 0.5% were premenarchal girls.

Half of the women had up to four children, while 11 % were nulliparous. The majority of care seekers were from outside of the capital city Addis Ababa (58.6%). (Table 1).

**Table 1: Socio-demographic and obstetric characteristics of gynecologic cancer patients at St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia: September 2016 and August 2020**

| Demographic Variables n=701 | Category | Type of Gynecologic malignancy: Cervix | Ovary | GTN | Uterus | Vulva | FT | Vagina | Frequency (%) |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | <20) | 1 | 9 | 3 | 0 | 0 | 0 | 0 | 13 (1.9) |
| | 20-29 | 2 | 23 | 42 | 0 | 1 | 1 | 1 | 69 (9.8) |
| | 30-39 | 59 | 36 | 33 | 8 | 13 | 0 | 0 | 149(21.3) |
| | 40-49 | 77 | 46 | 12 | 6 | 8 | 0 | 0 | 150(21.4) |
| | 50-59 | 120 | 39 | 0 | 10 | 4 | 0 | 1 | 173(24.7) |
| | >60 | 80 | 41 | 0 | 22 | 3 | 1 | 0 | 147(21.0) |
| | Sum | 339 | 194 | 90 | 46 | 29 | 2 | 1 | 701(100) |
| **Address** | Addis Ababa | 117 | 93 | 40 | 21 | 18 | 0 | 1 | 290 (41.4) |
| | Out of Addis Ababa | 222 | 101 | 50 | 25 | 11 | 2 | 0 | 411(58.6) |
| | Sum | 339 | 194 | 90 | 46 | 29 | 2 | 1 | 701(100) |
| **Parity** | 0 | 7 | 46 | 21 | 7 | 7 | 1 | 0 | 89 (12.7) |
| | 1-4 | 147 | 100 | 57 | 26 | 18 | 1 | 1 | 350(49.9) |
| | 5-9 | 148 | 41 | 11 | 10 | 2 | 0 | 0 | 212(30.2) |
| | 10-15 | 37 | 7 | 1 | 3 | 2 | 0 | 0 | 50(7.1) |

Vaginal bleeding, abdominal pain, weight loss, and abdominal distension were most common symptoms reported by 65%, 54.5%, 45.1 and 26.5% of patients, respectively. Vaginal bleeding and abdominal pain were the most common symptoms for cervical cancer and uterine tumors. Weight loss and abdominal distension were the most common for ovarian cancer.

Almost all patients (97.9%) had ultrasound imaging for diagnostic work up. However, less than a quarter of patients had further imaging, either with CT scan (19.8%) or MRI (23. 5%). Abdominopelvic mass (57.8%), ascites (19.4%), hydronephrosis (5.4%) and pleural effusion (3.6%) were the imaging findings reported most often.

The most common primary tumor origin was cervix 339 (48.35%), followed by ovarian 194 (27.67%), GTN 90 (12.8%), uterine 46(6.56%), and vulvar 29 (4.1%). Fallopian tube and vaginal malignancies were rare, contributing to less than 0.5 % of the cases.

Squamous cell carcinoma was the most common histologic type among cervix and vulvar malignancies, at 91.4% and 89.7% respectively. Only 9 out of 339 (2.7 %) of patients with cervical cancer had a history of screening for cervical cancer. Out of 166 patients with cervical cancer whose sero status was known, 35 (21.1%) were positive for HIV.

Epithelial histology was most common among ovarian malignancies (81.4%), followed by sex cord stromal (11.9%) and germ cell types (6.7%). Endometroid and serous histology were the most prevalent type among endometrial cancer, accounting for 51.5 and 30.3%, respectively. (Table 2)

**Table 2: Organ of origin and Histologic pattern of common gynecologic malignancy at St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia: September 2016 and August 2020**

| Organ of origin | Histologic type | Number (%) |
|---|---|---|
| Cervix | Squamous cell carcinoma | 310(91.4) |
| | Adenocarcinoma | 23(6.8) |
| | Others | 6(1.8) |
| | **TOTAL** | **339 ( 48.35 ) *** |
| **Ovary** | **Epithelial** | **158(81.4%)** |
| | Serous | 100 (63.3) |
| | Mucinous | 25(15.8) |
| | Endometroid | 6 (3.8) |
| | Clear cell | 3(1.9) |
| | Boarderline | 7(4.4) |
| | Others | 17(10.8) |
| | Sex cord | 23(11.9%) |
| | Granulosa cell | 19 (82.6) |
| | Other | 4(17.4) |
| | Germ cell | 13(6.7%) |
| | Dysgerminoma | 8 (61.5) |
| | Yolk sac | 4(30.7) |
| | Immature teratoma | 1(7.7) |
| | **TOTAL** | **194 (27.67)*** |
| **Uterine body** | **Endometrial carcinoma** | **33(71.7%)** |
| | Endometroid | 17(51.5) |
| | Serous | 10(30.3) |
| | Carcinosarcoma | 2(6) |
| | others | 4(12.1) |
| | **Uterine sarcoma** | **13(28.3%)** |
| | leiomyosarcoma | 10(77) |
| | Endometrial stromal sarcoma | 3(23) |
| | **TOTAL** | **46(6.6%)*** |
| **Vulva** | Squamous cell carcinoma | 26(89.7%) |
| | Basal cell carcinoma | 2(6.9%) |
| | Adenocarcinoma | 1(3.4%) |
| | **TOTAL** | **29(4.1)*** |
| **GTN** | Unknown | 64 (71.1%) |
| | Invasive mole | 17(18.9%) |
| | Choriocarcinoma | 9 (10%) |
| | TOTAL | 90(12.8%) |

Key * % from all types of Cancer

GTN was the third most common gynecologic malignancy, accounting for 12.8% of cases. 64 cases (71.1%) had no histologic diagnosis while invasive mole and choriocarcinoma accounted for 18.9% and 10%, respectively. Similarly, 71.1% of the cases were low risk with WHO prognostic score of less than seven, while 24.4% and 4.4% of the cases were high risk and ultrahigh risk, respectively.

Over all, most patients presented with advanced malignancy; only 34 % were diagnosed at stage I, while the remaining 66% had either local, regional or distant metastasis. (Fig1)

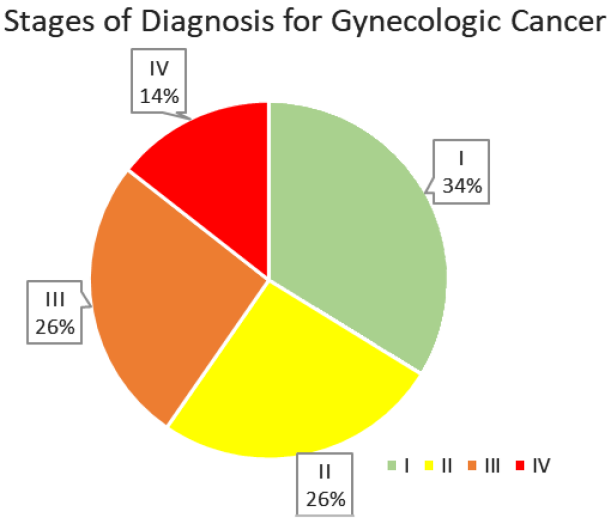


**Fig 1: Stages at diagnosis for gynecologic malignancy at St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia: September 2016 and August 2020**

The most common histologic type of cervical cancer was squamous cell carcinoma; the majority (70%) of them presented with stage I and II. However only 37.5 % of them were in early operable stage, which is below stage IIA and surgically operable and managed by primary radical hysterectomy and pelvic lymph node dissection. Those in stage IIB were given Neoadjuvant chemotherapy, followed by surgery. 30% of cervical cancer patients were in advanced stage and referred for chemotherapy or radiation. (Fig 2)

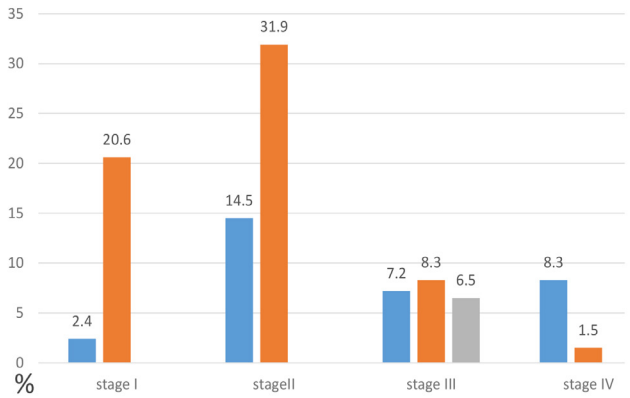


**Fig 2: Stages at diagnosis for cervical cancer at St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia: September 2016 and August 2020**

The stage at diagnosis of patients with ovarian cancer differed with the histologic type. Only 23.4% of epithelial histology was diagnosed at stage 1. However, 65.2 % and 61.5% of patients with sex cord stromal tumor and germ cell types were diagnosed at stage I, respectively. Overall, only 30.9% of ovarian cancer was diagnosed at stage I. (Fig3)

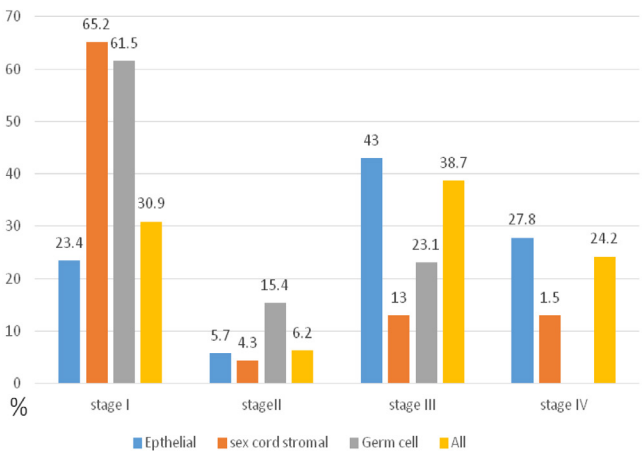


**Fig 3: Stages at diagnosis for Ovarian Cancer at St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia: September 2016 and August 2020.**

## DISCUSSION

Gynecologic cancers represent a significant global health concern, contributing significantly to morbidity and mortality rates in women. At SPHMMC, gynecologic cancers have emerged as a leading cause of admission, with nearly 760 cases observed over a five-year study period. This figure surpasses similar timeframes in previous reports[8, 11, 12]. This heightened incidence can be attributed to the centralized cancer care provided by our tertiary center. The inception of gynecologic oncologic subspecialty services in 2016 has resulted in an increased number of referrals from across the country, particularly for advanced surgical and chemotherapy services.

In our study, cervical cancer was the most prevalent gynecologic cancer, accounting for 48% of cases, followed by ovarian cancer (29%) and GTN (12%). Cervical cancer's prominence aligns with findings from various developing countries, primarily due to the high prevalence of HPV infection in these regions. HPV variant 16, a high-risk strain, was identified in approximately 70% of infections in East Africa, including Ethiopia[13]. Moreover, the high incidence of HIV co-infection, found in 10% of cervical cancer patients and 59% of vulvar cancer patients, adds another risk factor for cervical cancer, given its classification as an AIDS-defining disease. Interestingly, the incidence of cervical cancer in our study was lower than rates reported in other parts of South Ethiopia (78%), India (86%), and Mozambique (64%) [7, 14-16]. This discrepancy may warrant further investigation, possibly due to the availability of cervical cancer screening and treatment programs, particularly in Addis Ababa.

Ovarian cancer ranked as the second most common cancer in our study, aligning with reports from Ghana, Nigeria, and Pakistan. In contrast, uterine cancers were less prevalent in our study than in developed countries, which may be due to early-stage cases being managed at peripheral hospitals. Gestational trophoblastic neoplasia (GTN) ranked third in our study with a 12% incidence, significantly higher than reported rates in Mozambique, Nigeria, and India. The higher incidence in our study aligns with the notion that GTN is more prevalent in Africa and the Middle East, warranting further investigation. Endometrial cancer ranked fourth, consistent with other African reports, which is attributed to the lower life expectancy in these regions[17].

The median age of cancer patients in our study was younger than Western reports, with most patients falling within the fourth to sixth decades, a trend similar to findings in Nigeria and India. Notably, the youngest case in our study was a 13-year-old with germ cell ovarian cancer, prompting further investigation into the prevalence of BRCA-related ovarian cancers, which tend to occur at a young age. The pediatric age group in our study predominantly had ovarian cancer cases, with one case of cervical cancer in individuals under 20 years old. Among women under 30, GTN (11%), cervical cancer (8.5%), and ovarian cancer (8.1%) were the most common gynecologic cancers, consistent with findings from Nigeria[17]. Other studies reported ovarian tumors as the most common in this age group, with cervical cancer being less common[8].

The median age for cervical cancer in our study was higher than reported in other African studies at 47 years, although it reached 52 years in Ghana. This difference lacks a clear explanation, but it may relate to the age at first sexual debut as teenage pregnancy and high parity are common in Ethiopia. However, 30% of cervical cancer cases in our study were younger than 30 years old, which is higher than the 4% reported in India[20]. The median age for vulvar cancer was significantly lower in our study, possibly due to a higher prevalence of HPV and HIV infections, as evidenced by increased HIV incidence in this patient group[5, 18]. Nearly half of uterine cancers in our study were in this old age group, consistent with the notion that old age is a significant risk factor for these cancers[19]

Gynecologic cancers were more common among multiparous women, with ovarian cancer being the most prevalent among nulliparous women, in line with a common risk factor. However, the incidence

was higher than reported in India (2.3%)[12, 20]. The median parity in our study ranged from 1 to 4, lower than reported in Nigeria and Ghana, where a higher parity of 7 was observed[19, 21]. Most cases in our study originated from rural areas, which corresponds with findings in India and Mozambique, highlighting the association between rural populations and lower socioeconomic status and limited access to healthcare information and services[19]. Unfortunately, a significant portion of patients in our study presented at an advanced stage, potentially due to a lack of awareness about symptoms. Only 34% of all patients presented at stage I, a finding similar to Ghana[8]. Only 37% of cervical cancer patients presented at an early and operable stage (stage I and IIA), while ovarian cancer patients predominantly presented at advanced stages, which is a common global phenomenon.

## CONCLUSION

Cervical cancer emerges as the most common gynecologic cancer in women requiring admission, constituting a substantial cause of cancer-related morbidity. Despite being preventable through effective screening programs, cervical cancer remains insufficiently addressed. Of particular concern is late presentation in a locally advanced stage, which makes the cancer inoperable. It is imperative to strengthen cervical cancer screening programs and make them more accessible to rural communities. The majority of gynecologic cancer patients in our study presented at advanced stages, underscoring the need for increased awareness of common symptoms to facilitate early intervention. Ovarian cancer and GTN are also prevalent and require a centralized approach to clinical and surgical oncologic services, alongside early referral systems. Further research is warranted to explore the reasons behind the high incidence of GTN in this region and to determine the actual incidence of uterine cancer[22], In general, gynecologic cancers need attention in terms of expanding the service delivery units, wider screening, early referral and more research on the area.

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