

Gynecological Cancers at the Pathology Laboratory of the Hospital Center of Soavinandriana, Antananarivo Madagascar

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ABSTRACT

Introduction: Gynecological cancers are a major public health concern because of their frequency, delayed diagnosis and impact on female morbidity and mortality. They include cancers of the cervix, uterine corpus, ovary, vagina and vulva. Cervical cancer remains particularly important in low-resource settings, where mortality is high and access to screening is still limited.

This study aimed to describe the epidemiological, clinical and histopathological features of gynecological cancers diagnosed at the Pathology Laboratory of the Soavinandriana Hospital Center.

Materials and Method: This was a single-center, retrospective, descriptive and analytical study including histologically confirmed gynecological cancers diagnosed at CENHOSOA from January 2013 to December 2018. Data were collected from laboratory registers, clinical information forms and pathology reports. Statistical analysis was performed using Microsoft Excel 2016 and STATA 15. Statistical significance was set at $p < 0.05$.

Results: Among 3041 specimens recorded during the study period, 73 were gynecological cancers, representing 2.4%. After exclusion of three cases, 70 patients were included. The mean age was 51.24 ± 13.92 years, with a peak frequency between 50 and 65 years. The cervix was the most common site, accounting for 52.9% of cases, followed by the uterine corpus in 28.5%, the ovary in 14.3%, the vulva in 2.9% and the vagina in 1.4%. Metrorrhagia was the most frequent clinical finding, reported in 52.9% of cases. Epithelial tumors accounted for 87.2% of cases. Squamous cell carcinoma was the most frequent histological type, found in 57.1% of cases.

Conclusion: Gynecological cancers diagnosed at CENHOSOA were dominated by cervical cancer and squamous cell carcinoma. These findings highlight the need to strengthen screening, improve women's awareness, expand access to pathology services and ensure systematic reporting of TNM and FIGO stages.

Keywords

Gynecological cancer, Cervical cancer, Squamous cell carcinoma, Pathology, CENHOSOA.

Introduction

Gynecological cancers are malignant tumors developed at the expense of the female reproductive system. They mainly include cancers of the cervix, uterine body, ovary, vagina, and vulva. Their medical importance lies in their frequency, their anatomical-clinical diversity, their prognosis, and their consequences on women's reproductive, psychological, and social health [1,2].

Gynecological cancers constitute a significant burden for health systems worldwide. Cervical cancer holds a special place, as it remains one of the most frequent female cancers in low- or middle-income countries. According to the World Health Organization, approximately 660,000 new cases of cervical cancer and 350,000 deaths were reported worldwide in 2022 [3,4]. GLOBOCAN data also highlight the high burden of female cancers in several regions of the world, particularly in sub-Saharan Africa [5,6].

Cervical cancer-related mortality disproportionately affects countries with limited resources. This situation is linked to insufficient screening, limited access to treatments, low coverage of human papillomavirus vaccination, and delayed consultation. In Madagascar, gynecological cancers constitute a major public health concern. Diagnosis is often made at a symptomatic stage due to low accessibility to screening, lack of awareness, concentration of specialized facilities in large urban centers, and sometimes delayed seeking of care. Available hospital data show that cervical cancer remains one of the most common female cancers in the country [7,8]. The anatomopathological examination allows confirming malignancy, identifying the histological type, evaluating prognostic criteria, assessing the resection margins, and contributing to tumor staging when clinical and operative information is available [9,10].

The present study aimed to describe the epidemiological, clinical, paraclinical, and histopathological aspects of gynecological cancers diagnosed in this laboratory over a six-year period.

Materials and Method

Our study was conducted at the Pathology Laboratory of the Hospital Center of Soavinandriana, Antananarivo. It was a single-center, retrospective, descriptive, and analytical study. The study period extended from January 2013 to December 2018, a total duration of six years. The study population consisted of women who received a histological diagnosis of gynecological cancer at the CENHOSOA laboratory. All cases of gynecological cancers confirmed by anatomopathological examination during the study period were included. The selected locations were the cervix, uterine body, ovary, vagina, and vulva. Benign gynecological tumors, borderline tumors, and gynecological inflammatory pathologies were not included. Duplicates, defined as the same diagnosis found in the same patient, as well as metastatic tumors

were excluded. Data were collected from laboratory registers, clinical information sheets, and anatomopathological examination reports.

Results

During the study period, 3,041 samples were recorded at the Pathology Laboratory of CENHOSOA. Among them, 73 corresponded to gynecological cancers, representing 2.4% of all samples. After excluding three cases, 70 patients were retained for the final analysis.

The average age of the patients was 51.24 ± 13.92 years. The most represented age group was 50 to 65 years, with 32 cases, or 45.7%. Regarding tumor location, the cervix was the most frequent site with 37 cases, or 52.9%, followed by the uterine body (20 cases), the ovary (10 cases), the vulva (2 cases), and the vagina (1 case), with 28.5%, 14.3%, 2.9%, and 1.4%, respectively (Figure 1).

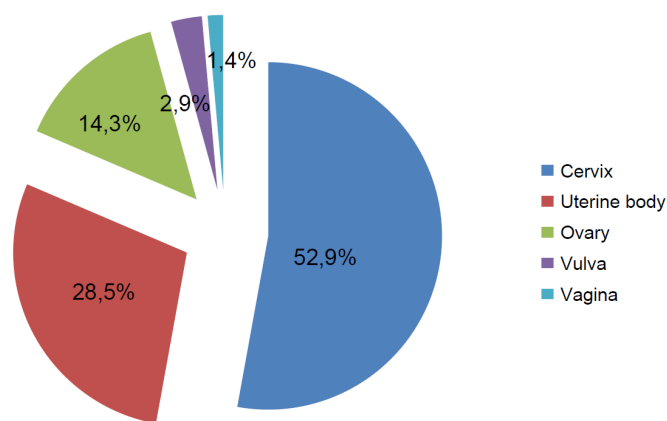


Figure 1: Distribution of gynecological cancers according to tumor location.

Clinically, metrorrhagia was the most frequent clinical finding. It was observed in 37 patients, or 52.9%, followed by the abdomino-pelvic mass (12 cases), leucorrhea, and increased abdominal volume (each observed in 5 cases), meno-metrorrhagia and hydorrhea (each observed in 4 cases), and pelvic pain (3 cases), with respectively 17.1%; 7.1%; 5.7% and 4.3% (Table 1).

On the ultrasound, the appearance of a solid tumor was the most frequent, found in 32 cases, or 45.7%.

On microscopic examination, epithelial tumors were largely predominant. They accounted for 61 cases, or 87.2%. Germ cell tumors accounted for six cases, or 8.6%. Mesenchymal tumors, gestational trophoblastic tumors, and mixed Müllerian tumors were rare, each observed in one case. Squamous cell carcinoma was the most frequent histological type, observed in 40 cases, or 57.1%, followed by adenocarcinoma (20 cases), and immature teratoma (6 cases) with 28.6% and 8.6% respectively. Small cell carcinoma, leiomyosarcoma, choriocarcinoma, and carcinosarcoma were each observed in one case, or 1.4% (Figure 2).

According to the location: cervical cancer accounted for 37 cases, or 52.9% of all gynecological cancers. The average age of the patients was 51.45 ± 12.49 years. Metrorrhagia was the main clinical sign, with 28 cases, or 75.7%. The biopsy was the most common type of sampling, performed in 78.4% of cases. On histology, squamous cell carcinoma predominated clearly (Figure 3), representing 31 cases, or 83.8%.

Uterine body cancer accounted for 20 cases, or 28.5%. The average age was 54.75 ± 11.85 years. The age group of 50 to 65 years was the majority, with 15 cases, or 75%. Metrorrhagia was observed in 9 cases, or 45%, while abdominopelvic mass was reported in 8 cases, or 40%. Adenocarcinoma was the most frequent histological type, representing 12 cases, or 60%.

Ovarian cancer accounted for 10 cases, or 14.3%. The average age was 40.60 ± 18.17 years. The age group of 30 to 50 years was the most represented, with 4 cases, or 40%. Abdominal enlargement was the main clinical finding, observed in 4 cases, or 40%. Immature teratoma was the most frequent histological type, representing 6 cases, or 60%.

Vaginal cancer was rare, with only one case, or 1.4%. It concerned a 43-year-old patient presenting with leucorrhea. It was a squamous cell carcinoma.

Vulvar cancer was also rare, with 2 cases, representing 2.9%. The patients were 69 and 70 years old. The histological type was squamous cell carcinoma in all cases.

The analytical study showed a significant correlation between age group and cancer location, with $p = 0.0002$. A significant correlation was also observed between clinical information and tumor location, with $p < 0.0001$. The type of sample was significantly associated with tumor location, with $p < 0.0001$. Finally, a significant

association was observed between histological type and tumor location, with $p < 0.0001$.

Table 1: Distribution of patients according to main clinical information.

Clinical information	Number (n)	Percentage (%)
Metrorrhagia	37	52.9
Meno-metrorrhagia	4	5.7
Abdomino-pelvic mass	12	17.1
Leucorrhea	5	7.1
Hydrorrhea	4	5.7
Increase in abdominal volume	5	7.1
Pelvic pain	3	4.3

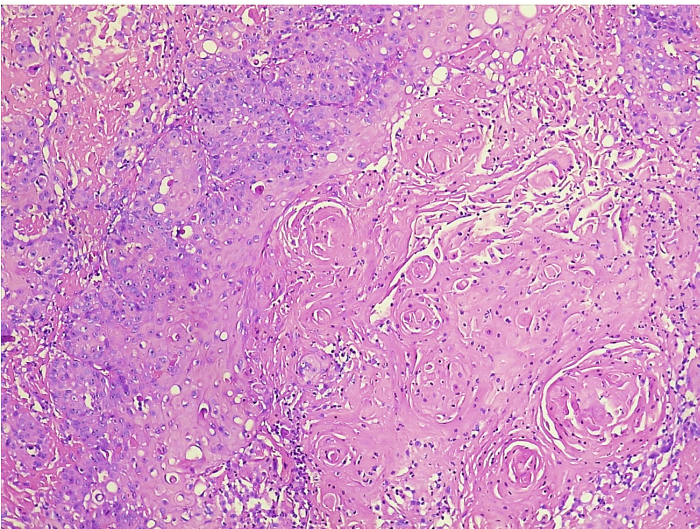


Figure 3: Histopathological examination of the cervix showing epidermoid carcinoma. Hematoxylin- eosin staining x 400.

Source: Department of pathology and Cytology, Hospital Center of Soavinandriana

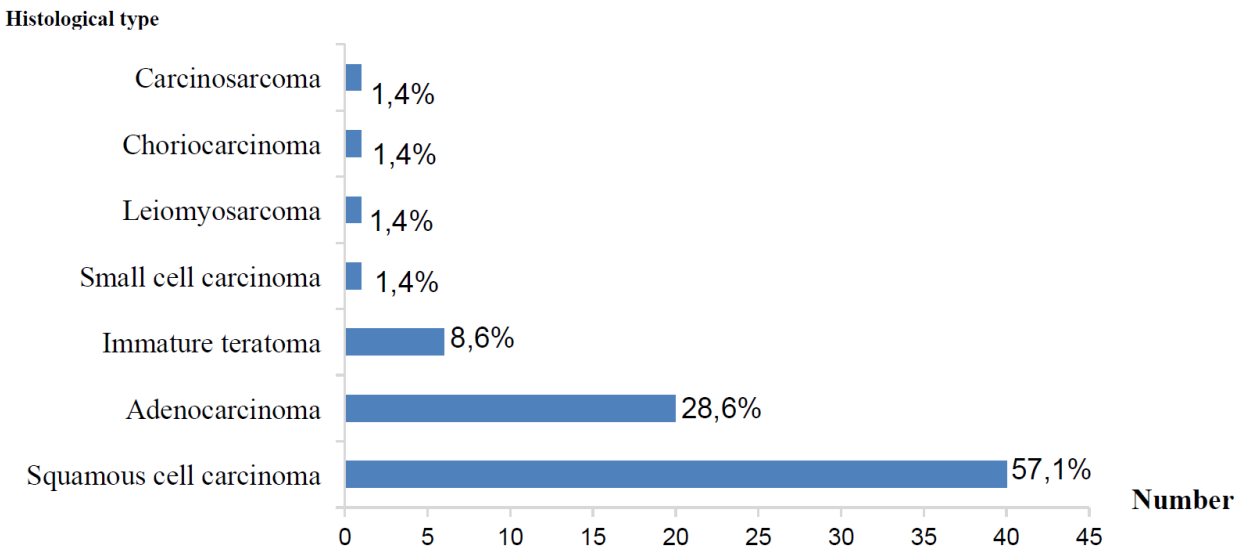


Figure 2: Distribution according to histological types.

Discussion

In this study, out of 3,041 recorded samples, 73 corresponded to gynecological cancers, or 2.4%. After exclusion, 70 cases were analyzed. This frequency should be interpreted with caution, as it is a single-center hospital study focusing only on histologically confirmed cases in a laboratory. The observed frequency is lower than that reported in some Malagasy and African series. Ravelomampitoniainarivony et al. described, in Antananarivo, a higher frequency of gynecological cancers diagnosed at the Pathology laboratory of the CHU-JRA [7]. Hounkponou et al.

also reported in Benin a larger series concerning gynecological and breast cancers between 2005 and 2015 [11]. These differences may be explained by the study period, the size of the source population, recruitment structures, and whether or not breast cancers were included in the comparative series.

The average age of the patients was 51.24 years. This data is close to several African series that report a predominance of gynecological cancers in middle-aged women. Hounkponou et al. found an average age of 48.15 years in Benin, and Dem et al. an average age of 49.5 years in Senegal [11,12].

The predominance of cervical cancer is one of the main results of this study. The cervix accounted for 52.9% of tumor locations. This result aligns with the data from numerous studies conducted in low-resource countries, where cervical cancer remains one of the most common female cancers. In Senegal, Dem et al. also reported a predominance of cervical cancer among gynecological cancers [12].

This predominance could be linked to several factors: persistent HPV infection, insufficient vaccination coverage, low utilization of screening, low level of health information, and limited access to specialized care. In countries with organized cytological or virological screening programs, the incidence of cervical cancer has decreased significantly. Conversely, in several African countries, screening remains opportunistic, irregular, or scarcely accessible [4,13,14].

Metrorrhagia was the most frequent clinical finding in the entire series. It was particularly observed in cervical cancers, where it concerned 75.7% of the cases. This result is consistent with data from the literature, which describe genital bleeding as one of the main warning signs of invasive cervical cancer [15,16]. However, the presence of metrorrhagia often indicates a disease already at an advanced stage. Uterine body cancer ranked second with 28.5% of the cases. It mainly affected women aged 50 to 65 years, with an average age of 54.75 years. Adenocarcinoma was the dominant histological type. These results are close to the classical data from the literature, where endometrial adenocarcinoma is often observed in peri- or postmenopausal women and frequently manifests as abnormal uterine bleeding [17,18]. Ovarian cancer represented 14.3% of the cases. The average age was 40.60 years, which is lower than in international series. The dominant histological type was immature teratoma. This result differs from

the majority of series in which epithelial carcinomas, particularly serous carcinomas, predominate in adults [19,20]. This difference may be related to the small size of the ovarian sample in the present study, limited to 10 cases.

Vaginal and vulvar cancers were rare, accounting for 1.4% and 2.9% of cases, respectively. This rarity is consistent with data in the literature, which considers these sites to be uncommon compared to cancers of the cervix, uterine body, and ovary [21,22]

Histologically, epithelial tumors represented 87.2% of cases. Squamous cell carcinoma was the most frequent type in the entire series, at 57.1%. This predominance is mainly explained by the high frequency of cervical cancers, which themselves are mostly represented by squamous cell carcinoma. The studies by Andrialambo in Madagascar and by Nayama et al. in Niger also showed a predominance of squamous cell carcinoma in cervical cancers [23,24].

Staging is essential to guide therapeutic strategy, assess tumor extent, and estimate prognosis. International recommendations emphasize the need for precise classification of gynecological cancers, particularly for cervical, endometrial, and vulvar cancers [25,26]. The presence of vascular emboli was reported in 5.7% of cases. This low percentage may correspond to a genuinely low frequency in the series, but it may also be influenced by the nature of the samples. In endometrial cancer, vascular emboli are among the prognostic factors used in risk classifications [27]. The statistical correlations observed reinforce the consistency of the results. The association between age and tumor location shows that cervical and uterine body cancers were more often linked to higher age groups. The correlation between clinical information and tumor location confirms that clinical manifestations differ depending on the affected organ.

The association between the type of sampling and the location reflects diagnostic and therapeutic practices. Biopsy predominated in cancers of the cervix, vagina, and vulva, which are more accessible to clinical examination. Excision was more frequent in cancers of the uterine body and ovary, often managed surgically [28,29].

Despite these limitations, this study provides useful data on the profile of gynecological cancers diagnosed at CENHOSOA. It highlights the need to strengthen cervical cancer screening, improve women's awareness, facilitate access to specialized consultation, and standardize anatomopathological reports.

Conclusion

Gynecological cancers diagnosed at the Pathology Laboratory of CENHOSOA between January 2013 and December 2018 were dominated by cervical cancer. The average age of the patients was 51.24 years, with a predominance in the age group of 50 to 65 years.

The results show a significant association between tumor location and several parameters, notably age, clinical information, type of sample, and histological type.

This study confirms the importance of anatomopathological diagnosis in the management of gynecological cancers. It also highlights the need to strengthen screening programs, especially for cervical cancer, to improve women's awareness, to facilitate access to specialized care, and to standardize anatomopathological reports. A multicenter study, involving a larger sample size and incorporating complete clinical, therapeutic, and follow-up data, would allow a better understanding of the actual profile of gynecological cancers in Madagascar.

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