

Epidemiological and Histological Profile of Cervical Cancer in Cameroon: About 2078 Cases

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Received 16 February 2016; accepted 16 March 2016; published 21 March 2016

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Abstract

Objective: To describe the epidemiological and histological aspects of cervical cancer in Cameroon. **Materials and Methods:** It was a descriptive retrospective study carried out over a period of 10 years (2005-2014), on malignant tumors of the cervix observed at the laboratory of Anatomic Pathology in four regions (Center, Littoral, West, South-west). The studied parameters were frequency, age, sex, localization, histological type and the immuno-histochemical aspects. **Results:** A total of 2078 cases with an annual frequency of 20.78 cases were registered; the peak was reached in 2010 with 304 cases (14.62%). Cervical cancer was the main genital cancer affecting women with a percentage of 82.26%. The average age of the patients was 52.33 ± 12.80 years old, with extremes from 22 to 93 years old. The age group from 40 to 59 had more than half of the cases, with 1094 cases (52.65%). The major histological types recorded were squamous cell cancer with 1687 cases (81.51%) and adenocarcinoma with 269 cases (12.95%). **Conclusion:** Cervical cancer is the chief genital cancer affecting female genital organs. The predominant histological types are squamous cell cancers.

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Keywords

Cancer, Cervix, Epidemiology, Histopathology, Cameroon

1. Introduction

Cervical cancer is the second most commonly diagnosed cancer and the third leading cause of cancer death among females in less developed countries. Incidence rates are the highest in countries with low income [1]. Nearly 90% of cervical cancer deaths occurred in developing parts of the world [1]. In sub-Saharan Africa, the annual incidence is 34.8 new cases per 100,000 women with annual mortality of 22.5 deaths per 100,000 women [2]. The WHO recognizes three categories of epithelial tumors of the cervix: squamous, glandular (adenocarcinoma), and other epithelial tumors including neuroendocrine tumors and undifferentiated carcinoma [3]. Depending on stage, primary treatment consists of surgery, radiotherapy, or a combination of radiotherapy and chemotherapy [3]. In Europe, 5-year survival rate is estimated to 62% for women diagnosed with cervical cancer [4]. In Africa, that rate is less than 60% (Gambia—21.8%, Uganda—45.8%, Zimbabwe—57.8%) [5]. In Cameroon, in 2012, cervical cancer was the second after breast cancer in Yaoundé [6]. The incidence of cancer continues to increase according to the recent studies. According to the results obtained by Sando *et al.* at the Gynaecological and Paediatric Hospital of Yaounde in 2013, it was 49.5% [7]. In a multicenter study conducted in the Littoral region in 2015, it represented 72.32% of all genital cancers, while 94.48% of malignant tumors were epithelial [8]. All these works are limited to their study framework and may not reflect the general idea; these are reasons why we made this multicenter study to present the epidemiological and histopathological profile of this serious disease in Cameroon.

2. Materials and Methods

This is a descriptive and retrospective study over a period of 10 years (from January 2005 to December 2014), concerning cervical cancers in four regions (Center, Littoral, West and South-west) of Cameroon. The study protocol was approved by Ethics Committee of all the concerned institutions. The patients were from gynecology or oncology services in different health centers of the country. The samples examined were mainly composed of biopsies and surgical specimens obtained from women suspected of cervical cancer. These tissue specimens were fixed in 10% formalin and processed according to the usual techniques of paraffin embedding, microtome cutting and staining with hematoxylin-eosin. Only those women for whom the diagnosis was confirmed by the histology were included in the study. The data consisted of independent variables such as patient frequency, age, histological type of the tumor. The dependent variable concerned the cervical cancer confirmed by histology. The analysis of variables was performed with the Statistical Package for Social Sciences (SPSS), as 16.0. The elements of descriptive statistics were used to calculate the frequencies and proportions.

3. Results

3.1. Epidemiological Aspects

3.1.1. Frequency of Genital Cancers in Women

From 2005 to 2014, 2559 cases of genital cancers in women were observed. Cervical cancer was the most frequent malignant tumour (2078 cases; 81.20%), followed by ovarian cancer (199 cases; 7.78%), as shown in **Figure 1** below.

3.1.2. Age

The average age of patients was 52.33 ± 12.80 with extremes ranging from 22 to 93 years old. The peak incidence was noted with patients from 40 to 49 years old with a percentage of 27.28% (578 cases) as shown in **Figure 2**.

3.2. Histopathological Aspects

3.2.1. Indication of the Histological Examination

Concerning clinical presentation of cervical cancers, their frequency is reported by **Table 1**. Ulcerative budding

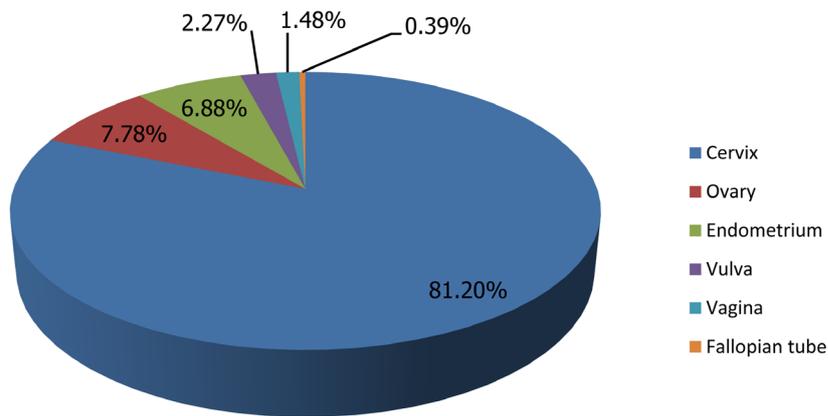


Figure 1. Distribution of genital cancers in women by seat.

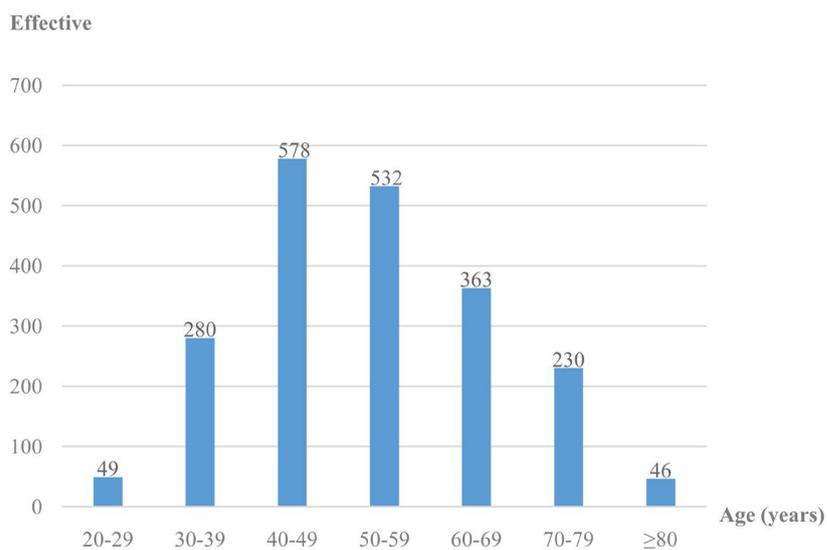


Figure 2. Distribution according to age groups.

Table 1. Distribution of clinical presentation.

Clinical presentation	Effective (n)	Percentage (%)
Polypoid lesions	71	13.65
Ulcerative budding	324	62.31
Bleeding	105	20.19
Induration	20	3.85

was predominant (62.31%), followed by bleeding (20.19%).

3.2.2. Histological Types

Table 2 shows the distribution of histological types of cancers diagnosed during the study. A total of 1687 (81.18%) cases of squamous cell carcinoma (SCC) and 269 (12.95%) cases of adenocarcinoma (ADK) have been identified (**Figures 3-5**).

4. Discussion

The cervical cancer is the most frequent genital cancer in women in our series (81.20%). This proportion is

Table 2. Relationship between histological types and age.

Ages	Histological types of cervical cancer						Total
	SCC	ADK	UC	ASC	NHL	Sarcoma	
20 - 21	35	8	2	4	0	0	49
30 - 39	230	35	9	7	0	0	280
40 - 49	455	90	13	14	2	4	578
50 - 59	425	77	7	17	2	4	532
60 - 69	308	33	8	14	1	0	363
70 - 79	200	18	5	4	0	1	230
≥80	35	8	1	1	0	1	46
Total	1687 (81.18%)	269 (12.95%)	45 (2.17%)	62 (2.98%)	5 (0.24%)	10 (0.48%)	2078 (100%)

Note: SCC: Squamous cell carcinoma; ADK: Adenocarcinoma; UC: Undifferentiated Carcinoma, ASC: Adenosquamous Carcinoma; NHL: Non-Hodgkin's Lymphoma.

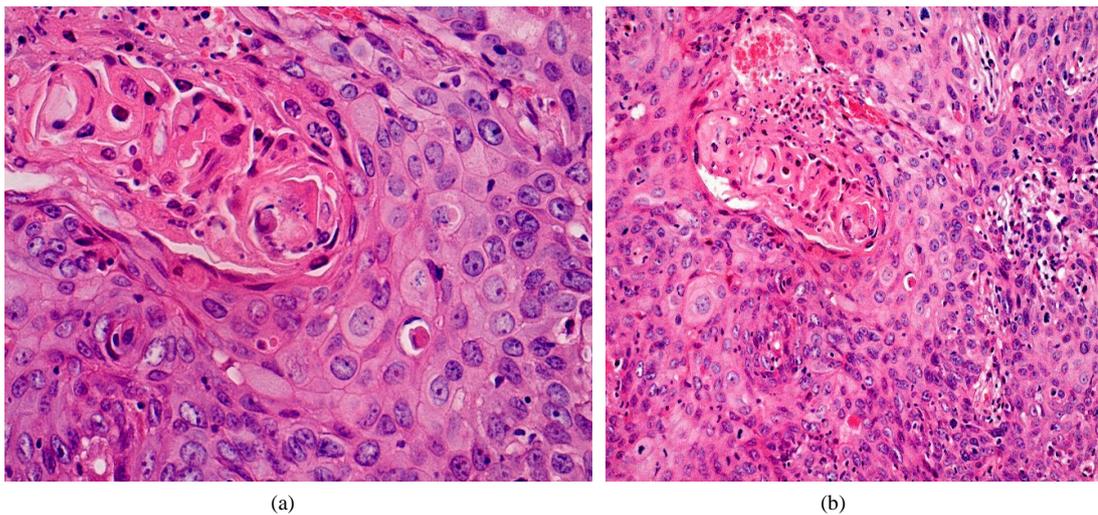


Figure 3. Well differentiated SCC (a) 400×; (b) 200×.

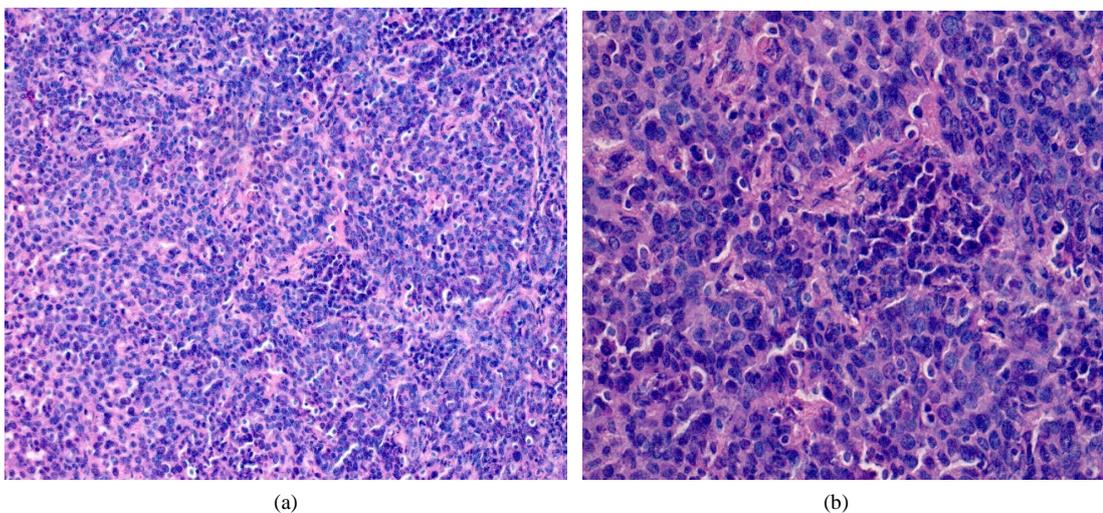


Figure 4. Poorly differentiated SCC (a) 200×; (b) 400×.

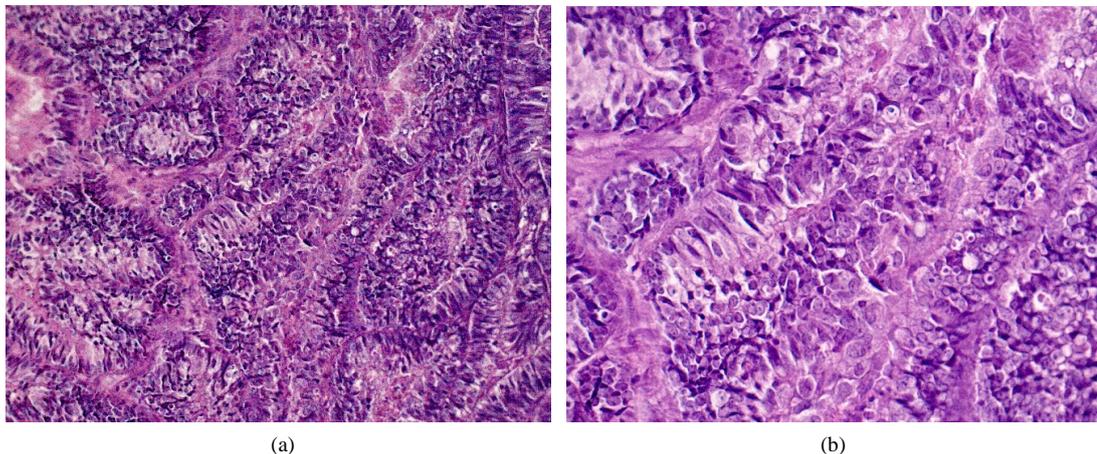


Figure 5. Well differentiated ADK (a) 200 \times , (b) 400 \times .

higher than what we found in the Littoral region of Cameroon in 2015, which was 72.32% [8]. It, however, remains lower than that found by N'Dah *et al.* in Ivory Coast (82.85%) [9]. The results of the study conducted on the incidence of cancer in Yaoundé in 2012, shows that cervical cancer was the second cancer after breast cancer [6], and represented 13.8% of all cancers irrespective of gender. The prevalence among young women in low-income countries is related to the existence of numerous risk factors and the lack of screening policy. According to some studies, Human papillomavirus (HPV) types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, and 59 are classified as causes of cervical cancer [3] [5] [9]. Fewer than 10% of persistent HPV infections progress to in situ carcinoma, if left untreated, can progress to cervical cancer [10] [11]. HPV16 and HPV18 account for 58% and 16% respectively of all cervical cancer cases [12]. Other factors can also act as cofactors in the progression of HPV infection toward cancer. Some of them are early unprotected sex, tobacco consumption, multi-sexual partner, cervix and vaginal recurrent infections, multiple pregnancies and immunodeficiency [5] [13]. Cervical squamous cell carcinoma risk is 1.5 times higher in current smokers than in people who have never smoked [14]. Cervical cancer risk is almost three times higher in women who had 6 or more sexual partners, compared to those who had only one [15].

The average age of patients was 52.33 ± 12.80 years old. This age is superimposed on those found in Yaoundé by Sando *et al.* (52.73 ± 3.82 years), Engbang *et al.* in Douala (51.22 ± 11.93 years old), and Elmajjawi *et al.* Morocco, in his series of 696 cases that had an average age of 50 years [7] [8] [16]. But this age is greater than the 47.36 years old mentioned by N'Dah *et al.* in Ivory Coast and the 49.5 years old indicated by Hasiniatsy *et al.* in Madagascar [9] [17]. The age group from 40 to 59 years old recorded the majority of cases (52.65%), as in the N'Dah's series where patients from 45 to 54 years made up the majority of cases [9]. This is closed to the Western values where the average age of women with cervical cancer is around 51 years [18]. Aging is also a risk factor for persistent infection. The rate of persistent high-risk infection for women older than age 55 is 50%, while the persistent rate of women younger than 25 years old is 20% [19]. Cervical cancer is extremely rare in women younger than age 20. However, many young women become infected with multiple types of human papilloma virus, which then can increase their risk of getting cervical cancer in the future. Early age at first intercourse is consistently found to be a risk factor in most of the early epidemiological studies of cervical cancer [15] [20]. Cervical cancer risk is double in women who first had sexual intercourse at the age of 14 or less, compared to those who did at 25 or more [15]. The importance of early age at first coitus lies in the fact that intercourse introduces a carcinogenic agent (HPV infection) to the cervical epithelium, which is most susceptible during adolescence [20]. It can be viewed as a proxy for time of HPV infection or the start of the latent period, and the effect of early age at first intercourse could be a reflection of a longer duration of exposure [20]. Use of oestrogen-progestagen contraceptives is also a cause of cervical cancer [21]. Cervical cancer risk is double in current oral contraceptives (OC) users who have used OCs for 5 or more years, compared to people who have never used it [21]. Cervical cancer risk may increase with longer duration of use, but is no higher in women who last took OCs 10 or more years than in those who have never used it [22].

The clinical aspect was described only in 520 patients (25.50%). The Ulcerative budding was the most com-

mon sign in 62.31% of cases, followed by the bleeding 20.19%, polypoid lesions 13.65% and induration 3.85%. N'Dah *et al.*, in their series have found ulcerative budding to be the main symptoms in 79.43% of cases, followed by polypoid lesions (9.21%) and induration was the fourth with 5.19% [9]. This is in contrast with Hasi-niatsy *et al.* in which the main inaugural symptom was an advanced bleeding found in 71.87% of the cases [17]. Almost all cervical cancers contain traces of the human papilloma virus (HPV), which is also causative in the cellular changes that bring about ASC-US (abnormal squamous cells of uncertain significance), LGSILs (low-grade squamous intraepithelial lesions) and HGSILs (high-grade squamous intraepithelial lesions) [23]. It is thought to infect basal cells within the cervical epithelium gaining access via minor trauma, or at the squamocolumnar junction [23] [24]. However, while HPV is sexually transmitted, the mechanism whereby a malignancy develops is not. The event that transforms a transient infection into cellular dysplasia or cancer is not fully understood. Integration of HPV into the cell genome is considered as an important step in the process [24]. The immune status is probably a significant factor [23].

Histologically, SCC was the predominant type with 1.687 (81.18%) cases, followed by the ADK with 269 (12.95%) cases. This predominance of the EC was discovered by several African authors. It is notably higher than the value found in the Cameroonian coast (72, 07%) [8]. Other studies have assigned even higher values: Sando *et al.* -87.6%, Hasi-niatsy *et al.* -88.50%, Nayama *et al.* -91.6% and Elmajjawi *et al.* -94% [7] [16] [17] [25]. However, in the West, Mubiayi *et al.* reported a trend applicable to ours with 81% cases of squamous cell carcinoma. However, more cases of adenocarcinoma were registered in their series, 17% [26]. According to studies, cervical squamous cell carcinoma risk is 74% - 80% higher in women with a first-degree relative with cervical squamous cell carcinoma, compared to the general population [27]. Cervical adenocarcinoma risk is 39% - 69% higher in women with a first-degree relative with cervical squamous cell carcinoma, compared to the general population, a number of studies showed [27]. Cervical squamous cell risk is 15% higher in women who have had 1 full-term pregnancy than in those who have never had; the risk increases with the number of full-term pregnancies [28]. The same study showed that cervical cancer risk among parous women is 77% higher in those under 17 at their first full-term pregnancy than in those aged 25 or more; the risk decreases with age at first full-term pregnancy [28]. There is no association with parity for adenocarcinoma [28]. Cervical squamous cell carcinoma risk is 1.5 times higher in current smokers than in people who have never smoked, and the risk increases with the number of cigarettes smoked per day [14].

5. Conclusion

Cervical cancer is a common disease in Cameroon where it is at the forefront of genital cancers in women. Squamous cell carcinoma is still the main histological type. Cervical cancer is preventable and curable in the very early stages of the disease. The implementation of a national screening policy, organization HPV vaccination and low cost screening programmes, can help to reduce the impact of cervical cancer in our population.

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