Scientific Research Publishing

Open Journal of Pathology, 2025, 15(2), 29-38
https://www.scirp.org/journal/ojpathology
ISSN Online: 2164-6783
ISSN Print: 2164-6775

Cervical Cancer: Activity Report at the Pathological Anatomy and Cytology Laboratory in Thies (Senegal)

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How to cite this paper: Bentefouet, T.L., Gueye, S., Thiam, I., Sow, A., Faye, J.A., Coulibaly, M.T., Ba, P.A., Ahouidi, M.J.D. and Dial, C.M.M. (2025) Cervical Cancer: Activity Report at the Pathological Anatomy and Cytology Laboratory in Thies (Senegal). *Open Journal of Pathology*, **15**, 29-38.
https://doi.org/10.4236/ojpathology.2025.152003

Received: November 10, 2024
Accepted: January 27, 2025
Published: January 30, 2025

Abstract

Introduction: Cervical cancer remains a public health problem in Senegal. The main cause is a persistent human papillomavirus (HPV) infection. The main objective of our study was to describe the epidemiological aspects and morphological characteristics of cervical cancers at Thiès Regional Hospital Center. **Methodology**: This is a retrospective, descriptive study conducted over a period of 4 years, from January 2020 to December 2023 at the Pathological Anatomy and Cytology Unit of the laboratory of Thiès Regional Hospital Center. Were included patients with a cervical cancer that was confirmed by histological examination. **Results**: A total of 161 patients were included. The mean age was 50 ± 1.41 years. The circumstances of discovery mainly consisted in the discovery of a cervical tumor mass during speculum examination. The patients mostly had multigestational and multiparous pregnancies for 9.4% and 7.6% respectively. The squamous cell carcinoma was the most common histological type with 95.7% of cases. **Conclusion**: Cervical cancer affects working women in the region of Thiès and is mainly discovered incidentally during gynecological examination. Emphasis should be put on vaccination, screening and treatment of precancerous lesions.

Keywords

Cervical Cancer, Thiès, Senegal

1. Introduction

Cervical cancer ranks second in Africa in terms of incidence and mortality [1]. In

Senegal, it remains the leading gynecological cancer and represents 34% of cancer cases, 30% of deaths, with a prevalence of 12.6%. The best control strategy therefore remains primary prevention through vaccination against the human papillomavirus [1]. The latter has been introduced into the vaccination program since October 2018 following a pilot phase carried out in Méckhé and the southern districts of Dakar. The target people were schoolgirls in the 9 - 14 age group. Subsequently, vaccination was extended to health facilities with the use of community health workers. Despite these efforts, vaccination coverage remains low. Through this study, we propose to examine the situation regarding cervical cancers diagnosed in the pathological anatomy and cytology laboratory of the Thiès Regional Hospital Center. The objective is to elaborate a clinical-pathological profile of patients in order to help develop a regional cancer registry, which is an essential tool for epidemiological surveillance and the fight against cancer.

2. Materials and Method

We conducted a retrospective and descriptive study over a period of 4 years, from January 1, 2020 to December 31, 2023. It was carried out at the pathological anatomy laboratory of Thiès Regional Hospital Center. Our study population consisted of patients with a cervical cancer that was confirmed by a histological examination. The cases meeting the inclusion criteria were identified from the pathological examination reports. Data collection was carried out in the same way for all patients. To carry out our work, a standardized information sheet was created for data collection (**Appendix 1**). The parameters reported were sociodemographic data (age, geographical origin, department of origin, socioeconomic class), clinical data (reasons for consultation, gravidity, parity, history of genital infections), speculum examination, imaging data (abdominopelvic ultrasound, abdominopelvic MRI), and anatomopathological variables (nature of the sample, histological type). Data entry was performed with Word 2016 Plus, and data analysis with Excel 2016 Plus. Our study is purely descriptive, and qualitative variables were described in the form of frequency tables, bar and pie charts. Quantitative variables were described by their position (mean, median) and dispersion (standard deviation, extremes) parameters.

3. Results

We collected 161 cases of cervical cancer out of 320 cervical lesions diagnosed in the pathological anatomy and cytology (ACP) laboratory of Thiès regional hospital, which represents 50.3% of all cervical lesions. The other lesions were represented by polyps, cervicitis, and epithelial dysplasia lesions (**Table 1**). The departments from which the tissue samples came were specified for 148 patients. The public hospital sector (regional hospitals, health-care establishments, health centers) represented 95.3% (n = 141) of the diagnostic activity. The private medical sector contributed 4.7% (n = 7). At Thiès regional hospital center, the samples came mainly from the maternity ward with 137 patients, or 97.2% of the cases.

The other services were represented by the urology department for 2 patients and the internal medicine department for 1 patient. The place of residence had been specified for 121 patients. One hundred and five (105) patients resided in the region of Thiès, including fifty-one (51) in urban areas and fifty-four (54) in rural areas. Sixteen (16) patients came from other regions of Senegal: Diourbel (11), Kaffrine (2), Dakar (2) and Kébémer (1).

Table 1. Spectrum of cervical lesions diagnosed in the ACP laboratory.

Cervical lesions	Number	Percentage
Cervical cancer	161	50.3%
Flat condyloma (CP)	13	4%
Inflammatory changes	84	26.6%
CIN1	9	2.7%
CIN2	19	2.2%
CIN3	2	0.6%
Endocervical polyp	18	5.6%
Fibrous polyp	3	0.9%
Endometrial polyp	8	2.6%
Granulation tissue	3	0.9%
TOTAL	**320**	**100%**

The mean age was 50 ± 1.41 years with a median of 53 years, and extremes of 30 years and 85 years. An important representation of women belonging to the 50 - 59 years and 60 - 69 years age groups was noted in our series. Patients aged less than 50 years represented 29.6% of cases (n = 46) and women aged 50 years and over represented 70.4% of cases (n = 109) (Table 2).

Table 2. Distribution of patients by age group.

Age	Number	Frequency
Less than 30 years old	0	0%
30 - 39 years old	14	8.7%
40 - 49 years old	32	19.8%
50 - 59 years old	49	30.5%
60 - 69 years old	38	23.6%
70 - 79 years old	17	10.5%
80 years old and over	5	3.2%
Not specified	6	3.7%
TOTAL	**161**	**100%**

The sampling patterns were variable. The lesions were discovered during the gynecological examination, and were predominantly cervical tumors as shown in Table 3.

Table 3. Main reasons for request according to patients.

Reasons for request	Number	percentage
Cervical tumor	88	92.5%
Cervical induration	1	1%
Cervical ulceration	3	3.1%
Erosion	1	1%
TAG3	1	1%
TAG2	1	1%
Total	95	100%

Gestation and parity were recorded in 32 patients. They represented 5.8+/−2.6 on average for gestation and 5.3+/−2.4 for parity (Table 4).

Table 4. Distribution of patients according to parity.

Parity	Number	Percentage
Nulliparous (0)	0	0%
Pauciparous (1 to 3)	9	5.5%
Multiparous (4 to 6)	12	7.6%
Large multiparous (≥7)	11	6.8%
Not specified	129	80.1%
Total	**161**	**100%**

The anatomopathological diagnosis was made only on biopsies. The most frequent histological type was squamous cell carcinoma with 86.4% of cases (n = 147) (Figure 1). Squamous cell carcinomas were well differentiated in 55 patients, which represents 37.5% of cases; moderately differentiated in 54 patients, or 36.7% of cases; and slightly differentiated in 38 patients, which is 25.8% of cases. Two (2) cases of chronic cervicitis associated with cervical cancer were reported.

Other histological types were adenocarcinomas and vitreous cell carcinomas (Table 5).

Table 5. Distribution of patients according to histological types.

Histological types		Number of cases	Percentage
Squamous cell carcinomas	Classics	147	91.3%
	A Spindle cells	1	0.6%
	Papillary	4	2.6%
	Verrucous	2	1.2%
Adenocarcinomas	Tubular	2	1.2%
	Villoglandular	3	1.9%
Vitreous cell carcinomas		2	1.2%
Total		**161**	**100%**

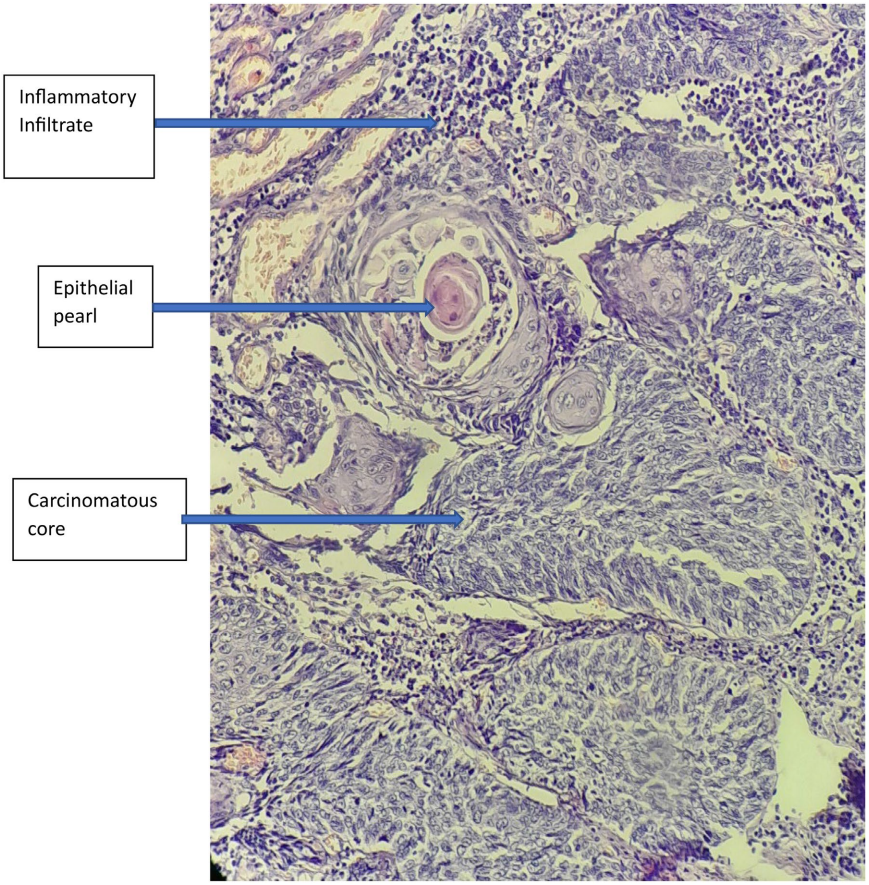

Figure 1. Moderately differentiated keratinizing and infiltrating squamous cell carcinoma of the cervix, HE X400. Labo Anapth CHRT.

4. Discussion

Our study was retrospective and descriptive. It extended over a period of 4 years. It consisted of the analysis of cervical cancers diagnosed by histological examination. These data were obtained after analyzing the reports of anatomo-pathological examinations. The results obtained show a frequency of 40 cases of cervical cancer per year. These data may not reflect the situation in the general population of our region. Indeed, the selection of patients only concerned the pathological anatomy and cytology laboratory of Thiès Regional Hospital Center. Moreover, in our context, patients most often resort to traditional treatments, which reduces the sample. We were also confronted with the recurrence of incomplete information on the anatomopathological examination reports, in particular on epidemiological data (age, geographical origin, etc.), risk factors (parity and gestation, onset of first sexual intercourse, number of partners, contraceptive use) and the reasons for consultation. Although the patients were seen, for the majority, at the regional hospital center, it was difficult to find their records at the requesting department. In fact, the records were not allocated single registration numbers, which posed a traceability problem. In the same hospital center, different registration numbers were assigned to the records in each care department. Such a

situation is an obstacle to having all the clinical information of our patients. As a result, we were unable to show a correlation between the risk factors of the disease and the occurrence of cervical cancer in our patients. In Thiès, based on screening data for precancerous cervical lesions, screening by visual inspection techniques or by cervical smears is still an uncommon habit in public health facilities or when mass screening campaigns are organized. HPV testing is not a common practice and was not performed on our patients. As a result, it is difficult to assess its prevalence in the population surveyed in order to establish a link between HPV infection and the development of cervical cancer. The average age at the time of diagnosis was 50 ± 1.41 years. This result is substantially close to that of Dieng in Dakar at the Joliot Curie Institute of Aristide-le-Dantec Hospital [2], who found an average age of 51 years in a study involving 24 patients. Bâ reported an average age of 55.39 years with extremes of 34 and 85 years [3]. Likonza in Gabon, on a series of 16 cases surveyed during the year 2022, found an average age of 57 years [4]. In Morocco, Berraho *et al.*'s group brought together patients followed for cervical cancer from 2003 to 2007, which reported an average age of 52.1 ± 11.8 years [5] at the time of the diagnosis. In Tanzania, Kidanto *et al.*'s study recorded a mean age of 48.8 years [6]. Western studies report values similar to ours. Jensen *et al.* made an estimation of cervical and corpus uteri cancers in all European Community member states and reported a median age of 51 years [7] at diagnosis**.** In contrast, in China, a younger population was observed by Shu *et al.* at diagnosis of cervical cancer, with a median age of 42 years [8]. Studies published in many African series, including Senegal, recognize that cervical cancer affects many women at the age when they are supposed to be more active, with important economic and family responsibilities. This is why the World Health Organization has called on all countries in the world to eradicate this disease, as a public health measure. Thus, by vaccinating 90% of girls before the age of 15, screening 70% of women in the 30 - 40 age group and treating at least 90% of cases of precancerous lesions detected at screening, the incidence of this cancer could be reduced by the end of the current century [9].

Patients resided in both rural and urban areas. Literature data report a predominance of patients residing in rural areas. Wen had noted a significantly higher disparity in rural areas [10]. The main reason given by the authors was the difficulty people living in rural areas had to access specialized medical centers. Our recommendations will be addressed to public authorities, who must work much harder to facilitate accessibility and increase the participation rate of patients in screening campaigns. The communication strategy based on community health workers, radio and television spots, and the establishment of mobile screening units could allow mass sensitization. The discovery of the disease in our context is at an advanced stage in 92.5% of cases. Our results are consistent with those of Castellsalgué, who reports 71% of patients with cervical cancer at an advanced stage [11]. *At this stage, cancers often have a poor prognosis; in addition, the cost of cancer treatments is also a barrier.* Thus, women's attention should be drawn

by suggestive signs such as metrorrhagia occurring in post-menopause or after a sexual intercourse [3]. The high gravidity and parity in our series are consistent with the data found in the literature. In the Tanzanian series, most of the precancerous lesions, or 92%, were observed in women who had had 5 or more pregnancies. Kidanto *et al.* had found in their series an average parity of 6.7 [6]. Similarly, the studies of Senghor *et al.* reported large multigravida and multiparous women in cancer patients [12]. However, the pathophysiological mechanism between the number of deliveries and the risk of cervical cancer is not completely elucidated. Several hypotheses have been suggested, including hormonal changes that occur during pregnancy or trauma to the cervix during childbirth [13]. Although it is well established that infection with high-risk types of human papillomavirus is central to the pathogenesis of cervical cancer [14], women with repeated genital infections, as is the case in 02 patients in our series, are at greater risk of developing cervical cancer compared to those who do not. Indeed, prolonged inflammation of the cervix would increase the risk of cervical cancer [14]-[16]. Genital infections with Chlamydia trachomatis (CT) are known to increase the risk of cervical cancer and infertility [5] [17] [18]. It is important that sufficient funds from the Ministry of Health budget be allocated to the prevention and control of cervical cancer; including HPV vaccination, cervical cancer screening and treatment.

Squamous cell carcinoma was the most common histological type in our study with 147 cases, or 91.3% of cases. These results are consistent with those of Mapoko *et al.* [19] with 85.6% of squamous cell carcinoma, Berraho *et al.* [5] with 90.5% of squamous cell carcinoma and Yazghich *et al.* [20] with a clear predominance of squamous cell carcinoma. Adenocarcinomas represented 3.1% of cases in our series. Sando *et al.* reported a rate of 12.4% [21]; Enow-Orock *et al.* found 87.33% of squamous cell carcinomas, 5.43% of adenocarcinoma and 1.8% of adenosquamous carcinoma [22]. Vitreous cell carcinoma is rarely described in the literature. It is a rare histological type of cervical cancer found in 02 patients in our series. This histological form is also described in endometrial cancers. It is a poorly differentiated variety of adenosquamous carcinoma responsible for 1 to 5.3% of cervical cancers in the series reported in the literature [23]. It is a misunderstood and aggressive entity, which is associated with a high risk of therapeutic failure. The prognosis is poorer compared to the squamous cell type.

5. Conclusion

Cervical cancer affects working women and is mainly discovered incidentally during a gynecological examination in our region. Prevention therefore remains an essential pillar in the fight against this scourge; and this will involve informing and educating the population, vaccination and screening.

Authors' Contribution

All authors contributed to the development of the work, and have read and approved the final version of this manuscript.

Conflicts of Interest

The authors declare having no conflicts of interest.

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Appendix 1: Survey Sheet

I. CIVIL STATUS:

1—Survey form number; 2—Year of diagnosis;

3—File number; 4—Requesting department;

5—Age; 6- Sex; 7—Profession;

8—Residence; 9—Ethnic group.

II. CLINICAL AND PARACLINICAL INFORMATION:

10—Reason for consultation and duration of evolution;

11—Gestation and parity;

12—Risk factors:

a—Early age for first sexual intercourse; b—Concept of smoking;

c—multiple partners; d—presence of repeated infections;

e—Indefinite.

13—Speculum examination;

14—Results of colposcopy.

III. HISTOPATHOLOGICAL INFORMATION:

15—Nature of the sample;

16—Histological type.