

Screening for Precancerous and Cancerous Lesions of The Uterine Cervix Using Visual Tests at The French-Speaking Regional Training Center for Gynecological Cancer Prevention in Conakry, Guinea

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Abstract

Introduction

The objectives of this study were to determine the frequency and to describe the histological type of precancerous and cancerous lesions of the uterine cervix at the Centre Régional Francophone de Formation à la Prévention des Cancers Gynécologiques in Conakry (CERFFO-PCG).

Materials and Methods

This was a 3-year retrospective descriptive and analytical study, from January 1, 2021 to December 31, 2023, conducted at the CERFFO-PCG in Conakry, based on the records of patients who had undergone cervical cancer screening.

Results

During our study, 3,681 women underwent screening, which revealed 102 VIA-positive cases (2.8%) and 121 VILI-positive cases (3.3%). The incidence of precancerous and cancerous cervical lesions was 47.4% and 7.4% respectively. The average age of patients was 42.83 ± 11.80 years, with extremes of 22 and 70 years. Multiparous women were the most numerous in our sample, accounting for 47.0% of cases. The most frequently encountered histological diagnosis was high-grade dysplastic lesions (CIN2 and CIN3), which accounted for 34.7%.

Conclusion

The frequency of precancerous and cancerous cervical lesions was very high in our study. Massive popularization of these tests coupled with HPV testing could improve the prognosis of cervical cancer in our country.

Keywords: Precancerous, Cancerous Lesions, Cervix, Screening, VIA/IVL, Guinea

1. Introduction

Cervical cancer is a malignant process linked to persistent infection with certain oncogenic human papillomaviruses (HPV) [1]. A sexually transmitted condition as a benign, asymptomatic precancerous lesion of the cervix, and can progress to invasive cancer in the absence of adequate management. The average time taken for the disease to develop is 20 years to reach the stage of invasive cancer, which consequently offers a long lead-time for screening [2].

Cervical cancer is largely preventable through secondary prevention and is accessible to screening, which improves the prognosis for cure when detected early [1,3]. Screening is a major public health need, yet few women benefit from it [4]. It is one of the most common cancers among women living in low- and middle-income countries and the absence of systematic screening programs in these countries is mainly responsible for the high incidence of cervical cancer observed in the female population [3,5].

Visual inspection of the cervix after application of acetic acid (VIA) and/or Lugol's solution (VILI) is a promising method of secondary prevention for most low-resource countries [6]. It is a simple, affordable approach to cervical cancer screening, particularly suited to the realities of developing countries [7]. VIA/VILI has the advantage of detecting operable pre-cancerous and cancerous lesions of the cervix with a sensitivity comparable to, and sometimes better than, that of the cervical smear. According to African studies, the sensitivity of the VIA/VILI test ranges from 79% to 97%, with a specificity of 87% to 96% [8].

In France, despite the existence of effective screening, it is responsible for around 1,100 deaths a year, and is one of the only cancers for which the prognosis is worsening, with a declining 5-year survival rate [9]. In developing countries, 80% of cervical cancer cases are undiagnosed or incurable at the time of diagnosis, and it is the second leading cause of cancer death in women, after breast cancer [10].

In Guinea, cervical cancer is the leading cancer among all cancers, and Globocan estimated the number of new cases per year at around 2551 (29.1%), leading to around 1695 (26.6%) deaths in the same year [11]. To reduce this death rate, health authorities decided to integrate cervical cancer screening into sexual and reproductive health services, accompanied by the establishment of community screening centers and awareness-raising campaigns [12]. In a study carried out in Conakry (Guinea), around 55% of women aged between 25 and 39 were screened [13].

The objectives of this study were to determine the frequency and describe the histological type of precancerous and cancerous lesions of the uterine cervix at the Centre Regional Francophone de Formation à la Prevention des Cancers Gynecological in Conakry (CERFFO-PCG).

2. Materials and Methods

2.1 Type of Study

This was a 3-year retrospective descriptive and analytical study conducted at the CERFFO-PCG in Conakry, from January 1, 2021 to December 31, 2023, on the records of patients who had undergone cervical cancer screening.

2.2 Selection Criteria

All women who had had at least one sexual intercourse and were admitted for cervical cancer screening with positive visual tests (VIA/VILI) and who agreed to participate in the study were included in the study. Not included in the study were the records of women admitted for cervical cancer screening whose visual test results (VIA/VILI) were negative, and those who did not agree to take part in the study.

2.3 Data Collection

We proceeded to an exhaustive recruitment of all women's files meeting the inclusion criteria. Data were collected using a pre-established survey form based on a literature review (consultation register, patient files, and histological reports). The variables studied were sociodemographic characteristics, visual test results (VIA/VILI) and histological findings.

2.4 Screening Procedure

Screening began only after the woman had given her informed consent. An interview was carried out to determine the woman's identity, gynecological history, parity and marital status. The woman then underwent a speculum examination, during which VIA and VILI tests were performed for screening purposes. If a VIA and/or VILI abnormality was found, a biopsy was performed, depending on the colposcopy result. Biopsy fragments were immediately fixed with 10% formalin and sent to the laboratory for histological confirmation.

2.5 Statistical Analysis

Data analysis was performed using SPSS 21.0 software. Descriptively, we calculated proportions for qualitative variables, and means, standard deviations and extremes for quantitative variables. Pearson's Chi2 test was used to compare variables. The difference was deemed significant when the p-value was less than 0.05.

2.6 Ethical Considerations

From an ethical point of view, we sought and obtained prior authorization from the department head. Informed consent was obtained from patients, and anonymity and confidentiality were respected.

3. Results

3.1 Characteristics of VIA/IVL-Positive Women

223 VIA/VILI-positive women out of 3681 were included in the study. The mean age was 42.83 ± 11.80 years, with extremes of 22 and 70 years. The 40-49 age group was the most represented, accounting for 44.4% of cases. The majority of women were married (86.1%), unschooled (66.4%), self-employed (44.4%),

resident in Conakry (60.0%) and multiparous (47.0%) (Table 1).

Characteristics	Numbers (n=223)	Percentages
Age (years)		
<30	13	5.8
30-39	45	20.2
40-49	99	44.4
≥50	66	29.9
Average age : 42,83 ± 11,80	Extremes :22 and 70 years	
Marital status		
Married	192	86.1
Single	05	2.2
Divorced	17	7.6
Widowed	09	4.0
Education level		
Uneducated	148	66.4
Educated	75	33.6
Profession		
Housewives	78	35.0
Liberal	99	44.4
Employed	46	20.6
Origin		
Conakry	134	60.0
Outside Conakry	89	40.0
Parity		
Nulliparous	15	6.8
Primiparous	32	14.3
Pauciparous	71	31.9
Multiparous	105	47.0

Table 1: Distribution by Characteristics of Women Tested Positive For VIA/IVL

3.2 VIA/ VILI Screening and Colposcopy Results

In our study, 3,681 women were screened, with 102 cases (2.8%) positive on visual inspection after application of acetic acid (VIA) and 121 cases (3.3%) positive on visual inspection after

application of Lugol's iodine (VILI). Colposcopy results showed that 141 (3.9%) women had low-grade atypical transformation, 82 (2.2%) women had high-grade atypical transformation and 202 (5.5%) women had colpitis (Table 2).

Variables	Numbers (n=3681)	Percentages
VIA		
Negative	3570	97.0
Positive	102	2.8
Suspicion	9	0.2
VILI		
Negative	3551	96.5
Positive	121	3.3
Suspicion	9	0.2
Colposcopy result		

Normal and satisfactory	3244	88.1
Unsatisfactory	12	0.3
Colp	202	5.5
Low-grade atypical transformation	141	3.9
High-grade atypical transformation	82	2.2

Table 2: Distribution of Women According to VIA/VILI Screening Results

3.3 Biopsy and Histological Diagnosis

Biopsy was performed in 204 (91.5%) women and not performed in 19 (8.5%). The most frequently encountered histological diagnosis was cervicitis (33.8%), followed by high-grade dysplastic lesions including 41 cases of CIN2 (20.0%) and 30 cases of CIN3

(14.7%), low-grade dysplastic lesions (CIN1) in 12.7% of cases, invasive cancer (squamous cell carcinoma) in 7.4% of cases, and in 9 women (4.4%) the histological diagnosis was not available (Table 3). The frequency of precancerous (CIN1, CIN2, CIN3) and cancerous cervical lesions was 47.4% and 7.4% respectively.

Variables	Numbers	Percentages
Biopsy		
No	19	8.5
Yes	204	91.5
Histological diagnosis		
Not available	9	4.4
Normal	14	7.0
Inflammatory/cervicitis	69	33.8
CIN1	26	12.7
CIN2	41	20.0
CIN3	30	14.7
Squamous cell carcinoma	15	7.4

Table 3: Distribution of Women by Biopsy and Histological Diagnosis

3.4 Factors Associated with Histological Diagnosis and Age

Precancerous lesions of the cervix were more frequently diagnosed in women in the 40-49 age bracket (13 cases of CIN1, 21 cases of CIN2 and 18 cases of CIN3), and invasive cancer in women with an age ≥ 50 years (9 cases). There was a significant statistical relationship (X^2 : 67.91; $P=0.000$) between age group and the occurrence of histologically diagnosed precancerous and cancerous cervical lesions (Table 4).

3.5 Factors Associated with Histological Diagnosis and Parity

Precancerous and cancerous lesions of the cervix were more frequently encountered in multiparous women: 15 cases of low-grade dysplasia (CIN1), 29 cases of high-grade dysplasia (16 CIN2 and 13 CIN3) and 10 cases of invasive cancer. There was a statistically significant association (X^2 : 34.50; $P=0.01$) between parity and the occurrence of histologically diagnosed precancerous and cancerous cervical lesions (Table 5).

Histological diagnosis	Age group (years)				Total
	< 30	30-39	40-49	≥ 50	
Not available	4	3	0	2	9
Normal	3	6	1	4	14
Inflammatory/cervicitis	1	16	37	15	69
CIN1	1	6	13	6	26
CIN2	1	5	21	14	41
CIN3	0	4	18	8	30
Squamous cell carcinoma	0	1	5	9	15
Total	10	41	95	58	204

Table 4: Distribution of Women by Histological Diagnosis and Age Group

	Parity				
Histological diagnosis	Nulliparous	Primiparous	Pauciparous	Multiparous	Total
Not available	0	2	5	2	9
Normal	2	5	4	3	14
Inflammatory/cervicitis	0	7	22	40	69
CIN1	2	2	7	15	26
CIN2	4	10	11	16	41
CIN3	0	3	14	13	30
Squamous cell carcinoma	0	1	4	10	15
Total	8	30	67	99	204

Table 5: Distribution of Women by Histological Diagnosis and Parity

4. Discussion

The mean age (42.83 ± 11.80 years) of VIA- and VILI-positive patients in our study was higher than that of Atade et al in Benin, who reported a mean age of 36.46 ± 8.12 years [14]. This result was close to those of Mali, who reported a mean age of 38.37 ± 11.94 years [15]. The Donka National Hospital in Guinea reported that precancerous cervical lesions were more frequent in women aged 30 to 39 (44.8%), with a maximum between 35 and 39 (27.8%), and that more than half the women were under 40 [16]. Most of the women were married and lived in polygamous households, which could be a factor in the occurrence of genital infections. In Brazzaville found a frequency of 65.33% of married women [4].

With regard to level of education, our results were identical to those of Diallo et al, who found a higher frequency among women with no schooling (71.6%) [16]. This result differs from those of Antaon et al in Congo Brazzaville and Atade et al in Benin, who reported that women with secondary education were the most frequently encountered, with proportions of 47.33% and 36.9% respectively [4,14]. Our result could be explained by the low educational level of the Guinean population, 57% of whom are illiterate, 69% of whom are women [17]. With regard to origin, our finding is shared by Diallo et al who found that 85.7% of patients came from all the communes of Conakry and that this result could be explained by the proximity of the screening center located in Conakry [16]. With regard to parity, the high frequency of multiparous women (47.0%) in our study was higher than that (37.6%) of Atade et al in Benin [14]. On the other hand, Keita et al [15] in Mali reported a different result, with a predominance of large multiparous women (33.60%) [15].

The positivity rate of visual tests for the detection of precancerous and cancerous lesions of the cervix varies from country to country and is variously reported in the literature. Our frequency (6.1%) VIA/VILI was close to that (6.81%) of Kabidou et al in Benin, and higher than that (4.2%) reported by Henri et al in Cameroon [18,19]. Biaye et al in Senegal recorded a frequency of 10.2% VIA [20]. In Gabon, Mpiga et al recorded frequencies of 5.82% and 8.41% VIA/positive VILI respectively [21]. Keita et al reported very high frequencies in Mali: 15.7% and 17.1% VIA/VILI positive [15]. These different frequencies may be due to unequal sample sizes.

Regarding histological diagnosis, Ngowa et al in Cameroon had recorded respective frequencies of 26.08% CIN1, 30.43% CIN2 and 26.08% CIN3 following histology performed postoperatively for the management of cervical intraepithelial neoplasia [22]. In Guinea, Diallo et al had reported in 2017 that more than half of patients had high-grade lesions including 70 cases of CIN2 (34.8%) and 37 cases of CIN3 (18.4%), 60 cases (29.8%) of low-grade lesions (CIN1) and Soumah et al in 2018 had reported in the same department a decrease in the frequency of low-grade intraepithelial lesions (14.6%) and high-grade intraepithelial lesions (7.9%) [16,23]. Nahet et al in Algeria found 8.5% low-grade intraepithelial lesions (LIEBG), 1.3% high-grade intraepithelial lesions (LIEHG) and, in cancerous cases, squamous cell carcinomas and adenocarcinomas represented the same percentage (0.08%) for a single case [24]. This difference could be explained by the effectiveness of prevention of sexually transmitted infections (STIs), among which HPV infection is a risk factor for cervical cancer.

The frequency of precancerous (47.4%) and cancerous cervical lesions (7.4%) in our series was higher than that of Keita et al in Mali, who found precancerous and cancerous cervical lesions at 38.1% and 3.7% respectively [15]. Atade et al in Benin reported a low frequency of precancerous cervical lesions (6.2%) [14]. Soumah et al in Guinea found a frequency of 9.1% of cervical cancer [23]. This was higher than the 4.34% reported by Ngowa et al in Cameroon [22].

Concerning the factors associated with the histological diagnosis of precancerous and cancerous lesions of the cervix in relation to age, Keita et al in Mali reported that low-grade dysplastic lesions predominated in the 15-45 age group, with 8.37% of cases; high-grade dysplasia and invasive cancer predominated in the 31-75 age group, with 10.47% and 3.49% of cases respectively, and found a significant statistical relationship between age group and histological type. $X^2: 72.203; P=0.000$ [15]. In terms of parity, they reported that precancerous and cancerous lesions dominated in large multiparous females, with 74 cases: 23 cases of atypia, 14 cases of mild dysplasia, 16 cases of moderate dysplasia, 7 cases of severe dysplasia and 14 cases of invasive cancer, with a significant statistical test. $X^2: 40, 806; P=0.006$ [15]. In the study

by Kabidou et al in Benin, age ($P=0.0014$) and parity ($P=0.004$) were associated with precancerous and cancerous cervical lesions, with statistically significant differences [18,24].

5. Conclusion

Precancerous and cancerous lesions of the uterine cervix were frequently diagnosed at our center. Associated factors were age and parity. Visual inspection methods after application of acetic acid and Lugol's are effective in detecting these lesions. Mass popularization of these tests, coupled with HPV testing, could improve the prognosis of cervical cancer in our country.

Authors' Contributions

Diallo Fatoumata Bamba and Balde Ibrahima Sory wrote the manuscript from introduction to references. Diallo Mamadou Hady and Sow Alhassane II participated in the analysis of results, drafting of the discussion, rereading and correction of the manuscript. Diallo Issa was involved in data collection. Leno Daniel William Athanase, Balde Ibrahima Sory, Sy Telly and Keita Namory proofread and corrected the manuscript. All authors read and approved the final version of the manuscript.

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