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The Prevalence of Female Genital Bilharziasis (FGB) in the Northern Region of Senegal

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Abstract

Introduction: Female Genital Bilharzia (FGB) is a pathology secondary to infection by Schistosoma haematobium. It is one of the neglected tropical diseases, capable of causing infertility, difficulties in childbirth and even cervical cancer. It represents a real public health problem. We therefore conducted a study in the maternity ward of the Saint-Louis regional hospital, with the overall aim of determining the prevalence of FBG in patients undergoing colposcopy. The specific objectives were to define the patient profile, and to compare colposcopic images with the World Health Organization (WHO) atlas. **Methodology:** We conducted a descriptive, analytical cross-sectional study of all colposcopic images taken at the maternity ward of the Saint-Louis regional hospital from August 1, 2018, to September 30, 2020, *i.e.* 25 months. The images were compared with the BGF images described in the WHO atlas. Results: We collected 178 colposcopy images. FBG images numbered 50, or 28%. The mean age of the patients was 44.5 years ±11.4 at the extremes of 18 and 78 years. Mean gestational age was 4.69 ± 2.72. Among patients with a bilharzian lesion on the cervix, visual acid inspection (VIA) was negative in 60% of cases (p = 0.007, Odd Ratio = 3.6 (1.49 - 9.07)). **Conclusion:** the results of our study show that FBG is a reality in our daily practice. It occurs in adult, multigestating, non-occupational women whose examination reveals a negative visual inspection with acetic acid (VIA). Healthcare providers therefore need to be trained in the recognition of lesions associated with genital bilharziasis, and public awareness needs to be raised.

Keywords

Female Genital Bilharziasis, Colposcopy, Saint-Louis, VIA

1. Introduction

Female Genital Bilharzia (FGB) is a pathology secondary to infection by Schistosoma haematobium. It is one of the neglected tropical diseases, capable of causing infertility, difficulties in childbirth and even cervical cancer. It represents a real public health problem. At least 261 million people require treatment for schistosomiasis, and up to 659 million people are at risk. Senegal has had a bilharzia control program since 1999 [1]-[6]. In contrast to the scarcity of data on genital bilharziasis, data are available on urinary and urinary bilharziasis. We therefore conducted a study in the maternity ward of the Saint-Louis regional hospital, with the general aim of determining the prevalence of BGF in patients undergoing colposcopy. The specific objectives were to define the patient profile, and to compare colposcopic images with the WHO atlas.

2. Methodology

Type of study: we had conducted a cross-sectional study aimed analytical over the period from August 1, 2018 to September 30, 2020, or 25 months. The setting was the unit for diagnosis and management of precancerous lesions of the uterine cervix, the laboratory for application and research in health sciences (LARESS), the anatomy and pathology department of the Saint-Louis regional hospital and the molecular biology laboratory of the training and research unit in health sciences of the Gaston Berger University of Saint-Louis. Reading was carried out by a senior gynecologist-obstetrician.

Study population: all women who underwent colposcopy at the diagnostic unit for precancerous cervical lesions at the maternity ward of the Saint-Louis regional hospital in Senegal.

Sampling: we have an exhaustive census of all colposcopy cases.

Inclusion criteria: genitally active women living in the northern zone of Senegal, with a completed colposcopy form.

Non-inclusion criteria: patient refusing to participate in the study.

Images were compared with those in the WHO atlas.

Treatment of variables: for each qualitative variable, we calculated its relative frequency and 95% Confidence interval. For quantitative variables, we analyzed the normality of the distribution. In the case of a normal distribution, the mean and standard deviation are calculated. In the case of an abnormal distribution, we calculate the median surrounded by the extremes. Quantitative variables are compared using the Chi2 test, while qualitative and quantitative variables are compared using the Student's t test. The significance threshold is set at 0.05. Where there is a link between two variables, the p-value is calculated, as is the strength of the link using the Odd Ratio.

3. Results

- Prevalence of female genital bilharziasis

We collected 178 laparoscopic images. All images were compared with those

in the WHO atlas. Thus, 50 images were related to FGB, representing a prevalence of 28%.

- Socio-demographic characteristics

Table 1 shows the socio-demographic characteristics of patients with FGB lesions. The mean age of the patients was 42.6 ± 11.3, mean gestite 4.98 ± 2.68. No resource-generating activity was present in 64%. Patients were active in 67% of cases.

- Clinical features

Symptoms prior to colposcopy were dominated by:

- Leucorrhoea in 57% of cases;
- Spontaneous metrorrhagia or after contact in 20% of cases;
- Pelvic pain in 10% of cases;
- Cervical tumours in 3% of cases.

- Visual inspection

Visual inspection with acetic acid (VIA) was positive in 32 patients, *i.e.* 64% of cases.

- Colposcopic aspects

The laparoscopic images found were dominated by sand-grain aspects (38%). These included rubbery images, irregular blood vessels and yellow spots.

- Anatomical-pathological aspects

Figure 1 shows the results of a biopsy of a vaginal mass.

Table 1. Socio-demographic characteristics of patients.

Parameters	Presence of lesions	No lesions	P value
Age	42.6 ± 11.3	45.3 ± 11.4	0.16
Gestite	4.98 ± 2.68	4.57 ± 2.73	0.3
Parity	4.48 ± 2.58	4.23 ± 2.65	0.58
Profession - without - With	32 (64%) 18 (36%)	87 (71%) 34 (28.1%)	0.3
Genital activity - Genital activity - Menopausal	32 (67%) 16 (33%)	75 (67%) 37 (33%)	0.9

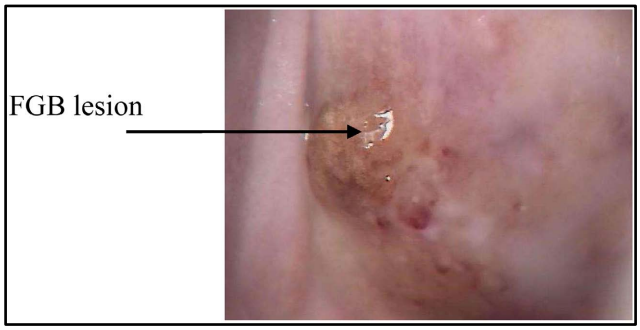

Figure 1. Vaginal lesions secondary to bilharzian infection.

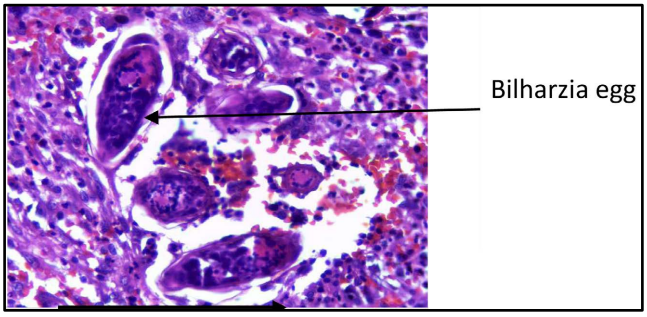

Figure 2. Presence of embryonated eggs of terminal spurred bilharzia.

A biopsy of a genital tumour in the vagina revealed bilharzia eggs in terminal spur (**Figure 2**).

4. Discussion

In our study, the prevalence of BGF was 28%. The northern region of Senegal is marked by a high endemicity of bilharzia. In Zambia, A. Sturt [7] found a 38.5% frequency of FBG lesions in colposcopic examinations.

In our study, the profile was that of a young woman, with an average age of 42 and no income-generating activity. This profile is encountered in the bilharzia-endemic country of Mali by Fachinan [8], Poggensee G. in Tanzanie [9].

To facilitate visual diagnosis of female genital lesions secondary to bilharzia, the WHO Atlas is an indispensable, accessible and reproducible tool, an alternative to biopsy. Comparison of the images enabled us to note the presence of 50 cases of FBG lesions, with a predominance of sand-grain aspects. These data were also found by Kjetland in Zimbawe in 2005 [10] [11].

As colposcopy is not available at all levels of the health pyramid in Senegal, visual inspection was used to detect a positive result, a finding corroborated by the African literature. In Mali, Fachinan [8] found that 85.4% of VIA tests were positive.

5. Conclusions

In the light of these observations, we can affirm that FBG is a reality in our practice. It occurs in young women with multiple gestations. Laparoscopic findings are dominated by sand grain or sandy plaque images. Reproductive health care providers know little about it.

We therefore recommend that providers (nurses, midwives, gynecologists) be guided in its detection, that colposcopic images be rigorously analyzed, and that the authorities and the community be made aware of this pathology. In the future, the link between female genital cancers and bilharzian lesions should be investigated.

Authors' Contributions

Ousmane THIAM: image reading;

Maimouna Ndour: data collection;

Doudou Sow: biological analysis of results;

Dibor Niang: Anatomical pathological analysis of biopsies;

Cherif Cheikh TouradeSarr, Djibrl Bahaid Sow, Mamoune Ndiaye: review of colposcopy images.

Conflicts of Interest

The authors declare that they have no conflict of interest.

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