Case Report: Cervical Schistosomiasis as a Risk Factor of Cervical Uterine Dysplasia in a Traveler

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Abstract. Female genital schistosomiasis (FGS) may be under-recognized in endemic areas as a cause of cervical dysplasia, neoplasia, infertility, and as a facilitator of the transmission of HIV. To the best of our knowledge, few cases of FGS mimicking neoplasia have been reported in travelers. We report a clinical case of a 34-year-old white woman who presented with a severe cervical dysplasia, without any features of human papilloma virus infection, 2 years after bathing in a waterfall, a source of schistosomiasis, in Mali. Schistosomes eggs were found on the conization. Management included conization and medical treatment, resulting in a full clinical and histologic recovery. FGS should be kept in mind as a possible cause of cervical dysplasia in endemic areas. Medical treatment with praziquantel improves this condition.

INTRODUCTION
Schistosomiasis is a parasitic helminthic disease affecting ~250 millions people in developing countries.1 The infection occurs when humans enter snail-infested waters. Schistosomiasis of the lower and upper reproductive tract, defined as female genital schistosomiasis, has the potential to be debilitating and can lead to life-threatening sequelae.

CASE REPORT
We report the observation of a 34-year-old white woman hospitalized for genital cervical schistosomiasis (CS). Two years before admission, she traveled to Mali and took a bath in the Plate Dogon waterfall, considered to be an important source of schistosomiasis.2 A cervical smear (Figures 1 and 2) for persistent intermenstrual bleeding was performed. This showed inflammatory lesions and cytologic changes consistent with dysplasia. At colposcopy, an area of high-grade cervical intraepithelial neoplasia was identified, and a cone biopsy was subsequently carried out. The endocervical epithelium presented features of early metaplasia. Human papilloma virus (HPV) hybridization was negative. Schistosoma haematobium eggs were found inside the chorion, surrounded by granulomatous inflammation without evidence of malignancy. The patient denied any history of signs and symptoms consistent with urinary tract schistosomiasis, and clinical examination (gynecologic inspection excluded) was normal. Parasitologic examination of the urine was negative for schistosomes eggs. HIV screening was negative.

A single dose of 2.4 g praziquantel was administered. The treatment was well tolerated, and the patient was re-examined 1 month after discharge and was completely asymptomatic. Another cervical smear was performed 3 months after antiparasitic treatment: parasitologic examination was negative, and there was no histologic abnormality.

DISCUSSION
Female genital schistosomiasis (FGS) is almost exclusively caused by S. haematobium. After maturation in the liver, adult schistosomes leave the portal vein and colonize the anorectal plexus. After that, worms access easily to the perivesical plexus and the utero-vaginalis plexus either by traversing the rectovaginal septum or through vascular links between the bladder and the reproductive organs.3

The clinical and histopathologic pictures of FGS vary according to the organ affected. Ovaries, Fallopian tubes, uterus, placenta, cervix, vagina, vulva, clitoris, and breast can be affected. Hypersensitivity response to S. haematobium eggs lead to chronic granulomatous inflammation and pre-cancerous or cancerous lesions.3 Symptoms associated with CS consist of dysmenorrhea, menorrhagia, leukorrhea, lower abdominal pain, post-coital bleeding, dyspareunia, and inter-menstrual bleeding. Additionally, nodular hypertrophy, cauliflower-like growths, and ulcerative and polypoid lesions have been described.4 These lesions may look malignant and many women might undergo surgery such as hysterectomy on false clinical premises. Diagnosis of CS is relatively easy using the quantitative compressed biopsy technique.5 CS is a curable disease. Indeed, after a single dose of praziquantel, lesions usually resolved within 9 weeks.6

Chronic infections with schistosomes species have been thus far associated with carcinogenesis. There is strong evidence that S. haematobium is carcinogenic, leading to squamous cell carcinoma of the urinary bladder. Schistosoma japonicum is possibly carcinogenic to humans, leading to colorectal cancer and is a risk factor for hepatocellular carcinoma formation, and Schistosoma mansoni may still be linked to hepatocellular carcinoma through potentiating the effects of hepatitis B virus and hepatitis C virus on the liver.7

CS might play an additional role in HPV-induced cervical dysplasia and cancer. In fact, Moubayed and others8 observed that, in all cancer cases in which CS was also present, the lesions co-infected with HPV.

In conclusion, for female travelers coming from endemic areas, CS should be considered as a curable cause of dysplasia.

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Figure 1. A cervical smear with cytologic changes consistent with dysplasia and organisms consistent with *S. haematobium* calcified eggs (arrows) surrounded by granulomatous inflammation.

Figure 2. A cervical smear with cytologic changes consistent with dysplasia and organisms consistent with *S. haematobium* calcified eggs (arrows) surrounded by granulomatous inflammation.