

Schistosoma haematobium in a human immunodeficiency virus-positive patient with cancer of the cervix

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Introduction

Schistosomiasis of the genital tract is uncommon, but is not infrequently encountered in Africa.^{1,2} Usually it will involve the rectum or the bladder, but genital tract involvement has been reported in areas with a high prevalence of the disease.³ Furthermore, schistosomiasis may increase the risk of human immunodeficiency virus (HIV) infection.⁴ It has also been postulated that schistosomiasis may be a risk factor for the development of cervical cancer.⁵

Case study

A 52-year-old woman was referred to the University of Pretoria's Department of Radiation Oncology with a diagnosis of cervical carcinoma stage IIIb. She had a history of postmenopausal vaginal bleeding for one year before she attended hospital. Her general examination was unremarkable and she did not have hepatosplenomegaly.

Further gynaecological examination and special investigations confirmed stage IIIb cervical cancer. A cervical biopsy reported a moderately differentiated adenocarcinoma with a papillary growth pattern. The patient's other medical conditions included hypertension, and she was HIV positive, for which she was on antiretroviral therapy. Prior to starting radiotherapy, her CD4 count was 401 cells/mm³.

She was treated with a radical course of radiotherapy, consisting of 50 Gy whole-pelvis irradiation in 25 fractions with weekly cisplatin (30 mg/m²), followed by high-dose-rate brachytherapy of 24 Gy in three fractions. Unfortunately, because of a significant reduction in her CD4 count, she received only one cycle of chemotherapy. However, she completed the full dose of radiotherapy uneventfully.

Six months after radiotherapy, she developed episodes of vaginal bleeding and, on gynaecological examination, she was found to have a nodular lesion on the cervix. The initial clinical impression was of a residual tumour. A Papanicolaou (Pap) smear was repeated. The Pap smear did not reveal any evidence of malignancy, but *Schistosoma haematobium* was present (Figures 1 and 2). She was then referred for management of the schistosomiasis.

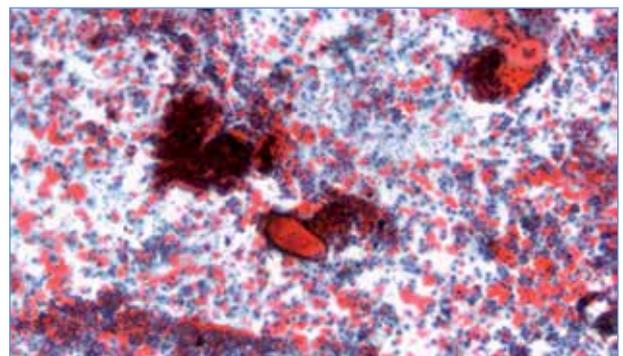


Figure 1: Photomicrograph showing *Schistosoma* ova

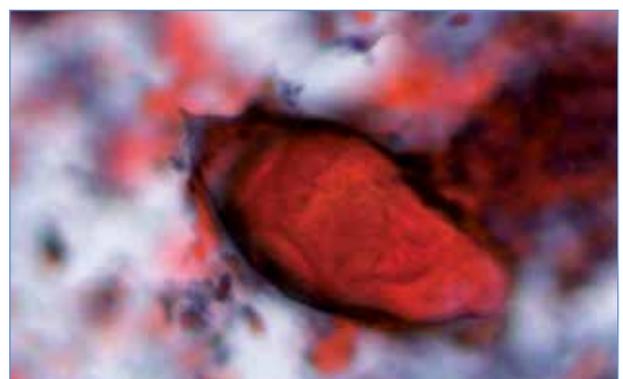


Figure 2: *Schistosoma* ova

Discussion

Cancer of the cervix is one of the most common malignancies of the female genital tract in developing countries.⁶ In our radiation oncology department, close to one third of patients with newly diagnosed cancer have cervical malignancy.

Following radiotherapy, close surveillance is required, especially within the first two years, during which time most recurrences are likely to occur. The complexity and management of treatment is compounded by the high incidence of HIV.

This case highlights two important issues that face the clinician:

- The role and association of co-morbid conditions that affect the surveillance of patients after treatment of cancer of the cervix.
- The management of schistosomiasis in HIV-positive patients on antiretroviral therapy.

Infectious diseases affect the surveillance of patients after completion of treatment of cancer of the cervix. For the purposes of this discussion, the focus is on schistosomiasis, which is endemic to large parts of South Africa. Our patient was from Mpumalanga, a province of South Africa where the distribution of *S. haematobium* is high.⁷

S. haematobium, which commonly affects the bladder, has also been noted, although less commonly, to infect the genital tract of both males and females.^{3,4} Menorrhagia, postcoital bleeding and dyspareunia, although non-specific, can be associated with cervical schistosomiasis.

The association of HIV with human papillomavirus (HPV) is a well known risk factor for the development of squamous intraepithelial lesions and, if left untreated, increases the risk of invasive cervical cancer. The question of whether or not genital schistosomiasis might act as a co-factor has also been raised.⁴ A few cases have been reported and published.^{5,9} However, there is no convincing evidence that schistosomiasis can independently have a carcinogenic effect without HPV.^{8,10,11}

Not all clinical symptoms suggestive of tumour recurrence in a patient with cancer can be assumed. Other medical conditions, such as infection, can be present, and the clinician must be aware that these can mimic tumour recurrence. It is essential to entertain a clinical differential diagnosis and to take into account infective disease, such as tuberculosis and schistosomiasis, which are prevalent in southern Africa. It is also essential to take a biopsy and to view any suspicious lesion histologically. A further challenging issue is the management of schistosomiasis in HIV-

positive patients. Praziquantel, the drug of choice when treating schistosomiasis infections, can interact with certain classes of antiretroviral drugs. Non-nucleoside reverse transcriptase inhibitors, such as efavirenz and etravirine, are known to induce hepatic enzyme cytochrome P40 3A4, thus decreasing the level and effectiveness of praziquantel and diminishing the plasma level of similarly metabolised drugs. The co-administration of a protease inhibitor will lead to an increase in praziquantel concentration.¹² Furthermore, cases of schistosomiasis-associated immune reconstitution inflammatory syndrome, although uncommon, have been reported.¹³

This clinical case emphasises that patients who have been treated for cancer of the cervix may have other conditions associated with infection, and that not all symptoms are suggestive of tumour recurrence. Particular note should be taken of the high prevalence of helminthic infection, such as schistosomiasis, and that complex clinical situations should be managed by a multidisciplinary team.

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