INTRAMEDULLARY SPINAL SCHISTOSOMIASIS PRESENTING AS PROGRESSIVE PARAPARESIS: CASE REPORT

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ABSTRACT

Blood fluke infection or schistosomiasis affects up to 200 million people worldwide. Although infection of the hepatic and urogenital systems commonly occurs, central nervous system involvement is rare. When presenting in the spinal cord, schistosomiasis can be difficult to diagnose because it can present as mass lesion or transverse myelitis. We describe a patient with lumbar intramedullary spinal schistosomiasis who was referred to Kigali University Teaching Hospital, Rwanda.

Key words: Spinal cord; child; Schistosomiasis.

INTRODUCTION

Schistosomiasis is a human trematode infection affecting at least 200 million people worldwide. The infection is endemic to Africa, South America, and most parts of Asia [1]. The typical manifestations of schistosomiasis are urogenital, intestinal and hepatorenal [2], and involvement of other organs, especially the central nervous system, is uncommon [3]. Symptomatic spinal cord involvement is a rare but well documented manifestation of schistosomiasis [4, 5]. The authors here present a 14 year old girl with paraparesis of fluctuating character. Decompressive laminectomy and biopsy revealed schistosomal granulomas in the region of the conus medullaris.

CASE PRESENTATION

A 14 year old female consulted for acute onset of low back pain, inability to walk, inability to stand, urine retention and constipation. The symptoms started 5 days prior to consultation with headache, back pain, 2 days after the child developed weakness in both limbs, followed by abdominal pain and the child was unable to walk without support, later she developed urine retention and constipation. No documented history of fever, cough, night sweating, dysuria, neither history of lumbar region trauma. She was known with a controlled asthma, asymptomatic for more than 3 months. She was the 4th child in family of 5 children. Developmental milestones are normal, student in secondary school with good performance. At admission, the general status was conserved with weight 40 kg (25th centile), Height 156 cm (10thcentile) temperature 36 ^{0}C, BP 12/64, HR: 77bpm, RR: 18 cycles per minute.

Central nervous system: Fully awake with GCS 15/15, normal cranial nerves exam, muscle power of lower limbs 0/5 with abolished reflexes and conserved sensitivity. The rest of neurological examination was unremarkable.

Lumbar sacral CT Scan: Features of thoraco-lumbar Schmorl's nodes.
No fracture or dislocation seen.
Spinal MRI: Enlarged conus medullaris, no clear boundaries of mass with high suspicion of intramedullary tumor.
Pathology results: Granulomatous eosinophilic inflammation and schistosoma eggs consistent with schistosomiasis.

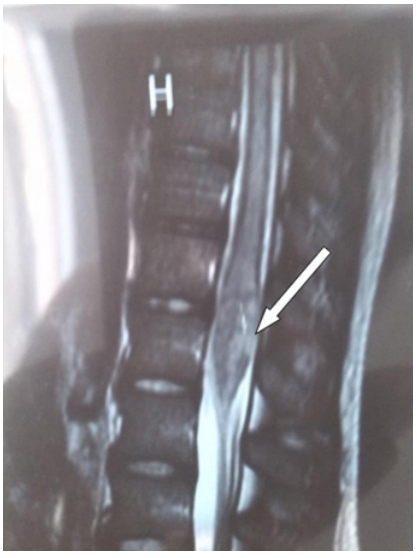

Fig1: *Lumbar spine MRI: Showing expanded conus medullaris with no clear boundaries of mass.*

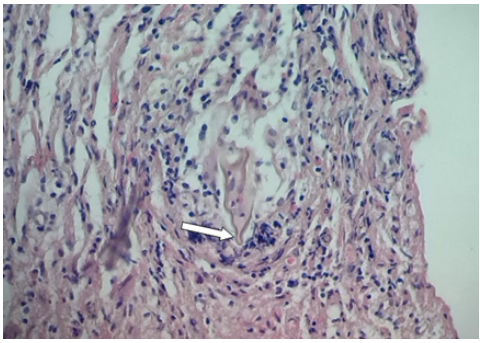

Fig 2: *Poorly formed granulomatous lesion with a fragmented schistosoma egg exhibiting a spine. (H&E stain, X100)*

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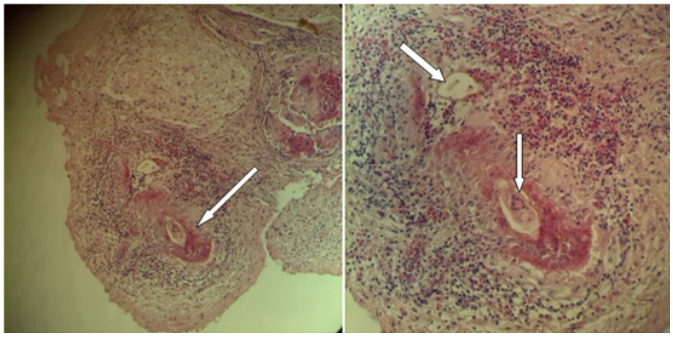

Fig 3: Left: Brain tissue with multiple granulomatous lesions around schistosoma eggs (arrows) exhibiting golden refringent outline and surrounded by many eosinophils as well as fibrinoid necrosis (H&E, X40). ***Right:*** Same image, higher magnification, (H&E, X100).

Management:

The child was admitted in pediatric ward and we have started prednisolone 2 mg/kg/day daily before laminectomy. She had decompressive laminectomy and biopsy on 13th January 2016. After getting the pathology result consistent with granulomatous eosinophilic inflammation with schistozomiasis; the child has been treated with oral Praziquantel 25 mg/kg as unique dose then continued prednisone 2mg/kg daily for 1 month thereafter it was tapered down over 2 weeks with physiotherapy 3 times weekly. During her hospitalization the child improved progressively her motor function and she was discharged able to walk herself without support but gait was still unsteady with weakness on left side. She was discharged on tapering down dose of prednisone and physiotherapy with monthly follow-up in Pediatrics department of Kigali University Teaching Hospital.

DISCUSSION

It has been reported that spinal schistosomiasis constitute 1%-5% of non traumatic spinal injuries in Sub-Saharan Africa [9]. On the other hand Rwanda is known to have identified endemic areas (by countrywide mapping) for schistosoma infection [10]. Although acute paraparesis is known as the most common clinical picture of spinal schistosomiasis [11], this form of complication is not common in Rwanda. The diagnosis is often associated with a history of a stay in known endemic area. Taking in to consideration that this patient has not stayed in the known endemic areas in the country, this may imply that there might be other areas (other than those already known) with a non negligible prevalence of schistosomiasis infection. The most commonly reported neurological complication of Schistosoma mansoni is myelopathy in a form of acute transverse myelitis, and cauda equina as well as conus medullaris are the most commonly involved sites [12]. Our patient presented acute onset of low back pain, inability to walk, inability to stand, urine retention and constipation. These neurological signs are a result of host inflammatory response against schistosoma eggs deposited in the spinal cord, creating tissue edema, granulomatous inflammatory response with eosinophils and tissue fibrinoid necrosis around the eggs. Although there are other reported investigation helping to think about the diagnosis, the visualization of schistosoma eggs in tissue biopsies or at autopsy provide a definitive diagnosis [13]. The expanded distal spinal cord on MRI which was noted in this patient has also been observed in other case series [14]. The expansion of the cord may mimic an intramedullary tumor as it has been reported [4, 14]. Schistosomicides and steroids can provide a cure in most of cases but early diagnosis and treatment is important to avoid permanent neurological impairment [15]. This patient responded well to Praziquantel and Prednisolone followed by physiotherapy.

DISCUSSION

The clinical and radiographic manifestations of spinal schistosomiasis can mimic those of intra-axial spinal tumors and transverse myelitis. To avoid unnecessary surgery or delay in treatment, the clinician must have knowledge of this type of presentation. The increasing volume of international travel and high prevalence of the disease worldwide increases the possibility that the practicing neurosurgeon may encounter this rare but treatable disease. The treatment of choice is currently a combination of praziquantel and corticosteroids [6, 7, and 8].

Competing interests

The authors declare no competing interest.

Authors' contributions

1. Aimable Kanyamuhunga: Involved in patient treatment, follow-up of the patient, drafting and submission of the manuscript.

2. Deogratias Ruhangaza: Involved in pathology diagnosis, drafting and submission of the manuscript.

3. Belson Rugwizangoga: Involved in pathology diagnosis

4. Delphine Nyirahabimana: Involved in biopsy grossing and processing.

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