

# Neuroschistosomiasis in an eight year old male: A case report

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## Abstract

**Background:** Schistosomiasis is a helminthic infestation of public health importance. Central nervous system involvement is a severe but under reported complication.

**Case report:** This was a case of neuroschistosomiasis in an eight year old male who lived in a rural community in Enugu, South East Nigeria. Patient had presented with terminal haematuria, headache and neurological complications. Urine microscopy showed many ova of schistosoma haematobium while ultrasound showed urinary bladder base changes that appeared irregular with hyper echoic mucosa and focal mucosal thickening on the right side. Computed tomography of the brain revealed a hyper dense oval area surrounded by an irregular hypo dense area in the left parietal region overlying the left thalamus and lentiform nucleus. Patient showed good clinical response to praziquantel and corticosteroid.

**Conclusion:** Neuroschistosomiasis is a rare complication of schistosomiasis. A high index of suspicion should be entertained in endemic areas as early treatment with praziquantel and steroids has good outcome.

**Key words:** neuroschistosomiasis, eight year, male

## Introduction

Liver biopsy (LB) is the gold-standard method used in the diagnosis of neuroschistosomiasis. Neuroschistosomiasis is a severe, neglected and under-recognized complication of schistosoma infestation [1]. Central nervous system (CNS) involvement can occur at any time during schistosomal infestation but typically varies between weeks to months [2]. It occurs in a small percentage of patients with schistosomiasis of which more than 200 million individuals are infested annually [2]. Schistosoma mansoni and haematobium usually cause spinal lesions while schistosoma japonicum causes cerebral lesions [1,3,4,]. Brain involvement in S. haematobium infestation may be underdiagnosed. Autopsy study in Africa seven decades ago showed that more than 50% of patients infected with S. haematobium in the bladder also had brain lesion [5]. Schistosomiasis is endemic in some part of Enugu State. There has not been any case report of CNS involvement in children with schistosomiasis in the locality and also in Nigeria as a country; hence the need to report this case in an eight year old boy.

## Case report

We report a case of neuroschistosomiasis in an eight year old male who lived in a rural community in Enugu, South East Nigeria. Patient had presented with terminal haematuria, headache and neurological complications which included right sided hemiparesis with hemiplegic gait, cranial nerve VII and XII palsies. Urine microscopy showed many ova of schistosoma haematobium per high power field while ultrasound showed a urinary bladder base that appeared irregular with hyper echoic mucosa and focal mucosal thickening on the right side. Computed tomography of the brain revealed a hyper dense oval area surrounded by an irregular hypo dense area in the left parietal region overlying the left thalamus and lentiform nucleus. Patient showed good clinical response following a three day treatment with praziquantel and corticosteroid. Unfortunately, he defaulted after discharge and a follow up CT scan could not be done.

## Discussion

Neuroschistosomiasis is a rare neurological complication of a parasitic infestation caused by trematodes of the genus schistosoma [6]. It is a neglected tropical disease and the second most socio-economically devastating disease after malaria [7]. The spectrum of the neurological complications include; acute schistosomal encephalopathy, pseudotumoral encephalic schistosomiasis and spinal cord schistosomiasis [2]. The condition is commoner in males and children as was seen in our patient [8,9]. However, the condition has not been reported in Enugu state probably because it's being misdiagnosed as brain tumors.

Myelopathy is caused predominantly by the schistosoma mansoni and hematobium while schistosoma japonicum is commonly implicated in acute encephalitis [1,3,4]. On rare occasions as was seen in this case, schistosoma haematobium may be implicated in acute encephalitis [2]. Headache is always present as was noted in this case as well as visual impairment, motor deficit, impaired consciousness and abnormal gait [10].

Diagnosis depends on a good history which explores the area the patient came from, the source of infection, and presence of symptoms. Our patient came from Nkanu East LGA, an area known to be endemic with the parasite. In addition, there were other children in the locality who had terminal haematuria. Definitive diagnosis, which can be challenging in a resource limited country like ours, is by biopsy of nervous tissue which would reveals granulomas and schistosomal eggs [11]. However, finding eggs in faeces or urine or in tissue biopsy of the rectum or bladder with suggestive neuroimages, is strongly suggestive of neuroschistosomiasis [12]. In some case reports, diagnosis of cerebral schistosomiasis due to Schistosoma haematobium was made by ova excretion in urine or faeces [13,14]. This was also the case in our patient who had numerous eggs in the urine. In some other case reports, diagnosis was made by immunological testing [15], polymerase chain reaction of brain specimen [16] and neuroimaging. In our patient, in addition to the numerous ova of Schistosoma haematobium found in the urine, the CT Scan showed a hyper dense oval area surrounded by an irregular hypo dense area in the left parietal region (Figure 1).

is essential to prevent reactive cerebral edema during treatment [18]. Our patient showed good response to both. However, lesions that have mass effect (as was seen in the index case) usually benefit from surgery which is also performed as a diagnostic procedure to rule out neoplasm. Our patient did not benefit from any surgical intervention as he defaulted.

## Conclusion

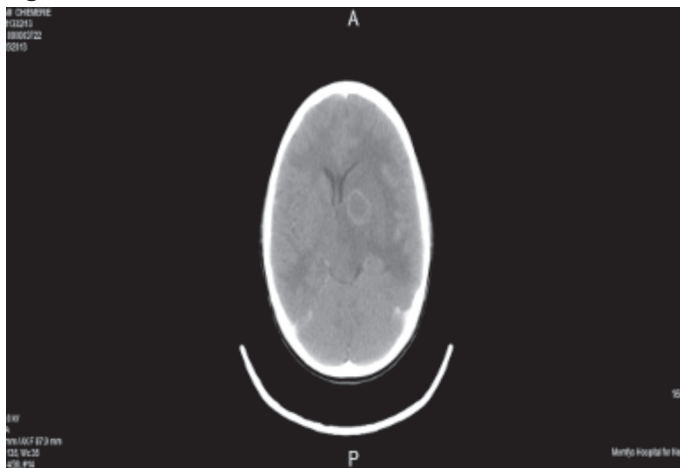
Neuroschistosomiasis though said to be rare requires a high index of suspicion in areas endemic with the parasite as early and active management with praziquantel and steroids give good outcomes. However, control of the disease still depends upon preventive measures.

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**Figure 1**



The mainstay of treatment for schistosomiasis is the use of praziquantel. Its combination with corticosteroid is beneficial in the acute phase [11,17]. This is because simultaneous administration of dexamethasone during praziquantel treatment

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