

Primary spinal cord mansoni schistosomiasis : a case report

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The authors present the case of a 25-year-old male with a paraplegia of fluctuating character which still proved to be a diagnostic problem after investigations which included myelography, CT-myelography and magnetic resonance imaging. Laminectomy and biopsy revealed a schistosomal granuloma in the region of the conus medullaris.

Case Report

A 25-year-old man was admitted to Mulago Hospital with complaints of loss of power in both lower limbs, inability to control his micturition and constipation. These symptoms had all started three months earlier and had gradually progressed to a point where he could not walk or stand, even with the aid of crutches.

The patient gave a history of similar complaints about 12 months prior to admission, which had cleared after a course of non-steroid anti-inflammatory drugs together with physical therapy.

On examination he was a healthy looking young man with no pallor, jaundice or lymphadenopathy. A systemic review was not remarkable. Locally, he had no tenderness in the back or lower limbs, the skin coloration and temperature were normal. Sensation was intact in both lower limbs. Passive range of motion was within normal limits, but the general motor power in the lower limbs was grade 1. Reflexes in both lower limbs were markedly diminished but there was no significant muscle atrophy.

A white blood count was done and was normal. The sedimentation rate was 28mm in the first hour. The cerebrospinal fluid was clear, under slight pressure and was reported to have an elevation of the sugar and protein levels, but without pleocytosis.

Plain radiographs of the dorsal and lumbar spine were essentially normal. Conventional myelography revealed an intradural mass at the level of T12 - L1 vertebrae and the radiologist suspected a tumour (Fig 1). A CT-myelogram (Fig 2) gave the same findings, as did a Magnetic Resonance Imaging Scan (MRI) (Fig 3), so a laminectomy and biopsy were performed.

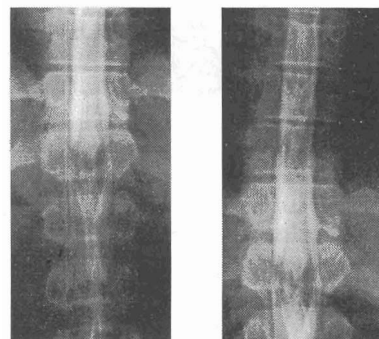


FIG 1

Conventional myelogram showing an intradural heterogeneous mass at the level of T2 - L1

At operation, a granulomatous lesion of multiple caviar-like oval, soft, whitish masses were found and one of them was sent for histopathology. The

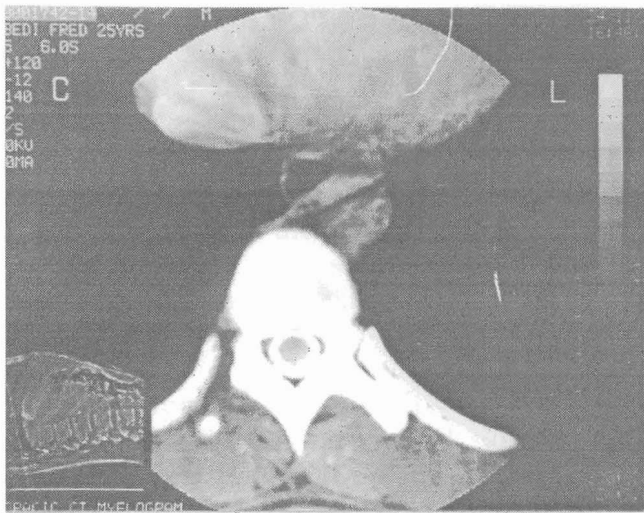


FIG 2 CT-myelogram at T12

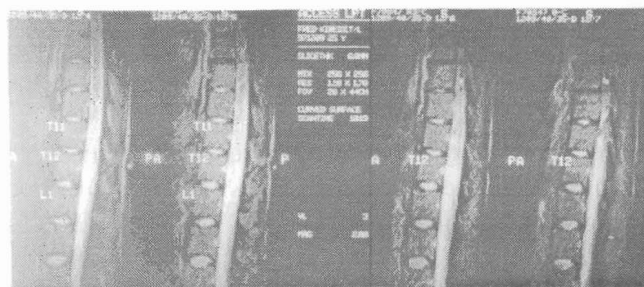
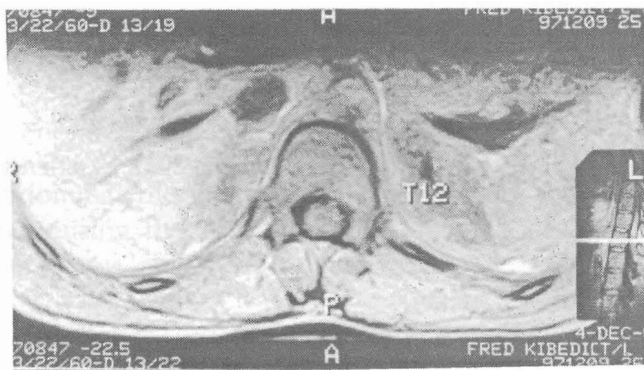


FIG 3 MRI-scan at T12 - L1 showing the same heterogeneous mass in the spinal cord

pathologist reported that he had found *Schistosoma mansoni* eggs and cysts.

At this stage repeated specimens of urine and stool were examined but with no positive findings. However, abdominal ultrasonography revealed multiple echogenic masses in the liver.

The patient was given a course of praziquantel and corticosteroids and fully recovered his motor function three months later.

Discussion

Schistosomal spinal involvement is an extremely rare primary condition even in endemic areas^{1,2,3,4,5,6,8,11} and the commonest site in the spinal cord is the conus medullaris^{6,10}.

Schistosomiasis, an infection caused by digenetic trematode platyhelminths of the genus *Schistosoma*, affects about 200 million people in Asia, Africa and Latin America⁷. These blood flukes use man and other mammals as definitive hosts and aquatic and amphibious snails as intermediate hosts.

The commonest species found in man are *S mansoni*, *S haematobium* and *S japonicum*. *S haematobium* most commonly affects the bladder, while *S mansoni* has a predilection for the liver, spleen and mesenteric arteries^{7,8,9}.

Schistosomal central nervous system involvement may occur at any moment from the time the flukes have matured and the eggs have been laid. Consequently CNS involvement may be observed with any of the common clinical forms of schistosomal infection⁷. The presence of eggs in the CNS induces a cell mediated periovular granulomatous reaction⁷.

Some authors⁷ have noted that schistosomal CNS involvement is associated with the hepatosplenic and cardiopulmonary forms or with severe urinary schistosomiasis, though asymptomatic forms are more frequent. These authors have suggested that the main route of migration to the CNS is embolisation of eggs from the portal mesenteric system.

Diagnosis of neuroschistosomiasis is still difficult. The clinical manifestations of spinal schistosomiasis can be very diverse and there should be a high index of suspicion⁴. Many authors^{5,6,8} suggest the use of serological tests on CSF which would eliminate the necessity for biopsy in the diagnosis of this condition but the role of these tests has not been fully elucidated⁵. The condition is essentially diagnosed on the basis of circumstantial evidence, which may lead to erroneous diagnosis, especially in highly endemic areas⁵.

Among the serological CSF tests suggested are immunoglobulin G specific for schistosome

soluble egg antigen (SEA) where anti-SA IgG is estimated by an enzyme-linked immunosorbent assay and FAST (Falcon Assay Screening Test) - ELISA with Western Blot confirmation^{5,6,8}. The efficacy of these tests still requires evaluation and the only way to come to a conclusive diagnosis in spinal schistosomiasis still remains performance of laminectomy and biopsy.

The condition, if diagnosed early before irreversible changes take place in the CNS, is treatable with very good functional results as is demonstrated by the case presented in this paper and those cases reported in the literature.

The treatment of choice is currently a combination of praziquantel and corticosteroids^{1,2,3,4,6,8}.

References

- 1 Amr SS, Salah IS. Schistosomiasis of the spinal cord in a Yemen boy. A report of a case with brief review of the literature: *Bull Soc Pathol Exot Filiales* 1989; 82:685-9.
- 2 Donnet A, Verot D, Graziani N, Dufour H, Grisoli F, Weiller PJ. Meningoradiculitis and bilharziasis. *Rev Med Interne* 1995; 16:344-6.
- 3 dos Reis FR, Brito JC, Costa MD et al. Brown-Sequard syndrome in schistosomiasis. Report of a Case *Arq Neuropsiquiatr* 1993; 51:281-4.
- 4 Ikhayat RA, Girgis M. Bilharzial granuloma of the conus: case report. *Neurosurgery* 1993; 32:1022-4; discussion 10224.
- 5 Ferrari TC, Moreira PR, Oliveria RC, Ferrari ML, Gazinelli G, Cunha AL. The value of an enzyme-linked immunosorbent assay for the diagnosis of Schistosomiasis mansoni myeloradiculopathy. *Trans R Soc Trop Med Hyg* 1995; 89:496-500.
- 6 Harbhai HC, Bhigjee AI, Bill PL et al. Spinal cord schistosomiasis. A clinical laboratory and radiological study, with a note on the therapeutic aspects. *Brain* 1991 114:709-26.
- 7 Pitella JE. Neuroschistosomiasis. *Brain Pathol* 1997; 7:649-62.
- 8 Pollner JH et al. Cerebral schistosomiasis caused by *S haematobium*: a case report *Clin Infect Dis* 1994; 19:354-7.
- 9 Razdan S, Vlnciostis JD, Edelstein RA et al. Schistosomal myelopathy as a cause of neurogenic bladder dysfunction. *Urology* 1997; 49:777-80.
- 10 Selwa LM, Brunberg JA, Mandell SH, Garofalo EA. Spinal cord schistosomiasis: a paediatric case mimicking intrinsic cord neoplasm. *Neurology* 1992; 41:755-7.
- 11 Shail E, Signeira EB, Haider A, Halim H. Neuroschistosomiasis myelopathy - case report. *Br J Neurosurg* 1994; 8:239-42.
- 12 Silbergleit R. Schistosomal granuloma of the spinal cord; evaluation with MR imaging and intraoperative sonography. *Am J Roentgenol* 1992; 158:1351-3.
- 13 Veki K, Parisi JE, Onofrio BM. *Schistosoma mansoni* infection involving the spinal cord: a case report. *J Neurosurg* 1995; 82:1065-7.