Schistosomiasis of Spinal Cord and Skin

NORMA SAXE, W. GORDON

SUMMARY

We record the simultaneous occurrence of cutaneous and spinal cord lesions of schistosomiasis and speculate upon the mode of this distant spread.


CASE HISTORY

A 23-year-old White female developed transient pyrexia and malaise in December 1970, six weeks after bathing in the Kariba Dam. Three months later, crops of itchy papules appeared on the right side of the abdomen and lower chest. New lesions (Fig. 1) continued to erupt over a period of one month.

In mid-April 1971 she developed a constant dull ache extending down the lateral aspect of the right lower limb from the buttock to the ankle. Two days later, pain of a similar type and distribution appeared in the left lower limb. The pain increased in severity and spread to the lower lumbar region, calves and shins. Weakness appeared and within 4 days she was unable to walk. She then developed retention of urine, constipation and paraesthesiae in the right leg and left ankle.

Neurological examination at this stage revealed grade 4 weakness in the proximal muscles of the lower limbs, grade 3 weakness of the distal muscles on the right side, absent knee and ankle jerks, absent abdominal reflexes, anaesthesia and analgesia over S4 and S5 area bilaterally and in the S1 segment on the right, and hypo-aesthesia in the right L5 dermatome.

The cerebrospinal fluid (CSF) contained 100 mg/100 ml protein, 440 lymphocytes and 10 polymorphs/mm³. There were no eosinophils, cryptococci or tubercle bacilli in the CSF. Glucose and chloride levels were normal and the FTA in blood and CSF negative. Lange's colloidal gold curve was normal. A myelogram showed thickened nerve roots at T12 and L1 extending for about 4.5 cm. There was no widening of the conus medullaris. Blood indirect cercarial fluorescent antibody test was strongly positive.

Biopsy of the skin showed numerous dermal tuberculoid granulomata in relationship to bilharzia ova, possibly Schistosoma haematobium (Fig. 2).

Excretory urography done on 21 May 1971 showed normal bladder function with a small residual volume (about 30 ml). The upper urinary tract was normal.

Fig. 1. Skin papules on chest and abdominal wall.

Fig. 2. Dermal tuberculoid granuloma in relationship to bilharzia ovum.
The patient was treated with prednisone 80 mg and Ambilhar 500 mg/day. On discharge, 14 days later, she was ambulant.

Four days later she was readmitted with severe pain in both feet and pain in the right L5/S1 area. The CSF now showed protein 100 mg/100 ml and 164 lymphocytes/mm³. Her prednisone was reduced to 30 mg/day while she remained in hospital for 2 weeks. Before discharge, her CSF contained 60 mg/100 ml protein and 40 lymphocytes/mm³. At time of discharge, she was on 5 mg prednisone/day.

After leaving hospital she continued to complain of pain in the lower limbs, and manual expression was necessary to empty her bladder completely. On 19 July 1971 her CSF contained 50 mg/100 ml protein and 6 lymphocytes. In October she was given an intramuscular injection of 200 mg of Etanol (brand of hycanthone) and 25 mg hydrocortisone intrathecally. The latter relieved her pain completely in the left leg, and nearly completely (apart from the foot) on the right.

Neurological examination at this stage revealed normal power, reduced knee jerks, a brisk right ankle jerk, normal left ankle jerk, and an area of hypo-algesia and hypoesthesia in the S4 and S5 area.

The patient has been seen regularly since then. Apart from occasional pain in the right leg and mild urinary infections, she had remained neurologically well. On 1 March 1974, a cystoscopy was performed. There was no urethral obstruction and the urine was clear. The bladder was trabeculated and the neck was prominent. Bilateral retrograde pyelograms were normal.

DISCUSSION

The usual route taken by the cercariae of the schistosome on penetrating the skin of man is via skin lymphatics to the blood stream. Once they reach the portal sinusoids, conditions are appropriate for maturation into adult worms. The gravid adult worm or worm pairs then usually make their way against the portal blood flow to the venous plexuses surrounding either bladder or rectum.

The close proximity of these veins to the skin of the perineum accounts for the reasonably common occurrence of granulomatous skin lesions of the perineum and external genitalia. However, more distant or ectopic lesions have been reported. These ectopic cutaneous lesions present as papules on the abdominal wall and occur in a band-like 'zosteriform' distribution. Biopsy confirms the presence of live ova within these papules.

Spinal cord involvement, although rare, is well documented. This distant spread has provoked speculation as to the precise route taken by either the adult worm or the ova to reach the spinal cord and skin of the body wall respectively.

We believe that the simultaneous occurrence of a zosteriform skin lesion and a spinal cord lesion provides a possible indication of the route of spread of the ova or adult worms. The gravid worm or ova may travel, via anastomoses, from the portal circulation or from the vesical and pericolic veins, to the internal vertebral plexus of Batson. (Experimental studies strongly suggest that in this plexus the blood flow may be reversed.) From there, they may travel by retrograde spread, along the intercostal veins to the skin of the body wall and via the vertebral vein to the spinal cord.

The presence of the adult worm in the spinal canal has only once been confirmed by Raper, but this was not illustrated and the fluke could not be precisely identified because of considerable calcification. However, in many cases the presence of ova in the cord has been confirmed as well as the local granulomatous response that they excite. The large number of ova in the skin sections favours the presence of the worm nearby in the spinal vertebral plexus.

Where there is a high endemicity, these aberrant clinical forms are hardly ever seen. It has been suggested that a less stable host-parasite relationship exists outside endemic areas, and that this causes the worm to stray from its usual pathway. It is important to consider the diagnosis of schistosomiasis in a patient with spinal and/or skin lesions who has recently visited an endemic area. The prognosis of the spinal cord lesion is extremely poor if treatment is delayed.

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REFERENCES