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RESEARCH ARTICLE

COMPRESSION OF THE TERMINAL CONE BY BILHARZIASIS: ABOUT A CASE OF SPINAL CORD COMPRESSION OF SCHISTOSOMA HAEMATOBIUM

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ABSTRACT

Bilharzia is, after malaria, the most widespread parasitic disease in Africa. It poses a public health problem in sub-Saharan Africa, especially in Mauritania. Pathologically, spinal localization is a rare and severe form of Schistosoma infection. The clinical manifestations are non-specific; spinal MRI makes it possible to confirm the diagnosis and specify the site of intradural extra/or intramedullary lesions. These lesions pose the problem of differential diagnosis with other pathologies of the same site.

The prognosis depends on the early diagnosis and treatment.

We report the case of a young Mauritanian man aged 34 year who consulted for terminal conus medullaris syndrome with rapid onset flaccid paraplegia associated with sphincter disorders.

Spinal MRI showed intradural extramedullary spinal cord compression

The diagnosis was confirmed by the histopathological study.

INTRODUCTION

Mr M.B aged 34, Mauritanian and resident in the town of Rosso located on the Senegal River which constitutes the Mauritanian-Senegalese natural border. He is a farmer by profession, presents after an infectious episode, a rapid onset sensory-motor paraplegia and acute retention of urine. Emergency examination found an afebrile patient, presenting incomplete flaccid paraplegia with muscular strength rated at 2/5 on both sides, abolition of osteotendinous reflexes, genito-sphincter disorders. The rest of the clinical examination is unremarkable.

Spinal MRI reveals contiguous spinal lesions (at least three), intradural, extra medullary, which seem to compress the lower part of the conus medullaris, extending along the horse's tail; whose signal is intense on T2, hypointense on T1 and which is enhanced after injection of PDC. Given the epidemiological context, a tuberculous etiology was first mentioned.

A surgical approach allowed the total excision of the three lesions with sampling for the anatomopathological study.

The histological aspect reveals a morphological aspect of a granulomatous inflammatory reaction on bilharzia eggs suggestive of bilharzia.

The post-operative aftermath was simple.

A posteriori, the patient being a farmer with the notion of frequent swimming in a lake, the diagnosis of schistosomamansoni bilharziasis confirmed by the pathologist seemed logical to us. A treatment based on Biltricide at a rate of 40 mg/kg was administered in a single dose associated with corticosteroid therapy. The patient returned home and was seen again after three months of functional motor rehabilitation of the lower limbs. The control MRI shows the regression of the spinal cord inflammation. Recovery was slowly gradual.

DISCUSSION

Bilharzia is a parasitic condition caused by trematodes which are blood-sucking, separate-sex flatworms living in the adult stage in the circulatory system of mammals, and in the larval stage in a freshwater mollusk. There are 200 million cases of bilharziasis worldwide. Five species are pathogenic for humans and are endemic in three continents: Africa, East Asia and South America. These species are: S. haematobium, S. mansoni, S. intercalatum, S. japonicum, S. mekongi.

The majority of nervous complications reported in the literature are caused by S. mansoni, responsible for 110 million

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cases, however S. haematobium is less frequently responsible (7, 13) and noted in 90 million cases. In humans, adult worms show a tropism for the perivesical and peri-rectal venous plexuses, the eggs are eliminated towards the external environment, mainly through the urine for S. haematobium and through the stools for S. mansoni, but a large part remains in the visceral walls or embolizes remotely (2, 7, 8, 10). Neurological complications then result from this aberrant migration of S.mansoni or S.haematobium, or from the ectopic embolization of eggs in the medullary vessels. Spinal cord complications are more common than cerebral complications, they tend to occur early after infestation (3) and are of two types:

granulomas: mainly intramedullary, radicular and sometimes meningeal. These are inflammatory granulomas behaving like an expansive lesion most frequently affecting the terminal conus, the lower medulla at the level of the D12 and L1 junction, and the roots of the cauda equina. These granulomas are related to delayed hypersensitivity to ovular antigens.

- Acute myelitis can correspond to multiple intramedullary granulomas or necrosis of the marrow with vacuolation and atrophy without inflammatory reaction around the eggs (3, 4)
- The radicular shape is due to the presence of multiple granulomas deposited on the surface of the spinal nerves, mainly those of the cauda equina.
- Inflammation of the branches of the anterior spinal artery responsible for ischemia of the anterior spinal cord (7)

A study of 231 cases of neuroschistosomiasis (7) showed a predominance of the male sex (73.4%) which could be explained by the greater exposure during childhood during swimming (8). Some authors also blame the anatomical difference of the pelvis of the two sexes (7). Age ranges from 1 to 68 years. The diagnosis is based on epidemiological guidance elements, particularly in a schistosomiasis endemic area and the notion of swimming in a freshwater lake.

The interval between exposure and the appearance of the first symptoms varies from one month to more than 6 years. The invasion phase corresponds to the penetration of furcocercariae through the skin; it often goes unnoticed for schistosoma haematobium and S. mansoni or results in allergic skin erythema after 15 to 30 min. The toxemic phase corresponds to the migration of schistosolmules into the blood circulation, which is responsible for asthenia and anaphylactic disorders: myalgia, arthralgia, headache, fever. The state phase corresponds to the laying by females of numerous eggs in the wall of the bladder or in the genital organs causing genitourinary disorders, the main symptom of which is hematuria. Intestinal damage is dominated by a disruption of transit with the presence of streaks of blood surrounding the stools. The complications phase corresponds to the migration of the parasite and its localization in the skin, in the cardiovascular and nervous system.

Four clinical forms can be described: myelitic, granulomatous, radicular form, and vascular form. The first two varieties are the most common (1, 3). The radicular form most often occurs in association with the granulomatous form. The vascular form is limited to a few cases.

The myelitic variety occurs when the response to infection is minimal, resulting in necrosis, vacuolation and atrophy of the nervous tissue, with a small granulomatous reaction around the eggs. This form translates clinically into a picture of rapidly progressive myelitis without root signs. The prognosis in these cases is less favorable.

The granulomatous form is the case of our patient and results from a significant glial and fibrous reaction around the eggs leading to the formation of a pseudotumoral granulomatous mass which can be intra or extra axial. This form is most often located at the conus medullaris (5,6).

The radicular form is exceptionally isolated, it is often associated with the granulomatous form.

The vascular form is limited to a few cases reported in the literature and can lead to ischemia of the marrow.

The biological assessment is characterized by hyper eosinophilia and positive bilharzial serology. The search for eggs in the rectal and bladder mucosa is consistently positive. At the level of the cerebrospinal fluid we can have hyper proteinorrachia; hypo or normoglycorrachia, as well as an increase in lymphocyte levels. The presence of anti-bilharzial antibodies helps confirm the diagnosis.

Spinal MRI is the examination of choice; schistosomiasis presents in three aspects (9, 11):

- Pseudo-tumor form: appears as a poorly defined lesion that is hypointense on T1, hyperintense on T2
- Multi-nodular form: multiple small nodules taking the contrast testifying to the granulomatous inflammatory type of bilharzia this is the case of our patient with three nodules of intra dural extra medullary location compressing the conus medullaris, extending along the tail of the horse; whose signal is intense on T2, hypointense on T1 and which is enhanced after injection of PDC, raising suspicion of the appearance of a large conus medullaris that is hyper intense on T1.
- Appearance of large marrow suggestive of myelitis, marrow ischemia is common in this form
- a cystic appearance of the conus medullaris has also been reported in the literature (9) with a hypointense appearance of the center on T1 and after gadolinium injection.

Regarding treatment, there is no consensus regarding the management of this pathology (12). The different therapeutic means available are: anti-parasitic treatment based on Biltricide (Praziquantel), corticosteroids, and surgical treatment in the event of neurological compression.

- Corticosteroids are used for their anti-inflammatory action; they have stopped the progression of lesions in several cases according to Teresa's series (12)
- surgical treatment is reserved for compressive lesions responsible for a deficit, it is also indicated in the event of worsening of signs and symptoms under well-conducted medical treatment and in the event of diagnostic doubt and in this case aims to confirm the diagnosis .

CONCLUSION

Bilharziasis is currently on the rise in all its forms, including neurological ones, the frequency of which is probably underestimated, especially in countries located in endemic areas.

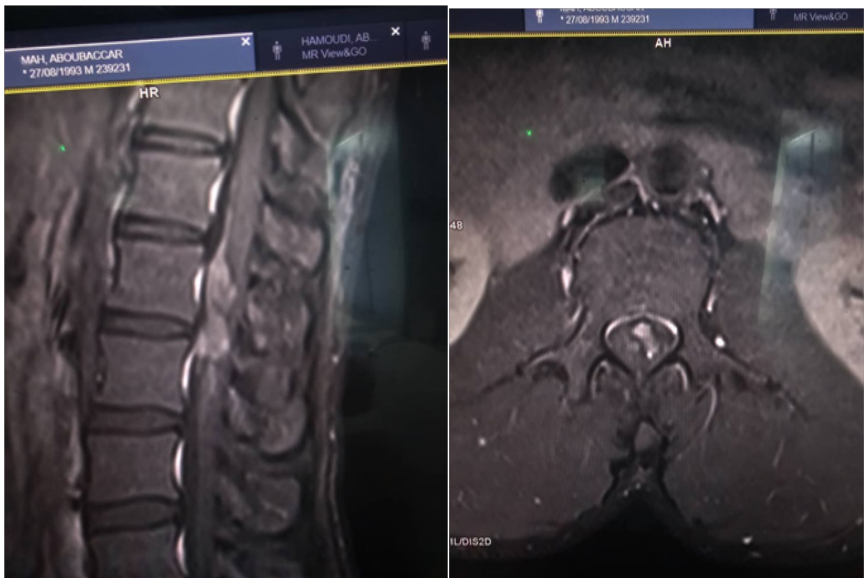

Figure 1 Dorsolumbar MRI in sagittal and axial section, T1 sequence showing lesions compressing the conus medullaris

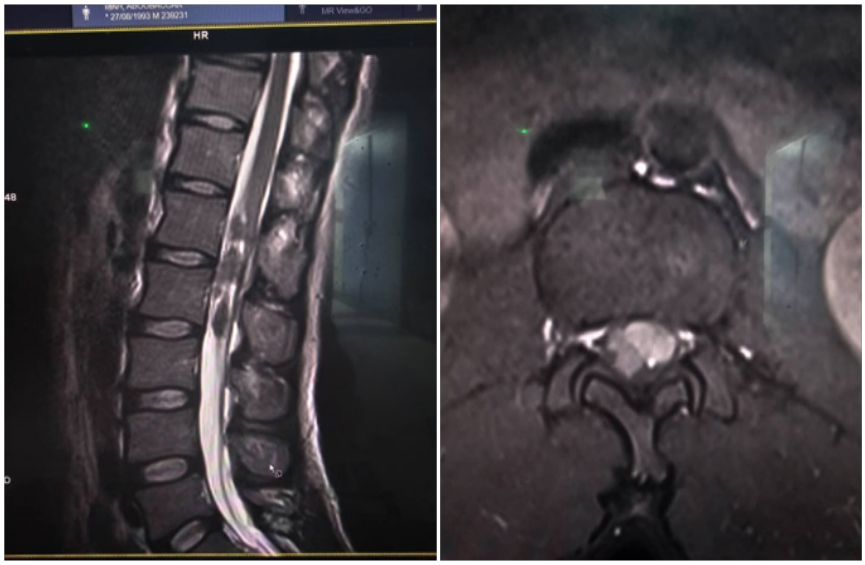

Figure 2 Dorsolumbar MRI in axial section, T2 sequence: the conus medullaris is compressed by inflammatory lesions in hyper signal

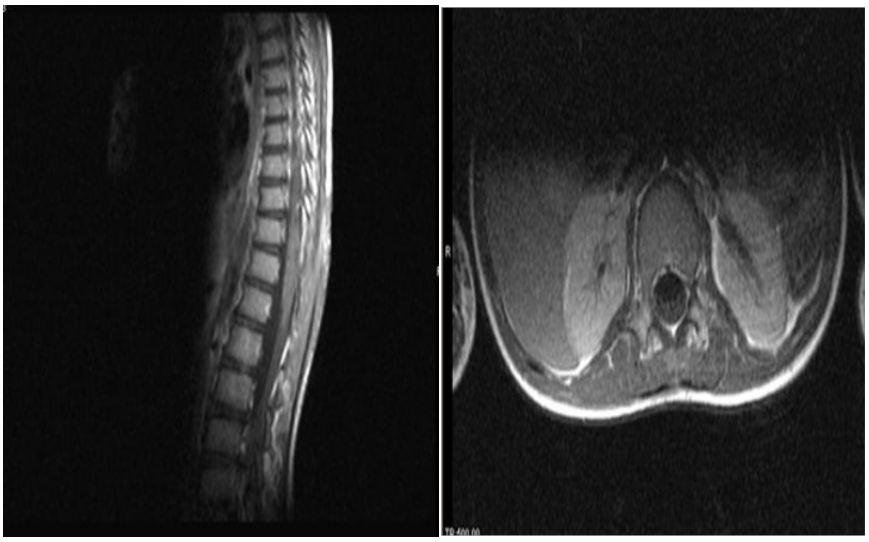

Figure 3 Control thoracolumbar MRI in sagittal and axial sections showing the regression of the inflammation of the cone which returns to its normal appearance

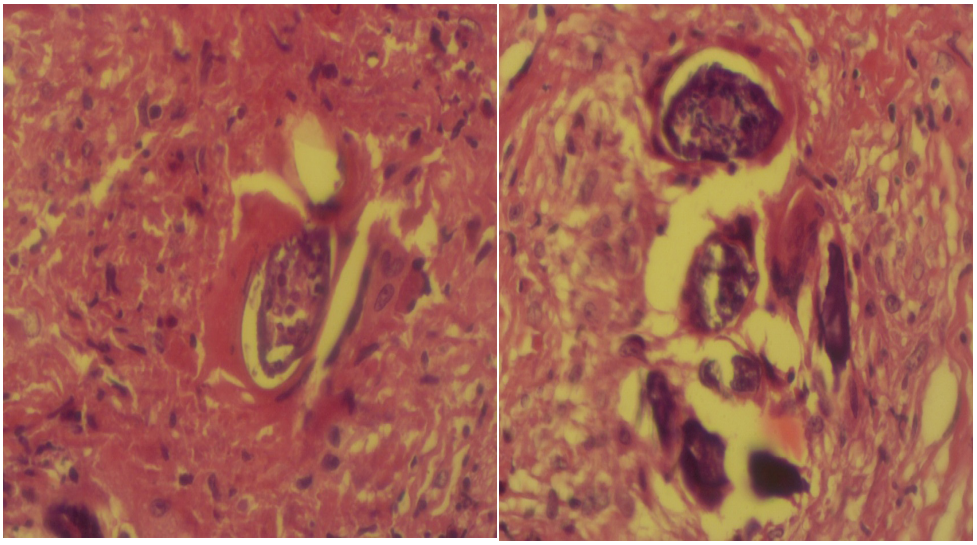

Figure 4: histological sections of the material showing the existence of bilharzia eggs in the tissue taken with granulomatous reaction.

And the diagnosis must be mentioned if the history reveals the notion of stay in an endemic area.

Conflicts of interest

The authors declare no conflict of interest

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