Learning from errors

A dangerous freshwater contact

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Summary

An 8-year-old girl was presented to our department for persistent diarrhoea. A first diagnosis of tuberculosis, along with the result of the chest x-ray scan, had been posed some months before, after a holiday in Brazil, when she started presenting aspecific systemic and gastrointestinal symptoms. The girl was under specific antitubercular treatment when we first saw her. New diagnosis of schistosomiasis was posed by our laboratory tests. Treatment with praziquantel was started and complete resolution of clinical and radiological picture was observed.

BACKGROUND

Schistosomiasis is rare outside the tropics. Nevertheless, as a consequence of increased immigration and travel, more cases are being recognised in Europe. There are five important species of schistosomes. They are found in different areas of the world and can be distinguished by the specific snails they use in their transmission routes and the different pathologies they induce. They can be divided into *intestinal* schistosomes (*mansoni*, *intercalatum*, *japonicum*, *meconji*) and *urinary* schistosomes (*haematobium*). The diagnosis of schistosomiasis has to be taken into consideration, as a differential diagnosis, in all patients coming from an endemic area who present with aspecific respiratory, gastrointestinal or urinary symptoms. Clinicians need to acquire a detailed

travel history during every patient encounter and have to be much more aware of this diagnosis in order to treat it early.

CASE PRESENTATION

In November 2008, an 8-year-old Brazilian girl, living in Italy since 2006, came to our department with persistent diarrhoea. Some months before, the girl was admitted to another hospital due to fever, asthenia and weight loss that started 1 month after a holiday in Brazil. During the previous recovery, diagnosis of pulmonary tuberculosis was posed according to chest x-ray image showing a diffuse ground glass pattern (figure 1) and positive enzyme-linked-immunospot assay. Even though no identification of *Mycobacterium tuberculosis* was provided by gastric aspirate,

Figure 1 First chest x-ray scan, showing diffuse ground glass pattern image.

Figure 2 Chest x-ray 1 month after treatment with praziquantel showing complete resolution of the lesions.

bronchial lavage fluid and Mantoux test, the patient received antitubercular therapy. On admission to our department, a first clinical assessment underlined cervical and groin-related lymphadenitis with important hepatomegaly then confirmed by ultrasound echography. Blood tests showed microcytic anaemia, hypereosinophilia and general phlogosis. Celiac screen and angiotensin converting enzyme tests were negative. Stool exams for bacterial, viral or parasitic infections also proved negative. No signs or symptoms of urinary tract dysfunction were present and renal function was normal in both girls. Stool exam was required for a mild persistent diarrhoea in the younger sister and, finally, eggs of *Schistosoma mansoni* were detected through direct microscopic examination of the specimen. According to this

result, *S mansoni* antibodies were evaluated using an indirect haemagglutination assay (Cellognost-Schistosomiasis H, Behring, Germany), and high levels (256 and 512 in the younger and elder sister, respectively; level cut-off <16) were detected in both girls. Treatment with praziquantel was started at 40 mg/kg/die. Fever, diarrhoea and abdominal pain appeared as common symptoms after the first dose and abated in a few hours after oral antihistaminic and intravenous steroids were administered.

OUTCOME AND FOLLOW-UP

Patients were discharged in good clinical conditions after 24 h. No fever, diarrhoea or abdominal pain reappeared. The second dose of praziquantel was repeated after 8 weeks.

After another month, hepatomegaly disappeared in the elder sister and chest x-ray was negative (figure 2). Stool exams resulted negative in both patients and last blood examination showed a significant decrease in *Schistosoma* antibody levels.

DISCUSSION

In Italy, no native cases of schistosomiasis have been reported, as no forms of freshwater snail, the intermediate host, exist.¹

Brazil is one of the most important zones of distribution of this infection due to large water reserves.² In endemic regions, almost all long-term residents are exposed to infection and develop antibodies. Visitors to endemic regions often develop an acute syndrome (Katayama fever) with high temperature, chills, skin rash, eosinophilia and hepatosplenomegaly, frequently evolving in chronic infection. Only 5–10% of infected individuals develop severe clinical symptoms such as nausea, vomiting, profuse diarrhoea, abdominal pain, urticaria and weight loss. Liver impairment due to infection strongly conditions the clinical presentation of chronic schistosomiasis. Lung lesions can follow those of liver and intestines. Haematuria is the clearest tell-tale sign in the urinary form. Clinical data for schistosomiasis are notoriously difficult to assess due to the chronic nature of the disease.³ In our case, wrong evaluation of signs and symptoms has led to inadequate first treatment and delayed diagnosis. Host predisposition may explain different clinical manifestations and a misleading diagnostic approach. Definitive diagnosis of schistosomiasis depends on the detection of specific schistosome eggs excreted in stool (when infection with *S. mansoni* or *Schistosoma japonicum* is suspected) and urine (if *Schistosoma haematobium* is suspected); as schistosome eggs were found in stools of only one of the patients, a high frequency of false negatives was considered.⁴ Even though schistosome antibody detection lacks specificity, high antibody levels detected were taken into account as signs of active infection. Loss of effective immunity in patients infected during childhood in Brazil was supposed. Considering positive

antibody detection and microscopic direct stool examination, rectal biopsy for the detection of eggs was not taken into account as an invasive method. Real evidence of the infection was provided by the answer to oral treatment with praziquantel, which remains the drug of choice, and by the resolution of signs and symptoms.

Learning points

- ▶ Schistosomiasis is a major parasitic disease not currently reported in most European public health systems. However, in Europe, schistosomiasis is increasingly imported by immigrants and travellers from endemic areas.
- ▶ Most of patients are asymptomatic or with quite unspecific symptoms such as fever, respiratory and genitourinary symptoms: usually very long periods occur before diagnosis is confirmed.
- ▶ Schistosomiasis should be considered for diagnostic differential diagnosis when dealing with patients who might have been exposed in areas where this disease is endemic.
- ▶ A simple and effective therapy is available: praziquantel standard regimen was 40 mg/kg. Side effects are mild and include nausea, vomiting, malaise and abdominal pain. No important long-term adverse events have been documented.

Competing interests None.

Patient consent Not obtained.

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