Imported bilharziosis in Târgu-Mureș- a case report

Bilharzioza de import în Târgu-Mureș- studiu de caz

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ABSTRACT

Introduction. Schistosoma haematobium is a common trematode of the tropical regions, causing yearly more than 55 millions of infections in the Middle East, India, Portugal and Africa. This parasite is usually absent in countries like Romania. The aim of our study is to describe the first case of urinary schistosomiasis in Târgu-Mureș in a 12 year old male child.

Materials and methods. The child presented at the Paediatric Surgery Unit of the Emergency County Hospital, Târgu-Mureș accusing haematuria with a duration of approximately one month. Past medical history revealed a short journey to Africa, Zimbabwe, (his country of origin), 3 month before the appearance of the symptoms. After the medical examination, abdominal X-ray was performed to exclude kidney or ureter stones. Laboratory analyses such as urine and blood tests were also performed. Parasitological examinations of the stool and urine were recommended, knowing that in Zimbabwe urinary schistosomiasis is a commonly acquired infection.

Results and discussions. Medical examination and abdominal X-ray showed no modifications. Parasitological examination of the urine revealed the presence of Schistosoma haematobium eggs. Other laboratory tests were normal except for the lymphocytes (62%), with a mild increase in the eosinophil cells. Liver and kidney function tests showed no alterations. After prescribing the adequate anti-parasitic medication, the child recovered without any sequel.

In conclusion, we would like to emphasize the importance of early diagnosis and treatment of very rare human infections in our region.

Keywords: schistosoma, urinary, haematuria, medication.

Introduction

There is evidence that urinary schistosomiasis was present in Egypt from the ancient times, but the infectious agent was not discovered until 1851, when Theodor Bilharz recovered the blood flukes from the veins of an Egyptian. He also demonstrated the relationship between worms and hematuria and the appearance of the eggs in the urine (5).

Since then many species of Schistosoma were described, four of them being important human pathogens: Schistosoma (S.) haematobium, S. mansoni, S. japonicum and S. mekongi (2). S. mansoni, S. intercalatum and S. Japonicum, which mainly cause hepatobiliary and gastrointestinal symptoms, while S. haematobium causes urogenital complaints.

S. hematobium is a common trematode of the tropical regions, causing yearly more than 55 millions of infections in the Middle East, India, Portugal and Africa (1,4) but missing from countries like Romania.

There is no intermediate snail host for the transmission of Schistosoma sp. in Romania. Only import of snails from Africa, and the ability of schistosomes to shift host species warrants concern. Diseases associated with non-human bird (e.g. pigeons) schistosomes of the same genus are occurring in many regions of Europe.

The adult trematodes of S. haematobium (figure 1) live in the veins of the urinary bladder causing hematuria and fibrosis.
In chronic infections the bladder-wall suffers calcifications, which lead to an increased pressure followed by hydronephrosis and bladder-cancer. Therefore an early diagnosis and treatment is vital to prevent such severe complications (4,5).

**Materials and methods**

We present the case of a urinary infection in an immigrant from Zimbabwe caused by *S. haematobium*, a disease entity not commonly seen in Romania. This case emphasizes the importance of knowledge of tropical medicine even in our country.

A 12 year old male child presented at the Emergency Unit of the Emergency County Hospital, Târgu- Mureș accusing dysuria and abdominal pain. He had no other gastrointestinal symptoms. He presented macroscopic hematuria and denied any trauma.

Family history was negative for any significant illnesses. The child emigrated from Zimbabwe one year ago, but a short visit to his country was made 3 month before the appearance of his symptoms. The child remembered about swimming in a lake.

Physical examination revealed no alterations. Abdominal and genitourinary examinations were normal. After medical examination, an abdominal X-ray was performed to exclude kidney or ureter stones. Laboratory analyses such as urine and blood tests were also performed.

The collected urine sample was examined for the presence of parasites. It is known that the microscopic examination of urine samples reveal eggs with characteristic species-specific morphology. For a better diagnosis it is recommended to collect the urine sample between 10:00 am and 2:00 pm to ensure maximum yield (3). The child's urine sample was collected at 11:00 am. The collected sample was centrifuged to enhance the chance of finding eggs.

The patient was treated with praziquantel 20 mg/kg for 1 day. A follow-up was programmed 2 weeks after the treatment.

**Results and Discussions**

The abdominal X-ray proved to be normal (figure 2).
The blood test results are shown in Table I.

**Table I. Blood tests of the patient infected with *Schistosoma haematobium***

<table>
<thead>
<tr>
<th></th>
<th>number</th>
<th>percentage</th>
<th>interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC</td>
<td>$4.44 \times 10^3/mm^3$</td>
<td>normal</td>
<td></td>
</tr>
<tr>
<td>Neutrophil cells</td>
<td>$1.32 \times 10^3/mm^3$</td>
<td>29.7%</td>
<td>neutropenia</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>$2.61 \times 10^3/mm^3$</td>
<td>58.7%</td>
<td>lymphocytosis</td>
</tr>
<tr>
<td>Monocytes</td>
<td>$0.255 \times 10^3/mm^3$</td>
<td>5.73%</td>
<td>normal</td>
</tr>
<tr>
<td>Eosinophil cells</td>
<td>$0.211 \times 10^3/mm^3$</td>
<td>4.76%</td>
<td>slightly elevated</td>
</tr>
<tr>
<td>Basophil cells</td>
<td>$0.05 \times 10^3/mm^3$</td>
<td>1.12%</td>
<td>slightly elevated</td>
</tr>
<tr>
<td>RBC</td>
<td>$4.08 \text{ millions/mm}^3$</td>
<td>normal</td>
<td></td>
</tr>
<tr>
<td>Haemoglobin</td>
<td>$13.4 \text{g/dL}$</td>
<td>normal</td>
<td></td>
</tr>
<tr>
<td>Haematocrit</td>
<td>39.2%</td>
<td>normal</td>
<td></td>
</tr>
<tr>
<td>Platelets</td>
<td>$335 \times 10^3/mm^3$</td>
<td>normal</td>
<td></td>
</tr>
<tr>
<td>GOT</td>
<td>23/U/L</td>
<td>normal</td>
<td></td>
</tr>
<tr>
<td>GPT</td>
<td>10/U/L</td>
<td>normal</td>
<td></td>
</tr>
<tr>
<td>GGT</td>
<td>17/U/L</td>
<td>normal</td>
<td></td>
</tr>
</tbody>
</table>

The blood tests showed a relative increase in the number of lymphocytes, due to a neutropenia and a slight eosinophilia associated with a slight basophilia. The patient did not have anemia and the liver tests were normal.

Urinalysis demonstrated lack of WBCs, macroscopic hematuria (more than 50 RBCs), a pH of 7 and negative proteins and nitrates.

The parasitological examination of the urine sample showed the presence of *Schistosoma haematobium* ova. Specific eggs with terminal spines were detected in the concentrated urine.
Our investigations were facilitated by the behavior of the eggs more frequently excreted in the urine before noon, the time of our examination. When placing the eggs in fresh water, they hatched, demonstrating the viability of the miracidia (embryos) (figure 3).

Hatching is very important for the miracidia. They have to penetrate the intermediate host, a snail belonging to the species *Biomphalaria*, within 24 hours. Cercaria (larvae) emerge from the snails and penetrate the human skin in contact with water during swimming or other activities related to water (washing). The cercariae migrate to the lungs and liver, and after 6 weeks, the mature worms mate and migrate into the pelvic veins. There the female begin to lay eggs, which penetrate the capillaries of the genitourinary system. The developed miracidia in the eggs produce enzymes which cause lysis of the bladder-mucosa and facilitate their excretion through urine. The eggs also induce an inflammatory response with fibrosis and calcifications in the bladder-wall. With the death of the adult worms no eggs can be traced in the urine sample, but large number of calcified eggs can be detected in the wall of the bladder and other affected tissues.

In our case the early detection of the infection prevented the appearance of complications. The treatment was well-tolerated. Two weeks after the anti-parasitic medication no evidence of parasites was demonstrated. The patient could not be monitored for sequel due to his repatriation.

**Conclusions**

It is very important to know the country a patient is coming from and to take into consideration even parasitic infections which are frequently present in that region. This way early diagnosis and treatment can prevent complications and the spread of the disease. In our case this was not possible because of the absence of the intermediate host, the snail.

**REZUMAT**

*Introducere.* *Schistosoma haematobium* este un trematod comun, întâlnit în regiunile tropicale și determinând mai mult de 55 de milioane de cazuri de infecții pe an în Orientul Apropiat, India, Portugalia și Africa. De regulă, acest parazit nu se întâlnește în țări precum România.


În concluzie, dorim să scoatem în evidență importanța diagnosticului și tratamentului precoce în cazul infecțiilor umane foarte rare în regiunea țării noastre.

*Cuvinte cheie:* schistozomoză, urinar, hematuria, medicație.
References


