

## EVALUATION OF PATIENTS WITH SCHISTOSOMAL PORTAL HYPERTENSION TREATED IN A TERTIARY HOSPITAL

### *Perfil dos pacientes com Esquistossomose Mansonii tratados em hospital terciário*

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**ABSTRACT** – *Background* – Schistosomiasis is an important public health issue in more than 70 countries around the world. About 600 million people are at risk to acquire the parasite and there are 200 million infected worldwide. *Aim* - To evaluate the characteristics of schistosomal portal hypertension individuals who underwent previous esophageal varices bleeding treated in a tertiary hospital. *Methods* - The records of 155 patients were evaluated and clinical, laboratorial, endoscopic, epidemiological features and hemorrhagic event severity were analyzed to individualize this population. *Results* - Mean age was 37.2 years and no clinical signs of hepatic failure were observed. Serum laboratory tests to evaluate liver function were normal or slightly alter. Anemia was present in 70 %, leucopenia in 75 % and thrombocytopenia in 86 % of the patients. At endoscopic evaluation varices were classified as grade III and IV in 91.3 %; red spots were observed in 40.3 % and congestive gastropathy in 13.6 %. Patients presented a mean of 2.8 previous episodes of variceal hemorrhage and, in 75 % with hemodynamic instability. *Conclusions* - Patients with schistosomal portal hypertension and history of upper digestive bleeding from esophageal varices are young individuals, without either clinical or laboratorial evidence of liver dysfunction, that present high morbidity due to the severity of the acute event of bleeding.

**HEADINGS** - *Schistosoma mansoni*. Portal hypertension. Esophageal varices. Upper gastrointestinal bleeding.

### INTRODUCTION

Schistosomiasis is an important public health issue in more than 70 countries around the world. About 600 million people are at risk to acquire the parasite and there are 200 million people infected worldwide<sup>18</sup>. Although this is an evitable and curable disease, the costs for the control are very high and progress on treatment is delayed by economical issues of undeveloped countries. In Brazil the parasitosis is caused by *Schistosoma mansoni* and in 1990 it was estimated that 30 million people were exposed to the infection and about three to four million infected<sup>2,18</sup>.

The major public health impact is caused by chronic infection leading to intestinal, liver and spleen involvement. The hepatosplenic form of the disease is the most relevant cause of morbidity and mortality in *Schistosoma mansoni* infection. This presentation occurs in up to 10 % of the infected patients and is characterized by periportal liver fibrosis and consequently portal hypertension, leading to the formation of collateral circulation and risk of bleeding due to esophageal varices rupture<sup>1</sup>.

Upper digestive bleeding from esophageal varices may occur in approximately 60 % of the patients<sup>4,7,8,10</sup>. In Brazil, the annual mortality caused by schistosomiasis was estimated in 0.3 per 100.000 inhabitants and in the rural population the disease represents an important cause of death<sup>2,9</sup>.

The majority of individuals affected by the disease are young, economically active and present a normal liver function. Hepatic failure is rare and, when present, is related to other concomitant diseases such as viral hepatitis or chronic alcohol abuse. Indeed, bleeding from esophageal varices rupture is an important cause of mortality in these patients being the most relevant disease complication<sup>7,10,15,17</sup>.

The objective of this study was to analyze clinical, epidemiological, laboratorial and endoscopic features of the population with schistosomal portal hypertension and history of upper digestive bleeding due to esophageal varices rupture treated in a tertiary university hospital.

### METHODS

One hundred and fifty five patients with hepatosplenic form of schistosomiasis and history of upper digestive bleeding from esophageal varices rupture that were submitted to surgical treatment by azigo-portal discon-

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nection and splenectomy were studied between March 1989 and April 2000.

Diagnosis was based in epidemiologic, clinic and laboratorial data and confirmed by histologic evaluation.

Patients who had viral hepatitis or chronic alcohol abuse or those with histologic evidence of another hepatothy were excluded from this study.

All patients had been previously submitted to the parasitosis treatment with oral oxamniquine or praziquantel. Patients were evaluated on clinic and nutritional status, and the body mass index was calculated (body mass index between 20-25 Kg/m<sup>2</sup> was considered as normal). Clinical signs of liver failure as the presence of ascitis, jaundice, liver encephalopathy, spiders and palmar eritema were evaluated.

Bleeding episodes due to esophageal varices rupture were characterized by its frequency, number, presence or not of hemodinamic repercussion and the need of any therapeutic measure.

The following laboratorial tests were evaluated: complete blood account, serum AST, ALT, alkaline phosphatase and gammaglutamil transpeptidase, bilirubins, total protein and albumin and prothrombin activity and RNI.

All patients underwent upper digestive endoscopy to confirm the presence of esophageal varices that were evaluated by its number, location, caliber and presence of red spots. The occurrence of congestive gastropathy was analyzed as well. After endoscopy patients were classified according to Paquet's classification (Figure 1).

<b>Grade 0</b>	Absence of esophageal varices
<b>Grade I</b>	Microcapillars located on esophagogastric transition or distal esophagus
<b>Grade II</b>	1 or 2 small varices located on distal esophagus
<b>Grade III</b>	Medium varices
<b>Grade IV</b>	Large varices in any part of the esophagus

**FIGURE 1** – Endoscopic classification of esophageal varices according to Paquet<sup>11</sup>

All patients were submitted to abdominal ultrasound for liver, spleen and portal system evaluation.

## RESULTS

There were 93 male (60 %) and 62 (40 %) female patients with a mean age of 37.2 years (range: 15 to 75 years). The majority of patients (89.7 %) were migrants from the states of Bahia, Minas Gerais and Pernambuco (Table 1).

**TABLE 1** – Distribution of patients according to their state origin

Stage of origin	Number of patients	%
Bahia	61	39,4
Minas Gerais	46	29,7
Pernambuco	32	20,6
Alagoas	5	3,2
Sergipe	4	2,6
Other	7	4,5
<b>Total</b>	<b>155</b>	<b>100</b>

All patients were in good clinical conditions with no signs of liver failure. The body mass index varied from 17 to 30 (mean: 23 Kg/m<sup>2</sup>). The spleen was palpable in 135 (87 %) patients.

The number of bleeding episodes varied from one to 15, mean of 2.8 and median of two episodes per patient. Among 108 patients who had more than one bleeding episode, the interval between the first and the second hemorrhagic episode was less than a year in 58.6 %.

Upper digestive bleeding led to hemodynamic instability in 75.5 % of the patients and blood transfusion was necessary in 112 (74.2 %). Transfusion volume varied from 1 to 20 blood packs with a mean of three units per patient.

Thirteen patients (8.6 %) needed the insertion of the Sengstaken-Blakemore balloon in order to stop bleeding while 83 patients (54.6 %) have received some kind of endoscopic treatment during the bleeding episode or as secondary prophylaxis. In 69 patients (45.4 %) bleeding stopped spontaneously.

One hundred and six patients (70 %) had hemoglobin below 12 g/dL, mean of 10.6 g/dL; 114 (75 %) leucocytes number below 4000 per mm<sup>3</sup>, mean of 3390 leucocytes/mm<sup>3</sup>; 129 (86.5 %) platelets count below 140,000 per mm<sup>3</sup>, mean of 87000 per mm<sup>3</sup>.

One hundred and twenty six patients (84.5 %) presented serum albumin higher than 3.5 g/dL, mean of 4.2 g/dL and 111 (85 %) had total serum bilirubin levels up to 1,5 mg/dL, mean of 1,08 mg/dL. Patients with total bilirubin levels higher than 1.5 mg/dL, had this increase due to indirect bilirubins. Ninety seven patients had prothrombin activity higher than 60 % (74 %), mean of 68 %.

Eighty one patients (52.6%) had esophageal-gastric varices classified as grade IV, 60 (39 %) as grade III, nine (5.8 %) as grade II, two (1.3 %) as grade I and two (1.3 %) as grade 0. Twenty one patients (13.6 %) presented congestive gastropathy and 62 (40.3 %) signs of red spots.

Ultrasound evaluation showed suggestive signs of chronic liver disease with periportal fibrosis and portal hypertension with splenomegaly and collateral circulation in all patients.

## DISCUSSION

In Brazil, mansonic schistosomiasis is an endemic disease, and according to the present study, was noticed that most of the patients (90.4 %) were migrants from the states of Bahia, Minas Gerais and Pernambuco.

Schistosomal infection can be treated with drugs such as praziquantel or oxamniquine, however in the advanced form of the disease, periportal liver fibrosis, collateral circulation and portal hypertension are irreversible<sup>17,19</sup>. When the hepatosplenic form of the disease is established the use of these drugs are not efficient to avoid bleeding from esophageal varices rupture<sup>16</sup>.

Upper digestive bleeding is the most feared complication in patients with schistosomiasis and is usually the first manifestation of the disease. The selected group in

this study was composed by young individuals with mean age of 37.2 years old and all patients were in good clinical and nutritional conditions. Moreover no clinical or laboratory signs of liver failure were observed, reinforcing that patients with schistosomiasis have a preserved liver function. The only finding at physical examination is an enlarged spleen, another typical characteristic of the disease<sup>17</sup>.

Laboratorial evaluation showed that most patients had anemia, thrombocytopenia and leucopenia. Anemia was probably related to previous digestive bleeding episodes, and in some patients, carencial anemia, due to low socioeconomic conditions. Thrombocytopenia as well as leucopenia observed respectively in 86.5 % and 75 % of the patients may be due to the hypersplenism, a typical characteristic of hepatosplenic schistosomiasis, where platelets and leukocytes are kidnapped by the huge spleen<sup>15</sup>. Liver function laboratory tests such as albumin, bilirubins and prothrombin activity were within normal limits or slightly altered.

The presence of red spots and large esophageal varices are known as risk factors for varices rupture and bleeding. In our study, endoscopic data showed that 91.6 % of patients had medium and large varices and 40.3 % had red spots signs, showing the high risk of bleeding in this population.

Patients had a mean of 2.8 upper digestive bleeding

episodes due to varices rupture before hospital admittance for surgical treatment and approximately 70 % had more than one bleeding episode, being the second one in less than one year from the first episode in 53.7 % of the patients. Hemodynamic instability was observed in 75.5 % and blood transfusion was necessary in 74.2 % of the cases. The bleeding caused by esophageal varices rupture is the most relevant disease complication, leading to high rates of morbidity and mortality<sup>3,4,8,10,16,17</sup>.

Considering the severity of previous bleeding episodes and the high recurrence rate in a short interval of time, moreover the high incidence of large esophageal varices and the presence of red spots, treatment should be aggressive to avoid bleeding recurrence. The majority of groups that lead with the disease employ esophagogastric devascularization (azigo-portal disconnection) and splenectomy as the preferred surgical treatment<sup>5,6,8,11,14</sup>.

## CONCLUSIONS

Patients with schistosomal portal hypertension and history of upper digestive bleeding from esophageal varices are young individuals, without either clinical or laboratorial evidence of liver dysfunction, that present high morbidity due to the severity of the acute event of bleeding.

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**RESUMO – Racional** – Esquistossomose é importante doença na saúde pública envolvendo mais de 70 países. Cerca de 600 milhões de pessoas estão em áreas de risco para adquirir a doença e em torno de 200 milhões estão por ela infectados. **Objetivo** – Avaliar as características da hipertensão porta esquistossomótica em indivíduos que se submeteram previamente a tratamento de varizes esofágicas hemorrágicas em hospital terciário. **Métodos** – Os prontuários de 155 pacientes foram avaliados analisando-se aspectos clínicos, laboratoriais, endoscópicos, epidemiológicos e intensidade de eventos hemorrágicos. **Resultados** – A idade média foi de 37.2 anos e não havia sinais clínicos de insuficiência hepática. Análises séricas para avaliação da função hepática foram normais ou levemente alteradas. Anemia estava presente em 70 %, leucopenia em 75 % e trombocitopenia em 86 %. Na endoscopia as varizes foram classificadas em graus III e V em 91.3 %; red spots foram vistos em 40.3 % e gastropatia congestiva em 13.6 %. Os pacientes apresentaram média de 2.8 prévios episódios de hemorragia por varizes e em 75 % havia instabilidade hemodinâmica. **Conclusões** – Pacientes com hipertensão porta esquistossomótica e histórico de sangramento digestivo alto por varizes esofágicas são jovens, sem evidências laboratoriais de alteração hepática importante e apresentam alta morbidade, devido à severidade do evento hemorrágico.

**DESCRITORES** - *Schistosoma mansoni*. Hipertensão portal. Varizes esofágicas. Hemorragia digestiva.

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