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MASSIVE INFESTATION BY *ASCARIS LUMBRICOIDES* OF THE BILIARY TRACT: REPORT OF A SUCCESSFULLY TREATED CASE

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SUMMARY

This is a report of a 25 years old black woman from the city of São Paulo, Brazil, who developed acute obstructive cholangitis of Ascaris lumbricoides with septicemia and multiple hepatic abscesses. The patient had sickle cell trait and normal delivery 3 months ago. Massive infestation of the biliary tract by Ascaris lumbricoides was diagnosed by abdominal ultrasonography and endoscopic retrograde cholangiography. Sixty worms were removed from the common bile duct and hepatic abscesses were drained by surgery. The infectious process was polymicrobial. The patient's recovery was complete after a long evolution with a wide spectrum antibiotic therapy. New surgeries were needed to remove residual worms in the biliary tract. The diagnostic methods, clinical-biochemical features and also the clinical and surgical management are presented. The biliary ascariasis pathophysiology is commented.

Key words: Biliary ascariasis, massive infestation, cholangitis.

INTRODUCTION

The infestation by Ascaris lumbricoides is one of the commonest helminthic diseases of human beings which affects approximately 1/4 of the world population[6]. It reaches larger incidence in regions of Africa, Asia and South America[13]. The adult worm lives in the intestinal lumen, mainly in the jejunum and usually causes few symptoms[9,10,12,17]. Complications appear with worm mass, which may cause intestinal obstruction and more rarely perforation of previously injured bowels[4,9]. Besides this the worm is capable of migrating and introducing into orifices like the cecal appendix and the papilla of Vater[12,17,18].

The biliary ascariasis is one of the most serious complications[2,14,15] which may be lethal, with obstructive cholangitis and septicemia and also the formation of hepatic abscesses by mixed bacterial flora carried in the worm body[9,12,15]. We report a case of biliary ascariasis with a large number of worms in the biliary tract, not described in literature. The clinical-biochemical data, methods of diagnosis and management are presented besides the pathophysiology of this complication.

CASE REPORT

A 25 years old black woman from São Paulo city, Brazil, was admitted to the Clinic Hospital of São Paulo University in June 1989 with a 13 days history of epigastric and right upper quadrant pain with jaundice, dark urine, weight loss and non measured daily fever. The patient denied any previous hepatobiliary diseases, but had an antecedent report of anemia since childhood with sickle cell trait (HbS = 26%). She also referred to a recent pregnancy and a normal delivery three months prior to admission.

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On physical examination the patient was critically ill, toxemic and tachypneic. She was jaundiced, pale and the temperature was 39ºC. The pulse was 120 per min, the blood pressure was 80 x 40 mmHg seated, respiratory rate was 36 per min, the weight was 43 kg and the height was 1.54 m. The abdomen was bulging in the right upper quadrant, the liver was palpable at 4 cm below the right costal margin and at 2 cm from the xiphoid appendix, firm and painful. The gallbladder was not palpable and there was no splenomegaly or signs of peritoneal irritation. The extremities were warm with vasodilatation.

The laboratory investigation on admission revealed that the hemoglobin was 6.5 per 100 ml and the hematocrit was 22 percent; the mean corpuscular volume was 69 u3; the white-cell count was 35.000, with 92 percent neutrophils, 31 percent band forms, 6 percent lymphocytes, 2 percent monocytes and 0 (zero) percent eosinophils. The platelet count was 350.000. The conjugated bilirubin was 5 mg per 100 ml and total bilirubin was 6.5 mg per 100 ml. The serum aspartate aminotransferase was 43 U per liter (normal, < 20) and the alanine aminotransferase was 23 U per liter (normal, < 20). The alkaline phosphatase was 483 U per liter (normal, 40 to 190) and the amylase was 158 U per liter (normal, 40 to 160).

The chest X-Ray showed a right diaphragm elevation. The abdominal ultrasonography revealed an enlarged liver with heterogeneous echotexture, normal gallbladder without stones; the common bile duct was dilated with 30 mm of diameter (Fig. 1) with multiple hyperechogenic tubular images compatible with Ascaris lumbricoides (Fig. 2). An endoscopic retrograde cholangiography showed the common bile duct dilated with tubular images (Fig. 3). During the digestive endoscopy, attempts were made to remove worms with the use of snares with no success.

The diagnosis of obstructive cholangitis by Ascaris lumbricoides was made, and a wide spectrum antibiotical therapy was started with Ampicilin 12g/day, Clindamycin 2.4g/day and Cefotaxime 4g/day; 2g/day of Piperazine were added through a nasogastric tube. As no improvement was noted, it was decided to make a surgical choledochotomy with a Kehr drain placed in the biliary tract. Sixty worms were removed from the biliary tract (Fig. 4) and forty from the

Figure 1. Ultrasonographic vision of transversely cut in common bile duct (arrow), measuring 30 mm in diameter with worms inside.

Figure 2. Ultrasonographic vision of longitudinal cut in common bile duct with hyperechogenic tubular images (arrow) of Ascaris lumbricoides inside.

gastrointestinal tract. There were multiple hepatic abscesses compromising the subdiaphragmatic space. These were fully drained. 1.0g/day of Piperazine was given through the drain of Kehr, followed by 2.0g/day by a nasogastric tube.

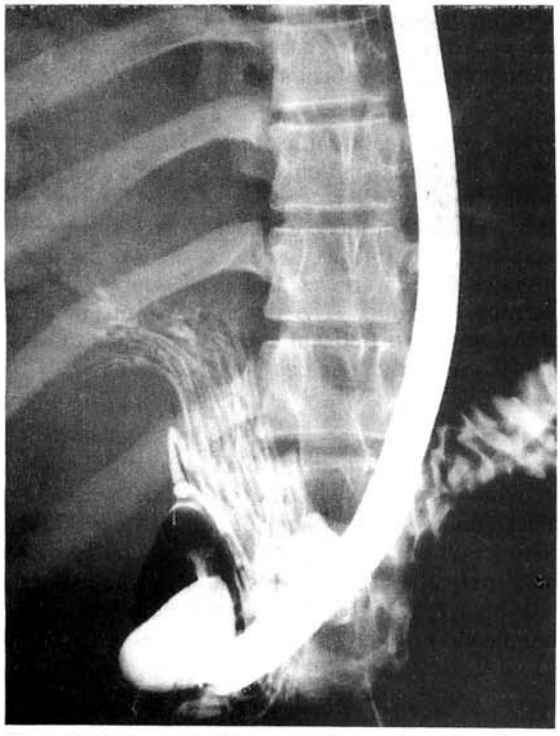

Figure 3. Endoscopic Retrograde Cholangiography of common bile duct infested with Ascaris lumbricoides.

The isolated bacteria were: Streptococcus of F Group (blood culture), Escherichia coli (hepatic abscess), Pseudomonas aeruginosa (bile and hepatic abscess) and Enterobacter sp (hepatic abscess).

The abdominal computed tomography and the cholangiography through the drain of Kehr after two weeks showed the presence of a few worms besides other intrahepatic abscesses which led to a new surgery. Drainage of the hepatic abscesses was done later under ultrasonography guidance.

The hepatic biopsy showed non specific chronic hepatitis, chronic passive congestion, portal fibrosis with scars of the biliary ducts and a marked inflammatory infiltration of eosinophils. Reactive cells of Kupffer were present. The search of IgE against Ascaris lumbricoides was positive with isoelectric point class 2 (Kit Pharmacy Rast Diagnostic - Sweden).

After a long evolution the patient presented a general improvement, weight gain, hemodynamic stabilization and total regression of the infectious process. The patient was discharged in good condition, and remained well on follow-up as late as April 1991.

Figure 4. Vision of Ascaris lumbricoides removal from the common bile duct, during surgery after choledochotomy.

DISCUSSION

The case here reported is intended to contribute for the knowledge of the ascariasis in the biliary tract. The massive infestation of this case, although already reported in literature[2,11,16], reached the record number of 60 worms in the common bile duct. This caused a serious life threat to the patient with septicemia and multiple hepatic abscesses of the mixed bacterial flora.

The bacteria in the biliary ascariasis are carried mostly in the worm body[12]. The pathophysiology of the Ascaris lumbricoides migration from its habitat in jejunum to the biliary tract is not well stablished. Massive intestinal infestation with bowel obstruction, the use of antihelmintic drug (Mebendazole), high fever, and surgical anesthesia among others, have been suggested as predisposing factors for worm migration to the proximal gastrointestinal tract. The worm enters the biliary tract through its proximal third by active movements of its body[2,12,17,23]. With dysfunction of the sphincter of Oddi, the complete penetration of the worm would be possible with worm movements stimulated by the sphincter compression[2]. A transitory lesion of the sphincter of Oddi would perhaps allow consecutive invasion of the worms leading to massive infestation of the biliary tract. PRÓSPERO believes that the worm can pass only with previous alteration of the sphincter of Oddi[15]. The capability of adult worm to reproduce in the common bile duct as well as of its larvae development, is not well known.

In our case, the absence of eosinophils in the blood in the early examination of the patient, agree with the findings of DOHERTY et al.[3] in four cases of biliary ascariasis and SCHULMAN[19] in one case. In contrast, the histological examination of the liver showed a marked infiltration of eosinophils. The eosinophil is considered the main citotoxic cell against the worm, and it may cause necrosis of the hepatic parenchyma through the release of proteases[22]. PRÓSPERO also found its presence in the hepatitis caused by larvae migration[15]. The hepatic infiltration of eosinophils and the humoral response of the patient to the worm (IgE specific positive) suggest that the observed massive infestation was not caused by immunological deficiency[21].

The abdominal ultrasonography was a valuable method of diagnosis in this case, as it was previously shown in another study[1]. The endoscopic retrograde cholangiography may be effective in diagnosis, and be followed by an attempt of worm extration through the endoscope. This approach was not possible in our case due to the massive infestation and the patient's critical state.

Surgical treatment is the most efficient in biliary ascariasis particularly in cases with large number of worms, septicemia and hepatic abscesses[2,3,9,16]. In this case, several surgeries were necessary to drain the abscesses. In one of these surgeries there were residual dead worms in the common bile duct. The death of worms in the biliary tract is a frequent event. The dead worms may become the nucleus for the formation of stones[7,8,12,15,20,24].

There are still many doubts about the biliary ascariasis, mainly in the cases of massive infestation. Future research on sphincter of Oddi dysfunction in this situation and others factors which may attract the worms into the biliary tract will be of help to avoid this very serious complication.

RESUMO

Infestação maciça por Ascaris lumbricoides nas Vias Biliares: Relato de um Caso Tratado com sucesso.

Descrito caso de mulher de 25 anos, negra, procedente da cidade de São Paulo - Brasil, que desenvolveu quadro agudo de colangite obstrutiva por Ascaris lumbricoides, com septicemia e múltiplos abscessos hepáticos. Era portadora de traço falciforme e tinha tido um parto normal há 3 meses. Foi estabelecido o diagnóstico de infestação maciça por Ascaris lumbricoides em vias biliares com ultrasonografia abdominal e colangiografia retrógrada endoscópica. Sessenta vermes foram retirados do colédoco e drenados os abscessos hepáticos por cirurgia. O quadro infeccioso era polimicrobiano. Houve recuperação total da paciente após longa evolução, com antibioticoterapia de amplo espectro e novas cirurgias com extração de vermes residuais. Os autores apresentam os métodos diagnósticos empregados, o quadro clínico-bioquímico e a abordagem terapêutica. A fisiopatologia da ascaridíase biliar é discutida.

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