

Case Report

HYDATID CYST IN LIVER - A CASE REPORT

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ABSTRACT

Hydatid disease (Cystic echinococcosis) is a parasitic disease that remains a clinical problem worldwide, especially in areas where animal husbandry and subsistence farming form an integral part of community. In humans, accidental infection occurs as a result of ingestion of eggs of the dog tapeworm *Echinococcus granulosus* along with contaminated food and water. Among the visceral organs affected in human beings, liver is the most commonly involved organ. We present a case report of a 23 year old female patient who presented initially with abdominal pain with loss of appetite and the problem was persisting for nearly five years. For confirmation of hydatid cyst, the patient was referred to the Department of Veterinary Parasitology for serological confirmation. Using the sera of the suspected patient, Latex agglutination test (LAT) was performed and the sample was found positive.

Keywords: Hydatidosis, Liver, Human, LAT

INTRODUCTION

Hydatid disease caused by *Echinococcus* sp. remains a clinical problem worldwide, especially in areas where animal husbandry and subsistence farming forms an integral part of community life. In human beings the disease is mainly caused by *Echinococcus granulosus*, causative agent of cystic hydatid disease (CHD) and *Echinococcus multilocularis*, causative agent of multilocular hydatid disease (MHD) which causes a major public health burden in many countries. Dogs are the principle reservoir of adult worm and close contact with such reservoir may be a risk for contraction of the disease in herbivorous intermediate host and human beings. The most commonly affected organs by hydatid cysts are the liver and the lung. The presence of the cyst remains clinically silent and is diagnosed incidentally or when complications occur. Many countries, particularly those with large number of breeding cattle and sheep flocks like Asia, New Zealand, Australia and Mediterranean countries are endemic for the disease. We present herein a case of a hydatid cyst in liver of a 23 year old lady.

CASES

A 23 year old lady who presented initially with abdominal pain along with loss of appetite and the problem was persisting for nearly five years. Upon Ultrasound scanning of the abdomen, a huge mixed echogenic, predominantly a cystic mass in the liver was observed with a few specks of calcification and septation. The right kidney was displaced to the midline by this mass. The computed tomogram revealed a large cystic mass of 11.5 cm seen in the right lobe predominantly in segments 4A, 4B and 5 of the liver with thin imperceptible wall. The lesion extended to the porta splaying hepatic artery, portal vein and also extended to the gall bladder fossa. For serological confirmation of hydatid cyst, the patient was referred to the Department of Veterinary Parasitology, Madras Veterinary College.

MATERIALS AND METHODS

Methodology

Latex Agglutination Test (LAT)

LAT was standardized with rLipL41 fusion protein as per the method of Dey *et al.*, (2007) with minor modifications. Briefly, a 10% suspension of the latex beads (0.8 mm dia, Sigma, USA) was coated with Hydatid cyst fluid antigen (25 mg/dL) using 0.06 m sodium carbonate-bicarbonate buffer (Na₂CO₃ 1.59 g and NaHCO₃ 2.93 g in 1 L of distilled water, pH 9.6) and kept at 37 °C for 6 hours with constant

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shaking. The sensitized beads were centrifuged at $6800\times g$ for 3 min and the pellet was resuspended as a 1% suspension in PBS, pH 7.2 containing 5 mg/dL of bovine serum albumin (BSA). The latex beads were left at 37 °C overnight with constant shaking. Latex beads were centrifuged as before and resuspended in PBS, pH 7.2 containing 0.5 mg/dL of BSA and 0.1% sodium azide as 0.25% suspension. The sensitized latex beads were stored at 4 °C until used. The LAT was performed on glass slides by mixing equal volume of suspected serum sample of the above patient and sensitized beads (20 micro litre each). The slide was rocked briefly for 2 minutes to mix the coated beads and the serum sample. The results were read well within 2 minutes by the naked eye. The test was positive if agglutination had occurred, which was indicated by the formation of fine granular particles, which tend to settle at the edge of the beads-serum mixtures. The test was considered negative if the suspension remained homogenous.

RESULTS AND DISCUSSION

Results

By utilizing the reference serum sample of the suspected patient in LAT, the sample when mixed with the sensitized beads showed the presence of agglutination rapidly between 2 and 3 minutes of the performance of the test.



Control

Positive

DISCUSSION

Although hydatid cyst can be found in different organs of the body, the presence of the cyst is more common in liver followed by involvement of lungs. There are several modalities that can confirm the diagnosis of cystic hydatid disease as a follow up to the history of the patient, clinical examination supported by imaging methods and serology. Hydatid cyst colonises more often on the right lobe of the liver and in most cases the cyst is unilocular. Growth of the cyst in the affected liver over a period of time may occupy the liver parenchyma resulting in complicated liver pathology. In advanced cases, rupture of the cyst is also possible due to pressure atrophy caused by the developing cyst. Biliary complications caused by the communication of the hydatid cyst with biliary system generally only produce symptoms when hydatid material enters the common bile duct resulting in obstructive jaundice or cholangitis. Another complication is the secondary bacterial infection which may also result due to the rupture of the cyst. The mainstay of treatment of hydatid cyst in liver is surgical intervention. Chemotherapy forms an integral part of the management of CHD. The most widely used agents with anti-echinococcal activity are the benzimidazoles viz., Mebendazole and Albendazole. Both drugs interfere with the glucose absorption through the wall of the hydatid cyst leading to glycogen depletion. WHO guidelines for primary chemotherapy are Albendazole @ 10-15 mg/kg/day in divided doses for a minimum of 3-4 months with 10-14 day interval between cycles depending on the clinical and radiological improvement. Improvement is defined as reduction in cyst size, membrane separation from the pericyst or calcification.

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