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A CASE OF SALTY EXPECTORATION FOR EVALUATION

General Medicine

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ABSTRACT

Hydatid disease is a zoonotic parasitic infestation caused by Echinococcus granulosus. It is one of the most widespread parasitic diseases which is expensive and complicated to treat, which might require prolonged treatment or surgery [1]. It affects more than one million at any given time[1]. Humans are infected through ingestion of contaminated food, water or soil, or after direct contact with animal hosts. The parasite usually affects the liver with Hydatid disease of the lung being uncommon. Albendazole and surgery remains the treatment of choice for Hydatid disease of the lung. This zoonosis continues to be a major public health problem in developing countries and early treatment is necessary to avoid complications. Complete removal of the parasite without unnecessary damage to host tissue is the goal of treatment. Deworming of dogs, Slaughterhouse hygiene, and public education are necessary to reduce the burden of this disease.

KEYWORDS

Pulmonary hydatid; dogs; food animals; public health Echinococcus granulosus; Water lily sign

INTRODUCTION

Hydatid disease is caused by Echinococcus granulosus. In adults, the liver is the most common location for the cysts, accounting for 70% of the cases, while the lungs are the second most common location (20%); other locations include the spleen and kidneys, which account for 2% each [2].Here, we report a case of complicated hydatid cyst with salty expectoration[3]

CASE STUDY

A 58-year-old female, a farm worker, who rears cows and goats, presented with cough and scanty, colourless, mucoid consistency, non-foul smelling, occasionally 'salty in taste' expectoration, and grade 1 shortness of breath according to Modified Medical Research Council(mMRC) Dyspnea Scale

for the past 2 weeks. The patient had episodes of fever for the past four days. Vitals were stable. On examination, the patient had poor oral hygiene, and on auscultation revealed decreased breath sounds in the right infra-scapular region with occasional crackles. Chest radiograph showed a non-homogeneous single air-fluid level with a thick-walled cavity in the right mid and lower zones(Fig1 &Fig2). Ultrasonography chest revealed a well-defined cystic lesion measuring ~ 8x6.3x7.2 cm seen in the middle zone of Right hemithorax, a hyperechoic lesion ~4x3.2x3.4 cm with few internal calcifications seen within the cyst. No hepatic/splenic or any other visceral cysts were seen. High-resolution computed tomography (HRCT) chest revealed a well-defined, rounded thick-walled cavity with air-fluid level and internal calcific components in a serpiginous pattern in the right middle lobe with surrounding underlying collapse/consolidation and ground-glass opacities, no obvious communication with the main bronchus-likely complicated pulmonary hydatid cyst. For confirmation Serology Echinococcus IgG was done which was 18.57 NTU (Positive for more than 13.0 NTU). The patient was referred to the cardiothoracic surgery team. After a week of preparatory albendazole treatment, the patient underwent parenchyma-preserving surgery. Right thoracotomy was done and the ruptured cyst was removed with minimal spillage of the fluid. Thorough irrigation was done and the edges of the cyst were trimmed and sutured. Intercoastal drainage tube was placed and removed after 5 days. Post-surgery Chest radiograph revealed Empty cyst sign which is an empty cavity with thin walls after complete evacuation of the hydatid membrane. The analysis of the fluid revealed multiple daughter cysts with scolices and hooklets. The postoperative course was uneventful and she was discharged after 7 days with a 4-week course of postoperative albendazole. The progress of patient follow-up was good.

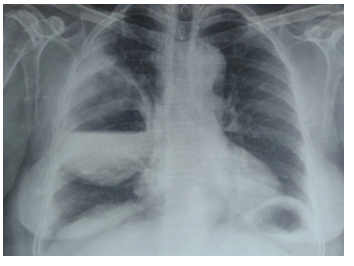

Fig 1

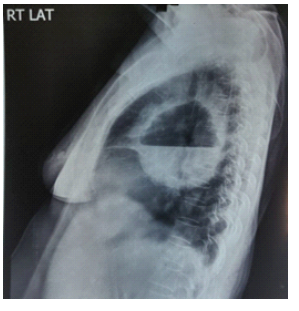

Fig 2

DISCUSSION

Hydatid disease is a zoonotic parasitic infestation caused by larval stages of Echinococcus granulosus characterized by cystic lesions in the liver. Hydatid disease of the lung is uncommon. The adult stage of the parasite lives in the intestinal tract of carnivores such as dogs and cats, as well as in herbivores such as goats. After elimination through the faeces, the eggs contaminate the fields and wells. Herbivores ingest the eggs, and develop into larvae or hydatid. The cycle is completed with the ingestion of the infected viscera by carnivores. Humans contract the disease by ingestion of contaminated water or food or by direct contact with the dogs. After the release of embryos, they attach to the intestinal wall by their hooklets and penetrate the intestinal wall. They reach the liver via the portal circulation. Some of the embryos with diameters < 0.3 mm may pass through the hepatic sinusoids reach the lungs. Embryos can also reach the lungs by entering the thoracic duct via lymphatics. The embryo gradually transforms into a hydatid cyst. Lungs may also become the site of secondary hydatidosis due to the rupture of a primary cyst resulting in dissemination of multiple daughter cysts and scolices.

In This case the diagnosis of complicated hydatid cyst was made by

Radiological signs and serology. Radiological diagnosis was made on CT(Fig 3) due to the presence of Collapsed membranes of cyst floating on dependent portion of the cyst also known as "serpent sign" and Collapsed membranes of cyst floating on the surface of the cyst also known as the “water lily sign”. Serology diagnosis was made with Echinococcus IgG 18.57 Nova Tec Units (NTU) (Positive for more than 13.0 NTU). The role of antihelmintics before surgery is not clearly established but there is now much evidence that they are capable of sterilizing cysts and curing some, though they are not always effective [4-7]. There seems to be a strong case for their use in cyst rupture, perisurgically [4-7] and where surgery is thought to be too risky.

Fig 3

The 2015 WHO Food borne Disease Burden Epidemiology Reference Group (FERG) estimated echinococcosis to be the cause of 19 300 deaths and around 871 000 disability-adjusted life-years (DALYs)[1] globally each year. Annual costs associated with cystic echinococcosis are estimated to be US$ 3 billion for treating cases and losses to the livestock industry[1].Despite some progress in the control of echinococcosis, this zoonosis continues to be a major public health problem in developing countries and early treatment is necessary to avoid complications which are directly related to the duration of the cyst. Deworming of dogs, Slaughterhouse hygiene, and public education are necessary to reduce the burden of this disease. The transmission cycle must be interrupted with Control measures in dogs and sheep which include deworming of dogs with praziquantel and the vaccination of lambs with EG95 vaccine [1]

CONCLUSIONS

Albendazole has been used as a prophylactic treatment before surgery in patients with pulmonary hydatid cyst for reducing recurrence rate but might cause spontaneous rupture of cysts with some unpredictable complications. Although rupture of cyst can also occur without albendazole treatment it is believed that this drug is an important cause for perisurgical rupture and more investigations are needed to prove it clinically. Therefore, we believe early surgical treatment can be done even without albendazole prophylaxis. Although salty expectoration is a rare symptom in Pulmonary hydatid cyst, it should be kept in mind when making a diagnosis in endemic countries like india in which hydatid cyst disease is a possibility. People education, proper treatment of the farm animals and pets, Proper hygiene in animal slaughter house, Food and water hygiene and getting rid of stray dogs may help in controlling this disease especially in rural areas.

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