



CASE REPORTS ON COMPLICATED GIANT ISOLATED HYDATID LUNG CYST

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Article Received on 22/11/2021

Article Revised on 12/12/2021

Article Accepted on 01/01/2022

ABSTRACT

Cystic echinococcosis (CE) is a zoonotic parasitic disease caused by the larval stages of the cestode *Echinococcus granulosus*. Worldwide, pulmonary hydatid cyst is a significant problem medically, socially, and economically. Hydatid cysts are mostly asymptomatic and non-complicated hydatid cysts, even if very large, have a good prognosis and can be safely removed. On the contrary, complicated hydatid cyst can have severe consequences.

KEYWORDS: Hydatid cyst, Echinococcus, Complicated ruptured hydatid cyst.

INTRODUCTION

Human echinococcosis, also known as hydatid disease, is a zoonotic disease caused by the larval stage (metacestode) of the parasite belonging to the family Taeniidae and genus *Echinococcus*. *Echinococcus granulosus* causes cystic echinococcosis (CE) is the most common species to cause human disease. Other less common species are *Echinococcus multilocularis*, *vogeli*, *oligarthrus*.^[1] Hydatid disease is a major zoonotic disease of significant public health and economic impact.^[2]

Global burden of the human hydatid cyst is approximately 18,235 new cases per annum. The impact of the disease on a human has been assessed by the disability-adjusted life years (DALYs) and the economic impact.^[3] the socioeconomic impact of hydatid cyst is enormous, and the calculated global burden in terms of DALYs is 1009,662 when underreporting was taken into account.^[4]

The life cycles of these parasites involve two mammalian hosts. The adult cestode inhabits the small intestine of a carnivore (definitive host) and produces eggs containing infective oncospheres. Either cestode segments (proglottids) containing eggs or free eggs are released from the intestinal tract of the carnivore into the environment. After oral uptake of eggs by an intermediate host animal, a larval stage (the metacestode), develops in internal organs. The mature metacestode produces numerous protoscoleces, with each having the potential to develop into an adult cestode after being ingested by a suitable definitive host. Accidentally, eggs are also ingested by humans and other 'aberrant' hosts that do not play a role in the natural cycle. Whereas the infection of carnivores with immature or mature intestinal stages of *E. granulosus* does not

cause morbidity, the invasion of various organs (mainly liver and lungs) of intermediate or aberrant hosts by metacestodes can cause severe and even fatal disease.^[5]

In humans, cysts may develop in numerous anatomic sites. This form of echinococcosis is termed primary cystic echinococcosis (CE). Secondary CE, predominantly in the abdominal and/or pleural cavity, results from spontaneous or trauma-induced cyst rupture and the release of protoscoleces and/or small cysts, which can grow to larger cysts.^[1,2] Approximately 40%–80% of patients with primary CE have single-organ involvement and harbour a solitary cyst. Hydatid fluid is antigenic, thus immune mediated reactions such as urticaria, asthma, membranous nephropathy and anaphylaxis can occur.^[6] Because oncospheres enter the circulation via the gastrointestinal tract, the most common site of this disease in humans is the liver (50%–70%), followed by the lungs (20%–30%), and less frequently other organs including kidneys, spleen, muscles, skin, abdominal and pelvic cavities.^[2,7] Unlike an adult, lung involvement is more common than liver in the children, with frequencies of 64% and 28%, respectively.^[8]

The diagnosis of hydatid cyst in individual patients is based on identification of cyst structures by imaging techniques, predominantly ultrasonography, computed tomography, X-ray examinations and confirmation by detection of specific serum antibodies by immunodiagnostic tests.^[1, 2, 8]

CASE REPORT

An 8 year old girl from rural area of Shimla, in northern India, product of non-consanguineous marriage from low socio-economic status presented to our hospital with a 1

month history of gradual and progressive dyspnea, chest pain and cough that was dry initially but had started to produce blood stained sputum in the past one week before admission. Her past medical history was unremarkable, though her mother reported that the child had lost significant weight through the course of the illness and had experienced intermittent low grade fever. She had no history of tuberculosis contact. Mother also informed that before this admission, the girl had received treatment for her current illness from a local hospital, which included antibiotics that she could not specify; however, the girl had no significant improvement.

O/E- child was conscious, oriented, afebrile, HR-min, RR-36/min, Spo2-92% in room air. Anthropometric measurement was normal for age. On head to toe examination no abnormality was detected. No pallor,

icterus, clubbing, cyanosis, Lymphadenopathy, edema was found. On systemic examination respiratory: inspection- RR-36/min, trachea appears to be in central position, no chest deformity, no precordial bulge, no engorged neck veins, no visible pulsations were found. On palpation- trachea in central position, apex beat at 5th ICS just medial to mid clavicular line. On percussion- dull note heard over right mammary, inframammary, infrascapular and interscapular area. On auscultation- diminished breath sound over right side of chest.

On investigation complete blood count and peripheral smear were within normal limits. Quantitative CRP, Serum electrolyte, urea, creatinine, and liver function test was normal. On chest x-ray a big rounded homogenous opacity involving 90% chest area in right side, no abnormality detected on left side as seen in figure 1.

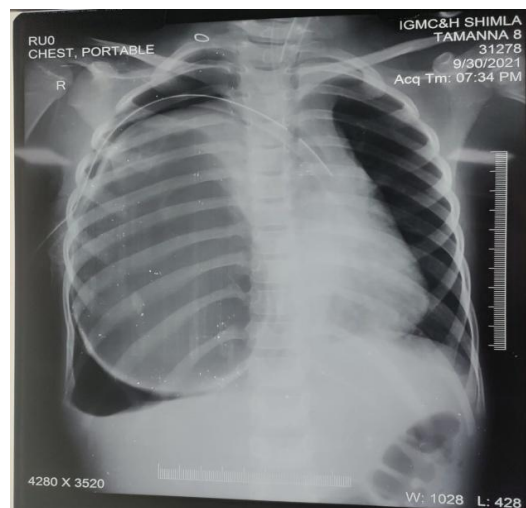


Figure 1

On CT scan there was a large 14x8x11cm unilocular well defined cystic lesion in the right lung field with air fluid levels and floating membranes communicating with right lower lobe segmental bronchus s/o Complicated Hydatid

Cyst with mass effect in the form of passive atelectasis, contralateral mediastinal shift with moderate hydropneumothorax as seen in figure 2 and 3.

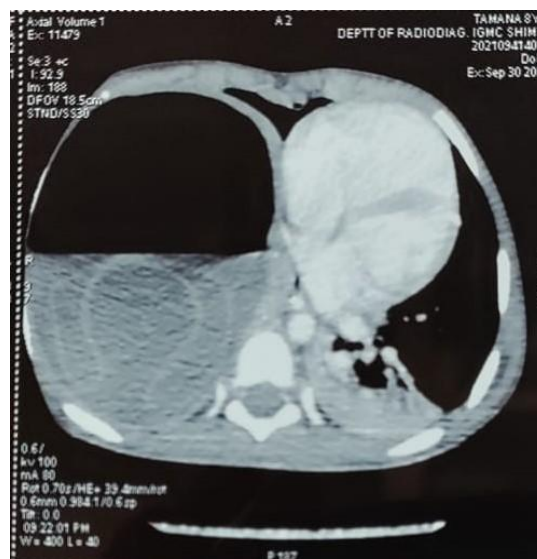


Figure 2

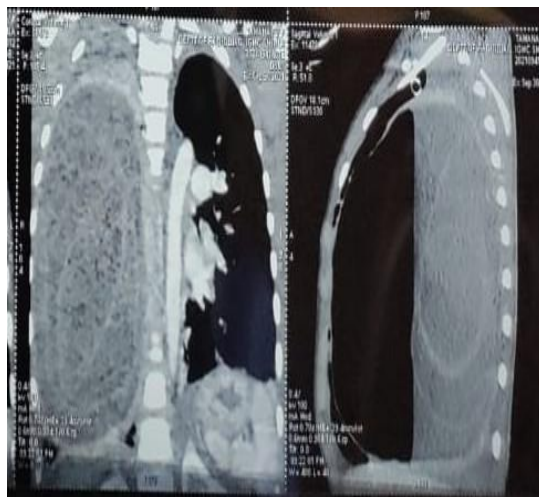


Figure 3

DISCUSSION

Pulmonary hydatid cysts are treated by pharmacotherapy and/or surgery. Surgical intervention is the treatment of choice though pharmacotherapy may also be useful in selected patients. Indications of chemotherapy include smaller cysts, patients with contraindication for surgery: Poor surgical risk, refusal for surgery and multiorgan disease, multiple cysts, recurrent cysts, and patients with intraoperative spillage of hydatid fluid.^[9] The usual recommended a dosage of Albendazole is 10–15 mg/kg/day, taken twice daily, and that of Mebendazole is 40–50 mg/kg/day, thrice daily. The optimal duration of pharmacotherapy in pulmonary hydatidosis is not known, but it should be given for a minimum period of 3–6 months.

Hydatid cysts may occasionally become very large. There is no universally accepted definition of giant hydatid cyst. However, it is usually defined as a cyst with the largest diameter more than 10 cm.^[10]

CONCLUSION

Cystic echinococcosis is a zoonotic parasitic disease with global existence. Though it can involve any organ, liver and lungs are the most commonly involved organ. Patients remain asymptomatic for a longer period as the cyst grows slowly. Diagnosis is usually based on radiology supported by serological testing. Surgery is the treatment of choice of pulmonary hydatid cyst but in inoperable cases or in cases where surgery is contraindicated, medical therapy with benzimidazoles compounds may be tried. In view of its enormous human impact, prevention should be emphasized particularly in endemic areas.

Disease control can be improved by increasing awareness among health care workers and educating the community before more importance is given to increasing diagnostic capacity and implementing prevention and control strategies suggested by the WHO and the Centers for Disease Control and Prevention, aiming at high-risk groups where the majority of the

population are in close contact with cattle.

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