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Massive Pulmonary Hydatid Cyst in a 6-Year-Old Boy

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Abstract

Introduction: Hydatid disease is a severe disease caused by Echinococcus, a larvae endemic in many developing countries. Hydatid cysts are usually found in the liver in most cases. These cysts show no symptoms and are discovered accidentally during abdominal ultrasonography. Lungs are the second most common site of hydatid cysts were they can be referred to as pulmonary cysts.

Case Description: A 6-year-old previously healthy boy presented to the pediatric clinic for a one-month history of dyspnea and recurrent episodes of dry cough. CT scan of the chest was performed to reveal a large pulmonary hydatid cyst measuring about (9cm x 7cm). Thoracotomy was done and the cyst was successfully removed followed by a full coarse of Albendazole. Patient had good prognosis.

Discussion: Pulmonary hydatid cyst which is a rare infectious disease usually presents at adulthood due to the slow growing nature of the larvae even when the responsible agent is encountered during childhood. This what gives the uniqueness of the presented case in addition to its very large size.

Conclusion: Surgery which is the gold standard for the management of hydatid cysts must be done as early as possible to avoid complications such as rupture of the cyst. This must be followed by full coarse of albendazole to prevent the recurrence of the infection.

Keywords: Hydatid cyst; Lungs; Echinococcus; Thoracotomy

Introduction

Echinococcosis is a rare larval infectious disease of human being that occurs by the taeniid cestodes of the genus Echinococcus. Four species of Echinococcosis are of concern in humans: Echinococcus granulosus which causes cystic echinococcosis, also called hydatidosis; and is the most common human diseases of this genus accounting for >95% of the cases worldwide. The remaining three are: Echinococcus multilocularis causing alveloar echinocccosis, Echinococcus vogeli and Echinococcus oligarthrus causing polycystic echinococcosis [1].

After the ingestion of food or water contaminated with tapeworm eggs, the larva penetrates the wall of the intestines and travel through the blood and lymph to the liver, the lungs or other organs forming a hydatid cyst.

These cysts are slow growing and this is the reason behind their asymptomatic nature. Most cases exhibit gradual signs and symptoms until they enlarge and compress surrounding structures. If the hydatid cyst rupture it may lead to an IgE mediated anaphylactic shock that may be life threatening.

In adults, the liver is the most common site of hydatid cyst followed by the lung as the second most common location of such cysts. In addition, although acquiring the larva takes place in childhood, manifestation of signs and symptoms does not occur till adulthood. Moreover, pulmonary hydatid cysts have high probability of co-existing liver cysts. All of the above mentioned facts make our case special and unique. The cyst is located in the lung, it manifested in childhood and it has no co-existing liver cyst.

Surgical removal is the treatment of choice for hydatid cysts whenever detected. Medical therapy, mainly Albendazole, is used in cases of smaller cysts, patients having contraindications for surgery, disseminated disease, multiple cysts, recurrent cysts, and patients having intraoperative spillage of hydatid fluid.

Case Description

A 6-year-old previously healthy boy presented to the pediatric clinic with one-month history of dyspnea and dry cough that was resistant to many medications including oral antibiotics, corticosteroids and antitussive medications. Chest X-ray done at another hospital revealed a semi-complete opacification of the right lung so patient was admitted to the hospital for further investigations. CT scan of the chest was done and revealed a large encapsulated cystic mass measuring 9cm*6.8cm at the right lung highly suggestive of hydatid cyst (Figure 1).

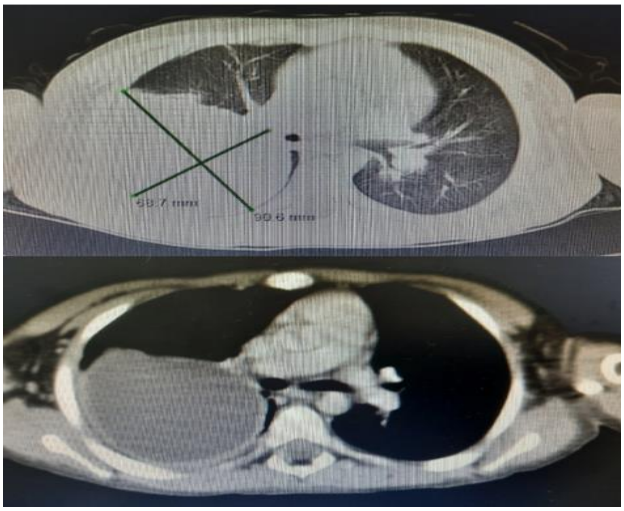

Figure 1: CT scan of the chest showing the hydatid cyst occupying most of the right lung.

Other laboratory tests done presented in (Table 1) reveal elevated WBC count with zero % eosinophils most probably due to the consumption of corticosteroids prior to presentation in hope to suppress the dry cough. The rest of the labs were within the normal range for age.

Also, indirect hemagglutination antibody test (IHA) for hydatid cyst was done and came back positive.

Table 1: Laboratory results on admission to the hospital.

Test	**Result**	**Test**	**Result**
Hemoglobin (g/L)	10.6	BUN (mg/dL)	23
White blood cells (cu/mm^3)	31,400	Creatinine (mg/dL)	0.31
Hematocrit (%)	33	Sodium (mEq/L)	139
Mean cell volume (fL)	80	Potassium (mEq/L)	4.7
Platelets (cu/mm^3)	463,000	HCO3 (mEq/L)	23
Neutrophil (%)	53	Chloride (mEq/L)	100
Lymphocyte (%)	43	CRP (mg/dL)	10
Eosinophil (%)	0	SGPT (IU/L)	27
INR	1	Lipase (IU/L)	44
PTT (seconds)	30	Bilirubin (mg/dL)	0.08

Upon confirmation of the diagnosis with imaging and serologic tests, two additional CT scanner imaging were done for the brain and the abdomen to rule out any additional cysts in the liver and the brain mainly or any other organ.

Both came back normal and clear of any additional cysts (Figure 2 and 3).

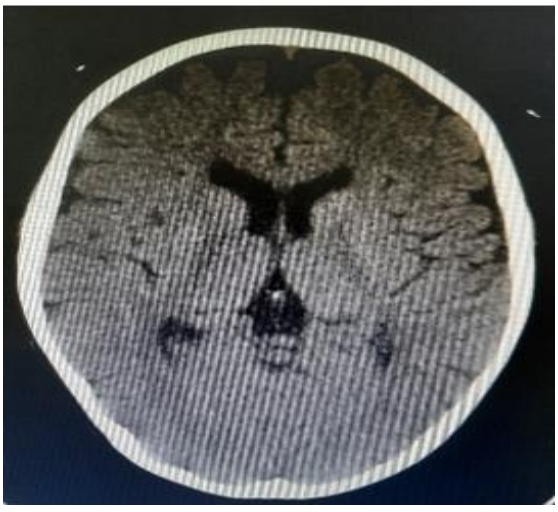

Figure 2: CT scan of the brain showing no hydatid cysts.

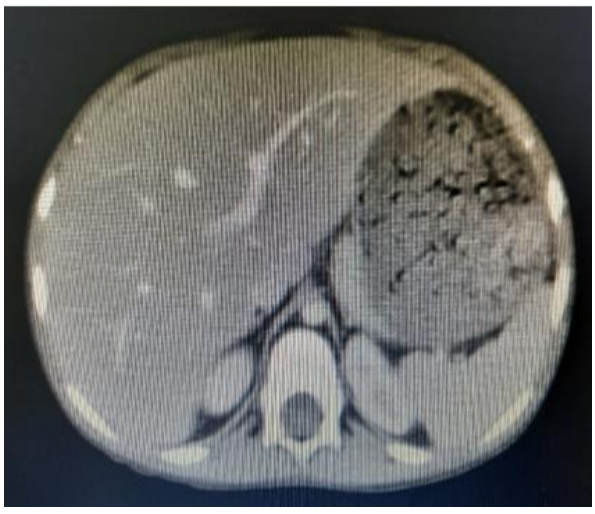

Figure 3: CT scan of the abdomen showing no hydatid cysts in the liver.

The following step was consulting the surgery team and the infectious diseases (ID) team. The ID suggested after performing the surgical intervention to start with Albendazole according to the CDC protocol (15mg/kg/day divided in two doses for 28 days followed by 14 drug-free days and repeating the cycle 3 times).

The surgery team decided performing partial lobectomy to remove the cyst due to its huge size and risk of rupture.

Operation (subtotal lobectomy) was done successfully and the patient was observed for 7 days in the pediatric intensive care unit (PICU) until the chest drains (Figure 4) were removed and the patient started breathing spontaneously on room air without any support. The whole procedure ended in a favorable outcome. Patient then was discharged home after family was well educated on the use of Albendazole and advised to have a follow up visit within 10 days of discharge.

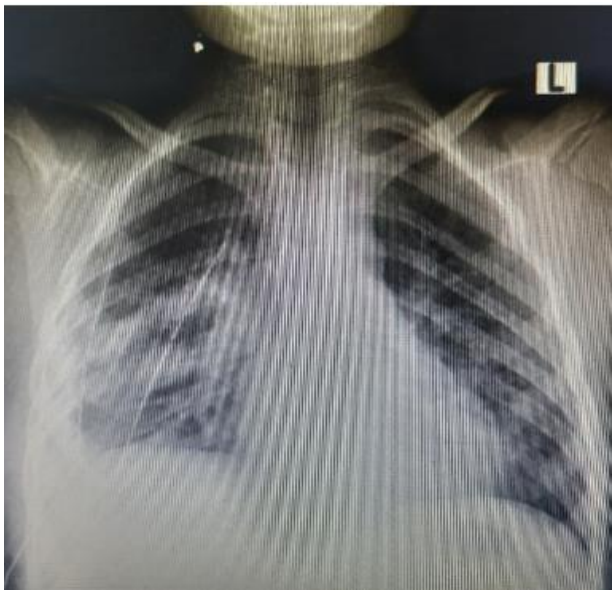

Figure 4: Chest X-ray done post-operation (two chest drains placed at site of subtotal lobectomy).

Discussion

By definition, Human cystic echinococcosis is a parasitic infection caused by the larva Echinococcus granulosus. Epidemiologically, 85–90% of the patients having hydatid cysts show single organ involvement and >70% harbour a solitary cyst. Although the liver is the most common site of cyst development, the lungs may be the most common site in children. Out of the total number of patients with lung cysts, ~20–40% also have concomitant liver cysts. To be added, pulmonary hydatid cyst affects the right lung in ~60% of cases [2].

Clinically, symptoms of pulmonary hydatid cysts are often silent except when complications take place. Diagnosis can be done by imaging, serology, histopathology and parasitology direct examination. When compared to the case above, the patient presented with a one-month history of dyspnea and dry cough that reflected the presence of a 9cm pulmonary hydatid cyst that was diagnosed through both serologic test (ELISA detecting IgG for E. granulosus) and imaging (CT scan of the chest).

Treatment of choice is surgical removal of the whole cyst while avoiding spillage of the content. Indications for surgery include large cysts with risk for rupture, infected cysts, cysts occupying vital locations, and cysts exerting considerable mass effect.

All patients who underwent surgery for hydatid cyst removal should receive Albendazole (10-15 mg/kg/day) in two divided doses for 6 months due to risk of recurrence of the disease. This was applied to the case mentioned above were surgical subtotal lobectomy was followed by a 6-month coarse of Albendazole. Anti-echinococcus IgE titer or eosinophil percentage value can be used as a follow up marker for the response to Albendazole [2].

Conclusion

Case presenting a 6-year-old boy with dyspnea who was found to have a pulmonary massive hydatid cyst which required surgical excision and medical therapy. This highlights the importance of spreading education mainly in developing countries about Echinococcus and how it is acquired to avoid such complications. It also shows the significance of the multi-disciplinary collaboration of medical teams to give the best care for patients. Even though such cases of massive hydatid cysts are very rare nowadays, they are still being reported in the literature now and then especially in developing countries.

REFERENCES

1. Rawat S, Kumar R, Raja J, et al. Pulmonary Hydatid Cyst: Review of Literature. J Family Med Prim Care. 2019; 9: 2774-2778.
2. Cappello E, Cacopardo B, Caltabiano E, et al. Epidemiology and Clinical Features of Cystic Hydatidosis in Western Sicily: A Ten-year Review. World J Gastroenterol. 2013; 48: 9351-9358.