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Case Report

Rapid Growth of Hydatid Cyst: A Pediatric Case Report

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Abstract
Hydatid disease is a parasitic infection caused by *Echinococcus granulosus* with worldwide distribution. The most affected organs are liver and lungs, but it can be detected in any other organs as well. We reported a 5-yr-old boy from Shiraz, southern Iran in 2017 who presented with abdominal discomfort. Imaging revealed multiple liver hydatid cyst and a huge kidney hydatid cyst. This case showed the possible implication of rapid growth of multiple hydatid cyst as well as unusual organ presentation in the pediatric population.

Introduction

Echinococcus granulosus is an endemic zoonotic disease, with worldwide distribution. This infection is caused by larval stages of tapeworms of the genus *Echinococcus*. Humans are as an accidental intermediate host. The larvae can be distributed by homogenous or lymphatic's pathway and develop in almost any anatomic location (1).

The most frequently infected organ is liver (55–70%) and lungs (18–35%). Kidney involvement is very rare (2–3%), even in endemic areas (2). Hydatidosis is endemic throughout Iran and it remains as an important health problem (3). This study reported an unusual rapid growth of liver and kidney hydatid cyst in a 5 yr-old patient. A differential diagnosis of hydatid cyst should be considered for cystic

mass in any anatomical location of the body in endemic area. In addition, a close follow up and individualized treatment in pediatric population is necessary.

Case presentation

A 5-yr-old boy was referred to the pediatric surgery center at Namazee Hospital affiliated to Shiraz University of Medical Sciences, Shiraz, Iran in 2017 due to abdominal discomfort. The patient's vital sign was stable, he has normal bowel movement, without nausea, vomiting, anorexia, and jaundice. In physical examination a palpable mass was detected in the right side of abdomen. Laboratory examination on admission showed: (11000 white blood cells/µl, absolute eosinophil count 3080 cells/µl), Alkaline phosphatase: 790 and normal values for hemoglobin, electrolyte profiles, liver enzymes and bilirubin. Abdominal ultrasound showed multiple thin wall cysts in right and left lobe of liver and a large cyst with area of detaches inner membrane, occupied the upper and mid pole of the right kidney. Chest radiography showed no abnormality. Abdominal computed tomography (CT) scan revealed 4 varying size (5.5×5.5cm), (10×5.5cm), (6.5×6.5cm), (5.5×5cm) fluid density cystic structures without calcification in both lobes of liver. Furthermore, a large cyst was measuring about 15×10.5×8.5 cm in the upper pole of right kidney without solid component or calcification (Fig.1). Because of patient's sign and symptom as well as potential risk of rupture, surgery was considered for these multiple huge cysts.

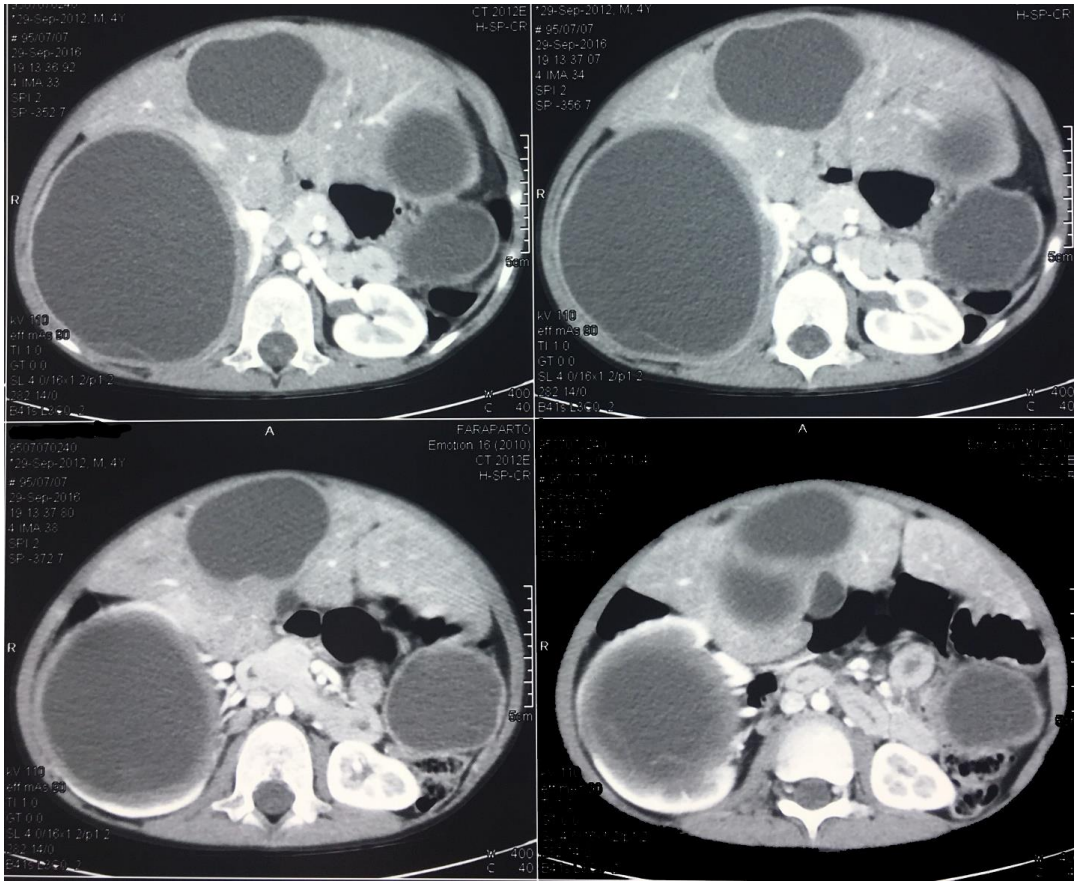

Fig. 1: Abdominopelvic CT revealed multiple huge liver and kidney hydatid cyst

The patient was operated via midline incision. After aspiration of fluid contents, the cyst was opened, the internal capsule and contents were removed (Fig. 2), after that partial cystectomy was performed. Large hydatid cyst of right kidney was evacuated and removed with the same method.

Hydatid disease was confirmed by pathological examination. The post-operative course was uneventful. Albendazole was prescribe post-operatively to prevent relapse, ultrasonographic follow-up was conducted, and no evidence of recurrence was detected and immunology test became negative.

The informed consent of the patients was taken to report this case report.

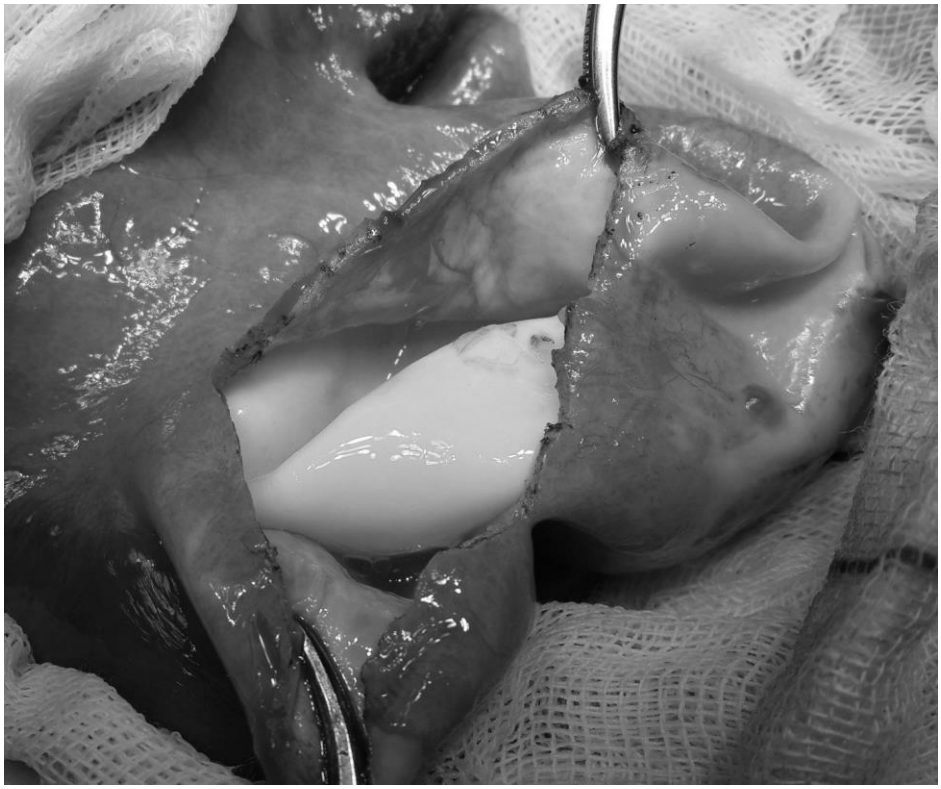

Fig. 2: Huge hydatid cyst was opened and the contents evacuated

Discussion

Echinococcosis is a zoonotic infection caused by the genus *Echinococcus*. Multiple hydatid cyst and kidney hydatid cyst in children is relatively rare (4).

In this report, the question under discussion is possibility of rapid growth of hydatid cyst in pediatric population. Prior research has suggested that the growth rate of echinococcal cysts depends on host tissue resistance and organ compliance, in the lung, it can reach a large size, but it grows slowly in the liver, spleen and kidneys (5). Moro et al has suggested that in spite of the acquired infection in childhood, it is diagnosed in adult due to slowly growth of hydatid cyst and delayed symptoms (6).

A previous study lend support to the claim that development of pericyst degenerative changes (PDCs) and wall thickening prevent the cyst growth and leads to fewer complica-

tion. They suggested that if the cyst grew despite treatment, it might not be a hydatid cyst and need further evaluation (7). However, the authors' reasoning is questionable because in this instance we observed a rapid growth of kidney hydatid cyst and development of multiple liver cyst, which suggested a growth rate of 3 to 4 cm per year.

Such rapid growth in children could be more dangerous due to compression effect and developing organ parenchymal damage that can lead to long term sequelae of that (8).

Conclusion

Therefore, close following up and early operation to prevent further complication could be acceptable management of hydatid cyst in pediatric population. Moreover. Treatment of multiple liver hydatid cysts and renal hydatid cyst could be performed effectively in a single laparotomy session.

Conflict of interest

The authors declare that there is no conflict of interest.

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