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Giant Liver Hydatid Cyst

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ABSTRACT. Hydatidosis due to *Echinococcus granulosus* is an endemic parasitic zoonosis characterized by worldwide distribution. The most commonly involved anatomical locations are the liver and lung.

The authors present a 12-year-old patient with a giant hepatic echinococcus cyst misdiagnosed as an abdominal malignancy during formal investigation. The patient was admitted to the hospital complaining for abdominal pain and with an important abdominal distention.

Abdominal computed tomography revealed a giant abdominal mass: 23/21 cm, resembling a tumor, adherent to the liver edges and parietal peritoneum.

The patient was taken into operation, and an a giant liver hydatid cyst was removed despite the radiological findings and the preoperative clinical suspicion.

Key words: giant hydatid cyst, liver, child

Introduction

Hydatid cyst is caused by infection of larvae of the parasite *Echinococcus granulosus*. Liver is one of the most involved organ. Liver hydatid cysts are characterized by insidious development in the majority of the patients, with the potential for peritoneal dissemination of daughter hydatid cyst. Occasionally the cyst may progressively increase in size, mimicking gross ascites or liver tumor. Often the large size of the cyst makes the diagnosis extremely difficult.

Objectives

The aim of this case report is to present a rare case of a giant hydatid cyst grown from the right lobe of the liver resembling the radiological findings of a tumoral mass.

Materials and Methods

A 12-year –old patient was admitted to the hospital with abdominal pain, loss of appetite and abdominal distention. The patient had no history of liver disease. Abdominal examination revealed right flank tenderness and abdominal enlargement (Figure 1) with dullness on percussion.

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Figure 1 - Abdominal enlargement

Results of laboratory tests were normal.

On the abdominal ultrasonography, there was a large cystic lesion with heterogeneous pseudotumor appearance.

Abdominal computed tomography showed the presence of a 23/21 cm cystic mass strongly adherent to the right hepatic lobe. The cyst filled the entire right and median side of the abdominal cavity, displacing the intestinal loops to the left, and was extended down into the pelvis.

The patient was taken into operation with the diagnosis of a large cystic with solid features tumoral mass. (Figure 2)

Upon direct examination, a huge hydatid cyst, which grew from the anterior part of the right hepatic lobe containing daughter vesiculae, was found to occupy the entire right side of the abdomen.

Figure 2 - Computed tomographic scan shows a huge cystic mass occupying the entire right side of the abdomen

Figure 3 - Removed germinative membrane

The pericyst was found strictly adherent to the parietal peritoneum. No turbid gelatinous matrix with daughter cysts at various stages of degeneration was found in the cyst. (Figure 3) The cultures that were obtained intraoperatively from the fluid were negative for bacterial infection. Microscopy of the cystic fluid showed trophozoites of *Echinococcus granulosus*.

The patient was discharged after ten days and continued on albendazole (400 mg daily) for two months. There was no recurrence of hydatid cyst at 9 months follow up the patient.

Discussion

Differential diagnosis of a hydatid cyst, from other abdominal cystic lesions, is sometimes difficult. The challenge in this case laid in its clinical presentation. The clinical presentation of hydatid disease is largely asymptomatic until complications occur [1]. When symptoms appear, pain is the commonest symptom of hydatid disease. Fever with chills can occur if the cyst is secondarily infected. Rupture of the cyst is the most common complication and can be the result of trauma or pressure from the growing cyst and may occur into the biliary duct, thoracic cavity, adjacent viscera, or peritoneal cavity [2]. This may result in anaphylactic shock and formation of localized or generalized secondary

echinococcosis.

Structurally, a hydatid cyst is composed by a cellular membrane, the germinal layer, or endocyst which gives rise to scolices and daughter cysts and an external acellular cuticle, the ectocyst or laminated membrane, which is secreted by the parasite. In our case the ectocyst was adherent strictly to the parietal peritoneum, and meticulous dissection was needed. Daughter cysts can often simulate the appearance of cystic tumors [3] and can be easily misdiagnosed as in our case. According to World Health Organization- Informal Working Group on Echinococcosis (WHO-IWGE) classification based on sonographic analysis of the morphology and structure of the hydatid cysts five categories are recognized [4]. Types CE2 and CE3 represent the typical hydatid cysts; types CE1 and CE5 are suggestive of hydatid cysts; type CE4, simulates a cystic tumor.

Echinococcal cysts are mostly found in the liver (60%–70% of cases), lungs (10%–25%), and less frequently involved anatomical locations such as brain [5], bones [6], and heart [7]. Giant hydatid cysts are extremely rare. Uncomplicated liver cysts are always asymptomatic initially, and it remains so for longer periods, especially when only small, well-encapsulated, or calcified cysts are present. The cyst reported is an extremely rare large asymptomatic cyst, largely than CE4 type, well-encapsulated, larger than the size, strongly adherent to the parietal peritoneum but not calcified, presenting with the characteristics of a giant intrabdominal cystic tumor. Abdominal pain, hepatomegaly, or a palpable mass in the right upper quadrant are the most common clinical presentations for patients with liver echinococcosis. Early diagnosis is life saving as potentially lethal complications such as anaphylactic shock due to perforation of the cyst may occur. Complete elimination of the parasite from the organism and prevention of recurrence of disease constitute the ideal treatment for hydatid disease [8]. The treatment options for hydatid cyst of the liver depend on stage, localization, size, and complications of the cysts and include nonoperative and operative methods. Operative methods include conservative and radical procedures like the classic surgical techniques and minimally invasive and laparoscopic methods. Chemotherapy with antihelminthics of benzimidazole family when used alone has limited efficacy mostly

related to the accessibility of the cyst to the drug so the treatment outcome is better when used adjunctively with surgery to prevent recurrence [9]. Percutaneous drainage of liver hydatid cysts in combination with drug therapy has been found to be efficient for CE1 and CE2 types of hydatid cysts and occasionally for CE3 type but with lower success rates [10]. Radical surgical resection remains the mainstay of treatment for all patients with symptomatic disease who are good candidates for surgery [11,12].

Conclusion

We believe that hydatid cyst can rarely reach so extremely large dimension without any additional symptom, could easily be misdiagnosed as a pseudo-tumor mass, and should be considered in the differential diagnosis and in the decision for the treatment therapy.

References

1. G. OZTURK, B. AYDINLI, M. I. YILDIRGAN, et al., "Posttraumatic free intraperitoneal rupture of liver cystic echinococcosis: a case series and review of literature," *American Journal of Surgery*, vol. 194, no. 3, pp. 313–316, 2007.
2. A. T. TURGUT, L. ALTIN, S. TOPÇU, et al., "Unusual imaging characteristics of complicated hydatid disease," *European Journal of Radiology*, vol. 63, no. 1, pp. 84–93, 2007.
3. S. CHARFI, L. AYADI, N. TOUMI, et al., "Cystic undifferentiated sarcoma of liver in children: a pitfall diagnosis in endemic hydatidosis areas," *Journal of Pediatric Surgery*, vol. 43, no. 6, pp. E1–E4, 2008.
4. WHO Informal Working Group, "International classification of ultrasound images in cystic echinococcosis for application in clinical and field epidemiological settings," *Acta Tropica*, vol. 85, no. 2, pp. 253–261, 2003.
5. Y. BÜKTE, S. KEMANOĞLU, A. NAZAROĞLU, Ü. ÖZKAN, M. CEVİZ, AND M. ŞİMŞEK, "Cerebral hydatid disease: CT and MR imaging findings," *Swiss Medical Weekly*, vol. 134, no. 31-32, pp. 459–460, 2004.
6. KALKAN, F. TOĞUN, F. ERGİL, AND A. BAYSEFER, "Primary lumbar vertebral hydatid cyst," *Journal of Clinical Neuroscience*, vol. 15, no. 4, pp. 462–473, 2008.
7. H. THAMEUR, S. ABDELMOULA, S. CHENIK, et al., "Cardiopericardial hydatid cysts," *World Journal of Surgery*, vol. 25, no. 1, pp. 58–67, 2001.
8. P. S. CRAIG, D. P. MCMANUS, M. W. LIGHTOWLERS, et al., "Prevention and control of cystic echinococcosis," *The Lancet Infectious Diseases*, vol. 7, no. 6, pp. 387–394, 2007.
9. NASSERI MOGHADDAM, A. ABRISHAMI, AND R. MALEKZADEH, "Percutaneous needle aspiration, injection, and reaspiration with or without benzimidazole coverage for uncomplicated hepatic hydatid cysts," *Cochrane Database of Systematic Reviews*, no. 2, Article ID CD003623, 2006.
10. C. ZIPPER, K. HAOUET, "Treatment of hydatid cyst of the liver: where is the evidence?" *World Journal of Surgery*, vol. 28, no. 8, pp. 731–736, 2004.
11. K. BUTTENSCHOEN AND C. CARLI BUTTENSCHOEN, "Echinococcus granulosus infection: the challenge of surgical treatment," *Langenbeck's Archives of Surgery*, vol. 388, no. 4, pp. 218–230, 2003.
12. Ü. AYDIN, P. YAZICI, Z. ONEN, et al., "The optimal treatment of hydatid cyst of the liver: radical surgery with a significant reduced risk of recurrence," *Turkish Journal of Gastroenterology*, vol. 19, no. 1, pp. 33–39, 2008.