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Case Report

Successful surgical treatment of a giant hydatid cyst and its clinical outcome: a case report

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ABSTRACT

The parasitic illness known as a hydatid cyst is most frequently found in the liver. The main one in humans being Echinococcus granulosus. Transmission is via the fecal-oral route, with main hepatopulmonary involvement but with a high risk of dissemination. Diagnosis is often incidental, and patients present a wide range of nonspecific symptoms closely related to the localization, size, and quantity of cysts. The latent risk of the infection is septic shock, secondary to intraperitoneal rupture, which increases the risk of mortality. The criterion standard of management involves anti-helminthic therapy and radical surgical management. In our case a 23-year-old female presented to the OPD with abdominal pain on and off for two years and fever for 20 days. On presentation, the patient was hemodynamically stable, febrile with abnormal blood pressure, pallor, and icterus were seen. On examination, the abdomen was soft, with swelling of size 10×5 cm in the right hypochondrium (RHC), tenderness present in RHC, and ultrasonography of the abdomen and pelvis revealed large parenchymal exophytic hydatid cysts with multiple daughter cysts seen involving the left lobe of the liver with the possibility of focal rupture in the cyst capsule. Based on the above findings, the patient underwent deroofing of the cyst with evacuation of the daughter cyst, followed by the obliteration of the dead space of the cavity with omentoplasty.

Keywords: Echinococcus granulosus infection, Hydatid cyst, Deroofing

INTRODUCTION

Echinococcus granulosus is the main causative parasite for hepatic hydatid cysts. These cysts are unique, and most of them are found in the liver's right lobe. The majority of the time, hydatid cysts are asymptomatic. In addition to this, the major constellation of symptoms are abdominal pain, jaundice, or a visible abdominal mass.[1] Echinococci can cause a number of dysfunctions and are frequently discovered in organs like the liver (70%), lung (20%), brain, spleen, kidney, and heart. Due to their slow growth, echinococcal cysts may not exhibit any symptoms for 10 to 15 years.[2] Echinococci can cause a number of dysfunctions and are frequently discovered in organs like the liver (70%), lung (20%), brain, spleen, kidney, and heart. Due to their slow growth, echinococcal cysts may not exhibit any symptoms for 10 to 15 years.[3,4] The location, size, and kind of the cyst, any comorbidities, and the team's experience are the various factor that affect the hydatid cyst treatment plan. Surgery is the most advised and successful treatment for hepatic hydatid cysts. The aim of this procedure is to remove the cysts without allowing any of their contents to leak.[5] Large cysts are prone to perforation. Furthermore, insufficient drainage with subsequent abscess is a frequent problem of large cysts. In this article we are presenting the case of young female with giant hydatid cyst underwent open deroofing of cyst with omentopexy and primary repair of cystobiliary communication.

CASE REPORT

A 23-year-old female presented to the OPD with abdominal pain on and off for two years and a fever for

20 days. On presentation, the patient was hemodynamically stable and febrile with abnormal blood pressure; pallor and icterus were seen. On examination, the abdomen was soft, with swelling of size 10×5 cm in the RHC and tenderness present in the RHC (Figure 1).

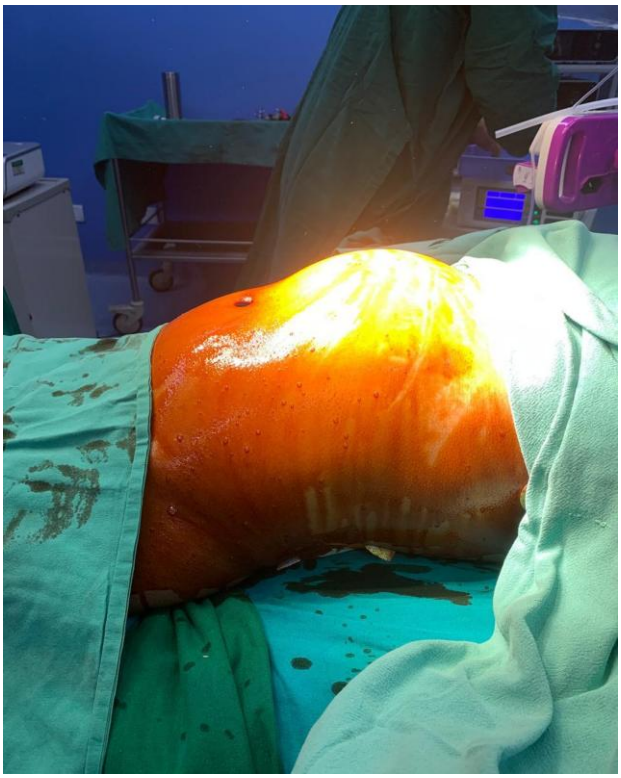

Figure 1: Giant hydatid cyst presenting RHC swelling.

Table 1: Blood investigation.

Blood parameters	Value	Normal value
Hemoglobin	8.9	12-15
White cell count	12000 cells/ microliter	4-10×10^3
Serum bilirubin	1.76 mg/dl	0-1.2
Alkaline phosphatase	190 IU/l	40-129
Prothrombin time	13.9 sec	9.8-11.8
INR	1.31	

Radiological investigation

Ultrasonography of abdomen: Large parenchymal hydatid cyst with multiple daughter cysts seen in the left lobe of liver with intracystic collection of approximately 1.5 L with minimal intraperitoneal collection due to suspected focal rupture in the cyst capsule. Dilated intrahepatic radicles are seen in the left lobe, which signifies biliary obstruction by the cyst.

Computed tomography of abdomen: Large hepatomegaly with large hydatid cyst in left lobe of liver with dilated IHBR by its mass effect (WHO classification-CE II) (Figure 2 and 3).

Treatment

The patient was planned for emergency exploratory laparotomy and deroofing of the hydatid cyst due to the impending risk of cyst rupture and biliary obstruction due to the hydatid cyst. Upon exploratory laparotomy the intraoperative findings were noted down as follows:

A giant hydatid cyst of size approx. 15×10×10 cm is seen in the left lobe of the liver, compressing the stomach and transverse colon (Figure 4).

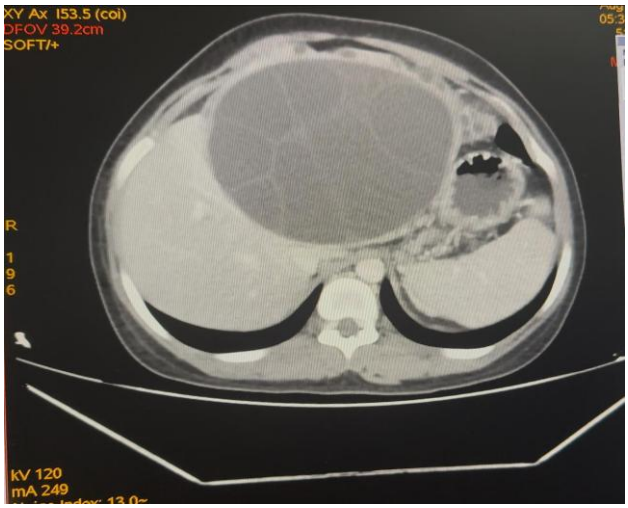

Figure 2: Axial section of CT abdomen of a giant hydatid cyst with multiple daughtercyst.

Figure 3: Coronal section of CT abdomen showing hydatid cyst of left lobe compressing the stomach and transverse colon.

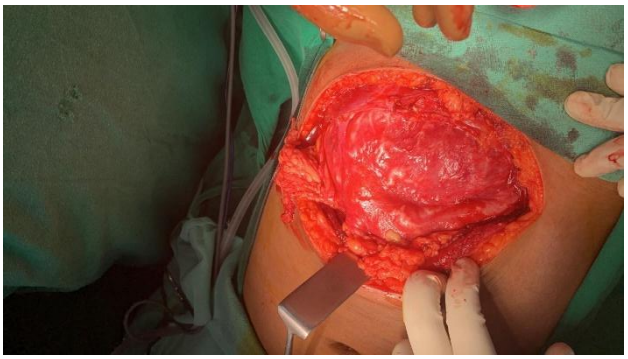

Figure 4: Giant hydatid cyst compressing the stomach and transverse colon.

Approximately 1-1.5 liters of cystic fluid were drained out with multiple daughter cysts (Figure 5).

Figure 5: Cystic fluid with multiple daughter cysts.

Cystobiliary communication was seen in the cystic cavity, which was repaired with 2-0 polydioxanone.

Based upon the intraoperative findings, the deroofing of the cyst was done after instilling the scolicidal agent (10% povidone iodine) for 20 minutes and draining the cystic fluid with removal of all the daughter cysts. The cystobiliary communication was identified and sutured with absorbable monofilament suture. Omentopexy was done to eliminate the dead space along with the instillation of a gelatin sponge. Two drains were placed within the cyst cavity and in the pelvic region, respectively. The postoperative period was uneventful. The patient started with an oral diet on post-op day 2, and the drain was removed on post-op day 3. The patient was discharged on post-op day 7. On follow-up, on the 30th day, ultrasonography of the abdomen was done, which showed a residual cavity with no active cyst with surrounding inflamed omentum.

DISCUSSION

Hydatid cysts could only be treated surgically until the 1980s. Surgery has been identified as the most successful treatment, even though more conservative methods gained popularity in the years that followed. Certain patient groups may benefit from percutaneous therapies and anti-parasitic medications to prevent surgical complications. The Gharbi classification, which assesses liver hydatid cysts ultrasonographically, is the most widely used classification for choosing the course of therapy.[6] According to this classification, all viable cysts-aside from the little ones-should be treated by PAIR (puncture, aspiration, injection, reaspiration) or surgery. Gharbi type III cysts, compressive types IV and V cysts, and cysts that communicate with the biliary tract and cannot be treated with PAIR require surgery. Opening the cyst, removing the germinative membrane, and deactivating the contents of the cyst are common surgical techniques. Complete pericystectomy or partial hepatectomy may be performed for peripheral cysts. During surgery, care must be taken to prevent the parasite from leaking into the abdomen.

In order to administer PAIR therapy for six weeks, Battyany et al inserted an 8F catheter into the cyst, aspirated 6200 mL of cyst fluid, and gave a 30-mL alcohol injection during the final five days in addition to 150 mL of 15% hypertonic saline and 40 mL of 15% sterile saline for saline injection and drainage.[7] The patient started taking 200 mg of mebendazole daily for three days prior to the procedure in order to prevent the anaphylactic reactions and disease from spreading. When the largest hydatid cyst was treated with PAIR, the patient's cyst completely disappeared from the CT scan. They proposed PAIR as a safe and effective method to avoid problems after large cyst surgery. A 32×15 cm enormous hydatid cyst in the right lobe of the liver was removed by pericystectomy by Sahin et al and the patient was released without difficulties.[8] Ettorre et al performed a right hepatectomy to remove a 30×18×16 cm hydatid cyst that was squeezing the inferior vena cava, and the patient was released on the seventh postoperative day without any issue.[9] Mohammed et al performed surgery on a patient who had three hydatid cysts in the right lobe of the liver, measuring 10, 11, and 40 cm.[10] Following the aspiration and removal of four liters of cyst fluid, omentoplasty was performed and an absorbable monofilament suture was used to seal the two bile channels that opened into the cyst wall. The patient was released from the hospital six days following the procedure and experienced bile leakage from the drain, which ceased after a month. The patient was given three months of anti-helminthic therapy. Sandonato et al performed surgery on a patient who had two cysts measuring 12×14×10 cm in the right lobe of the liver and

27×30 cm in the right side of the abdomen.[11] The surgeon performed a 20% hypertonic saline wash, drained the contents of the cyst, and then performed a partial pericystectomy. The patient was discharged without any problems on the eighth postoperative day, and albendazole was administered for six weeks at a dose of 10 mg/kg each day. After two years, the follow-up showed no signs of recurrence. Gole et al performed a partial cystectomy on a patient who had a 45×35×20 cm hydatid cyst that came from the liver's left lobe.[12] They reported that the patient did not exhibit any clinical indications or symptoms over the two-year follow-up period. A patient with a huge ruptured hydatid cyst presented with anaphylactic shock, for which the patient was taken for emergency surgery by Belli et al.[13] A 20×30 cm cyst containing the spleen was totally removed, but on the third postoperative day, the patient passed away. Hydatid cysts that grow in the abdomen can occasionally burst. Abdominal large hydatid cysts can form from organs other than the liver and can sometimes rupture. This is a rare and dangerous problem that can be lethal.

CONCLUSION

The majority of hydatid cysts that grow to big proportions are treated surgically. Even though the patient receiving surgical treatment should not have any surgical complications. The drawback of percutaneous therapy is the long length of time required (six-week period). PAIR therapy is effective in treating the smaller hydatid cysts. Anti-helminthic medications can be used as adjuvant treatment. Anaphylactic shock due to hydatid cyst rupture is a dangerous and fatal complication, which is more prevalent among giant hydatid cysts. Consequently, therapy should not be delayed in gigantic hydatid cysts.

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