Laparoscopic management of hepatic hydatid cyst: case report

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معالجة أكياس الكبد المائية بواسطة المنظار: تقرير لحالة نادرة

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المستخلص

الأكياس الكلابية هي مرض مستوطن في العديد من مناطق العالم وهي موضع اهتمام الجراحين حتى في المناطق غير المستوطنة لسهولة انتقالها عن طريق هجرة المرضى وتنقلهم.

الطرق الجراحية لا تزال هي الخيار المفضل في علاج أكياس الكبد الكلابية, أما علاجها بواسطة المنظار فلا يزال موضع جدل بسبب محدودية الخبرة في ذلك.

ونحن هنا نسجل حالة مرضية لمريض يبلغ الرابعة والثلاثين مصاب بكيس كبد مائي كبير الحجم يشغل معظم الفص الأيمن للكبد تم رفعه بشكل كامل بواسطة المنظار الجراحي ولم تلاحظ على المريض أية مضاعفات تذكر أثناء وبعد العملية , وقد تمت متابعة المريض بعناية وبشكل منتظم شهريا بواسطة الفحص الشعاعي و السريري وتبين انه لا توجد آثار لبقاء أي جزء أو رجوع المرض المذكور و بأي شكل من الأشكال .

الكلمات الرئيسية : نوثق هنا إمكانية استعمال المنظار الجراحي في معالجة بعض حالات أكياس الكبد وبشكل ناجح .

Abstract

Hydatid disease, being endemic in several areas of the world, is of interest even to surgeons in non-endemic areas because they may encounter the disease due to ease and rapidity of travel as well as immigration.

Surgery remains the method of choice in the management of hepatic hydatid cysts.

Because of limited experience, controversies still exist about the laparoscopic managememt of hepatic hydatid cysts.

We report a case of a thirty four years-old male, presented with a well defined large cyst occupying most of the right hepatic lobe successfully treated with laparoscopic total cystectomy.

The operation and hospitalization period were uncomplicated. Controlled follow-up clinically & radiologically showed no remaining pathology or recurrence in any form.

Conclusion

The laparoscopic technique provides a feasible and efficacious option of treatment for some types of hydatid cysts located in the liver.

It is a safe miniinvasive surgical approach which enables postoperative discomfort to be reduced and results in a quick recovery.

Key words: laparoscopy, hydatid disease, liver cysts

Introduction

Hydatid disease was already known to the ancient Greeks. The Greek word "echinococcus" means "hedgehog berry". Hippocrates noted "livers full of water" for cases of echinococcosis. The zoonotic origin of this disease was suspected from the eighteenth century. The life cycle of *Echinococcus granulosus* was first described in 1855 by Haubner, who experimentally infected a domestic pig with the eggs of *Echinococcus granulosus* and demonstrated a fully developed hydatid cyst of the liver (1, 2).

Echinococcosis is endemic to many countries where flocks of sheep and cattle are raised with dogs. Such areas as South America, the Middle East, India, and Mediterranean countries are endangered. However, increasing immigration, travel and tourism all over the world result in the occurrence of echinococcosis cases even in highly developed countries. The most common sites of hydatid cysts in humans are as follows: liver (50-93%), lungs (18-35%), peritoneal cavity (10-16%), spleen(2-3%), kidney (1-4%), and retroperitoneum (0.5-1.5%)(3-5).

Most cysts of the liver are univesicular (62.5%) and single cysts occur most often in the right lobe (80.77%) of the organ, because of the specification for visceral venous confluence (6).

Many hydatid cysts remain asymptomatic. Most symptomatic cysts are larger than 5 cm in diameter. Abdominal pain is the commonest mode of presentation. Other clinical features are hepatomegaly, jaundice, biliary colic, urticaria, malaise, abdominal lump, fever, anorexia, and cough (7).

Because there is no reliable pharmaceutical treatment, surgery constitutes the main way of intervention for liver hydatid disease. The main goal is to resect the cyst without spilling the contents. Progress in recent years in management of liver cystic diseases enables laparoscopy to be implemented (8) as a safe surgical technique for these cases.

There are many reports on new trocar-cannula systems developed for management of liver echinococcal cysts, such as the Palanivelu Hydatid System (PHS) (7), especially designated to prevent spillage of hydatid fluid during surgical maneuvers.

Case report

A young male aged 34 years old from Wasit province, Iraq presented with acute abdominal pain, mainly in the right hypochondrium, associated with malaise & anorexia .Clinically he looks ill, depressed, in pain; but haemodynamicly stable. Abdominal examination revealed he had mild fullness of the right hypochondrial region , tender abdomen especially the right hypochondrial region.The patient was admitted to the hospital and treated conservatively : IV fluids, antibiotic & analgesic with hourly observation and sent for an urgent CT scan of abdomen.Haematological investigations were generally within normal range. Chest x- ray (Figure 1) showed elevated right hemi diaphragm. The ultrasonography showed huge hydatid cyst located in the right lobe of the

liver of about 15x15 cm in dimension ,single cavity . CT scan (figure 2) showed a huge cystic lesion occupying most of the right lobe of the liver of about 15x15 cm in dimensions with floating shadow. Biliary radical showed no dilatation or connection to the cystic cavity. The patient continued on the conservative treatment with an addition of albendazole as antihelmethic drug, and the patient became gradually better, discharged home and scheduled for surgery, after receiving of Albendazole drug for 10 days pre operatively, the decision for laparoscopic management was taken and consent had been signed. In supine position, under GA the patient was prepped &draped, the 1st port (optical) was put in the supra umbilical region. Exploration of the peritoneal cavity was taken, and the liver showed a huge intact hydatid cyst located mainly in the posterior surface of the liver segment 7&8, with the adhesion of the liver to the right hemi diaphragm the cyst was intact. Insertion of the 2 working port right & left hand ports in both pararectus region (figure 3) under vision with keeping of suitable ergonomics to the target lesion. Then an insertion of the 4th port 10mm in the right subcostal region in midclavicular line. A laparoscopy gauze soaked with 10% povidon iodine was applied around the cyst to isolate the operative area to limit the spread of the contents of the hydatid cyst into the peritoneal cavity. The cyst was punctured from the thinnest area on its anterior surface near the diaphragm using hook monopolar cauttery , and simultaneous suction of the fluid contents was done The content of the cyst was clear fluid ,the fenestration was kept small in attempt to prevent or decrease the leak of the content until the cyst tension will be decreased to a level that permit more extension of the cyst opening . Injection of scolecidal materials which was the iodine 10% into cystic cavity and kept about 5-7 min, then retrieval of the hydatid membranes. Then moping of the cyst using laparoscopy gauze soaked with the povidon iodine 10%, the cystic cavity was moped to disintegrate any septa or adherent contents of the laminated membrane of the hydatid cyst, de roofing of the cyst edges. Again suction of the content & exploration of the cystic cavity to verify that there is no any bile leak from the biliary radicals , 2 drains were inserted , one is intracystic tube , the other is sub hepatic in Morison pouch & closure of the wound was done and dressing .Post operatively the patient course was smooth & uneventful ,the patient early ambulated ,in the next day start oral fluid diet ,drain tubes were contained about 100cc fluid, blood- stained discharg from the intra cystic & serrous clear fluid from the sub hepatic one The 2nd post operative day the patient's tubes were removed & the patient discharge home in the 3rd post operative day in a good general condition on Albendazole for 3 months as prophylactic antihelmenthic ,regular follow up for the patient was done clinically & radio logically.

Discussion

Therapy of echinococcosis is still a complex problem. Using benzimidazole carbamates (albendazole in a dosage of 10-15 mg/kg body weight alone or in combination with praziquantel in a dose of 40 mg/kg body weight) is recommended for a standard pharmacological approach. Puncture, aspiration, injection, re-aspiration (PAIR) associated with aforesaid drugs is often reserved for uncomplicated hepatic echino coccosis (9). Yet surgery remains the mainstay of treatment for liver echinococcosis. The laparoscopic approach is still a controversial issue. One of the main concerns of the treatment is spillage of cyst contents, which can lead to anaphylactic reactions or recurrence in various forms. The use of minimally invasive techniques in treatment of hepatic hydatid disease (HHD) began in the early 1990s when Khoury et al (1991) performed

percutaneous drainage (10).The first report of laparoscopic drainage of hepatic hydatid cysts (HHC) was published in 1992 by Saglam (11). So far there have not been carried out any randomized clinical trials comparing laparoscopic *vs.* open surgical treatments. The treatment should be individualized to the location, number, size and morphology of the cysts. Generally, the exclusion criteria for laparoscopic procedures are as follows: multiple liver hydatid cysts(more than three); deep intraparenchymal cysts; cysts with a thick, calcified wall; posterior lesions situated in "a blind area" for laparoscopic procedures such as segments 1, 2 and 7 or close to the inferior vena cava; cysts characterized by a heterogeneous complex mass (CT Gharbi type 4); cysts less than 3 cm in diameter;suspicion of existing communication between cysts and/or biliary duct; and serious coagulation abnormalities(12). Using laparoscopy is mostly suggested for alterations located in segments 3, 4, 5, 6, and 8 with no evidence of calcification, biliary communication or cyst infection. The first report of anaphylactic shock complicating laparoscopic treatment of hydatid cysts (13) strongly exaggerated the fear which seemed to discourage many surgeons from readily adopting minimally invasive techniques of management with liver echinococcal cysts (14). Some reports noted a 23% to 27% conversion rate and 4% to 25% morbidity rate after laparoscopy (15). Laparoscopic surgery as well as the open technique follows the principles of treating hydatid cysts: to eliminate scolices by evacuation of contents without spillage, to sterilize the cavity with scolicidal agents, to check for any biliary communication and to obliterate the residual cavity (4). There are many different laparoscopic techniques involved in hydatid disease surgery, including simple drainage, puncture and aspiration of contents with marsupialization, unroofing with omentoplasty and omentoplasty using helical fasteners, partial cystectomy or total pericystectomy, and anatomical hepatic resections (lobectomy or partial hepatectomy) (16). However, any miniinvasive surgical option can be complicated by anaphylactic shock due to spillage of the contents of cysts during puncture manoeuvre, bleeding, bile leak from the residual cavity, biliary fistula or cholangitis. The risk of intra-operational spillage may be reduced by using special hypobaric laparoscopic systems, generating the value of pneumoperitoneum pressure equal to the intracystic one (i.e. large cannula with large-bore suction catheter adhering to the liver by cyanoacrylate or fibrin glue, and perforatorgrinder- aspirator apparatus) or by using PHS, following the principles of procedures reducing the peritoneal contamination risk (3, 4, 6, 7, 11 and 16). The PHS system has revolutionized the treatment of hydatid cysts because it either allows for safe evacuation of the fluid or enables intracystic magnified visualization for cyst biliary communications (7). Postoperative biliary complications may be assisted with endoscopic retrograde cholangiopancreatography(ERCP) in postoperative management (17). Endoscopic retrograde cholangiopancreatography (18) with sphincterotomy of the ampulla of Vater is especially suggested for cases with high-output external biliary fistulas (> 300 ml per day) of more than 1 week duration or with low-output fistulas of more than 3 weeks duration (19). One of the main advantages of laparoscopic surgery is the offer of a lower morbidity outcome and shorter hospital stay (20). This technique reduces postoperative pain and incidence of wound infection. It allows for early ambulation and a more aesthetic result. Unquestionably, the time range of hospitalization after laparoscopy has been reduced to 3-12 days according to the opinions of some authors (8). Laparoscopy is associated with possible resolution of concomitant abdominal problems (simultaneous cholecystectomy, appendisectomy, ovarian cystectomy, etc.). Also it enables visual magnification to be implemented for better detection of small open bile ducts in

the remaining cyst cavity. Following the procedure, it allows direct suturing or cauterization in the case of bile leaks. In our case study, we tried a safe and feasible method of puncture and aspiration of the cyst contents followed by total cystectomy and cauterization using the laparoscopic ligasure. In conclusion, the laparoscopic technique provides a feasible and efficacious option of treatment for selected types of hydatid cysts located in the liver. It is a safe miniinvasive surgical approach which enables postoperative discomfort to be reduced and results in quick patient recovery.

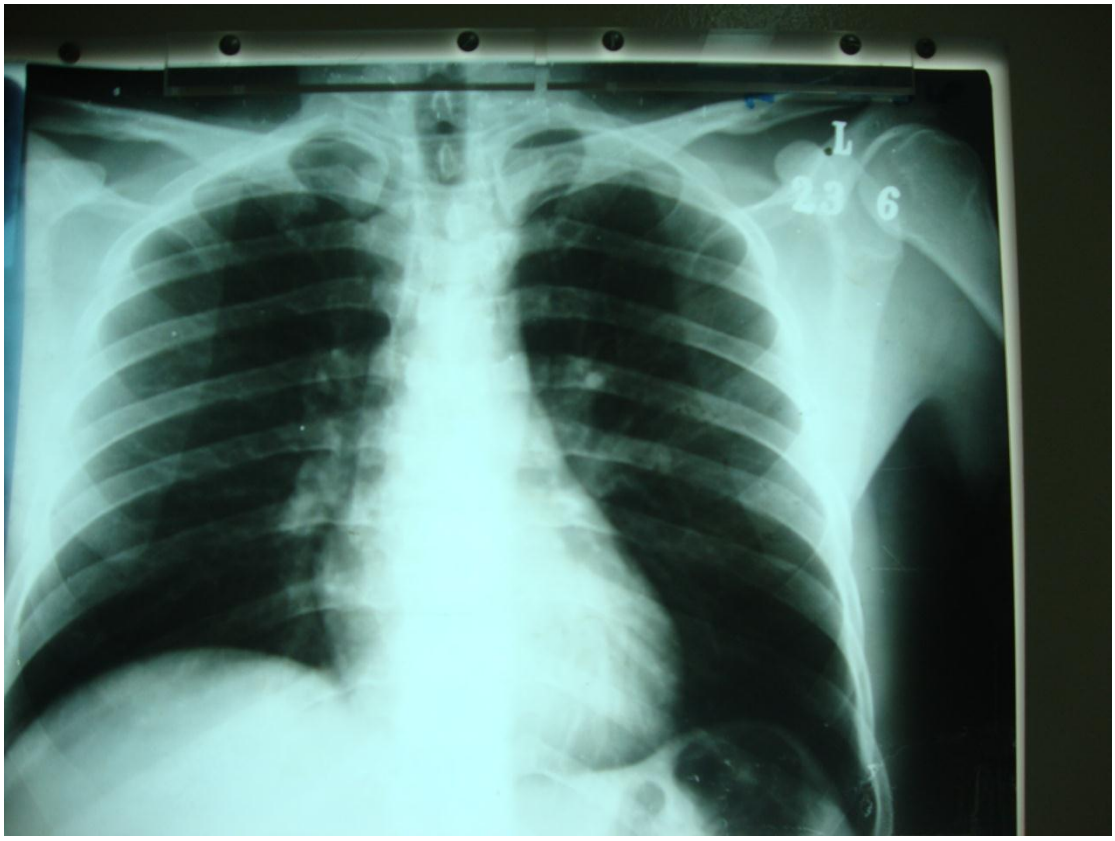

Figure (1) :Chest-x-ray

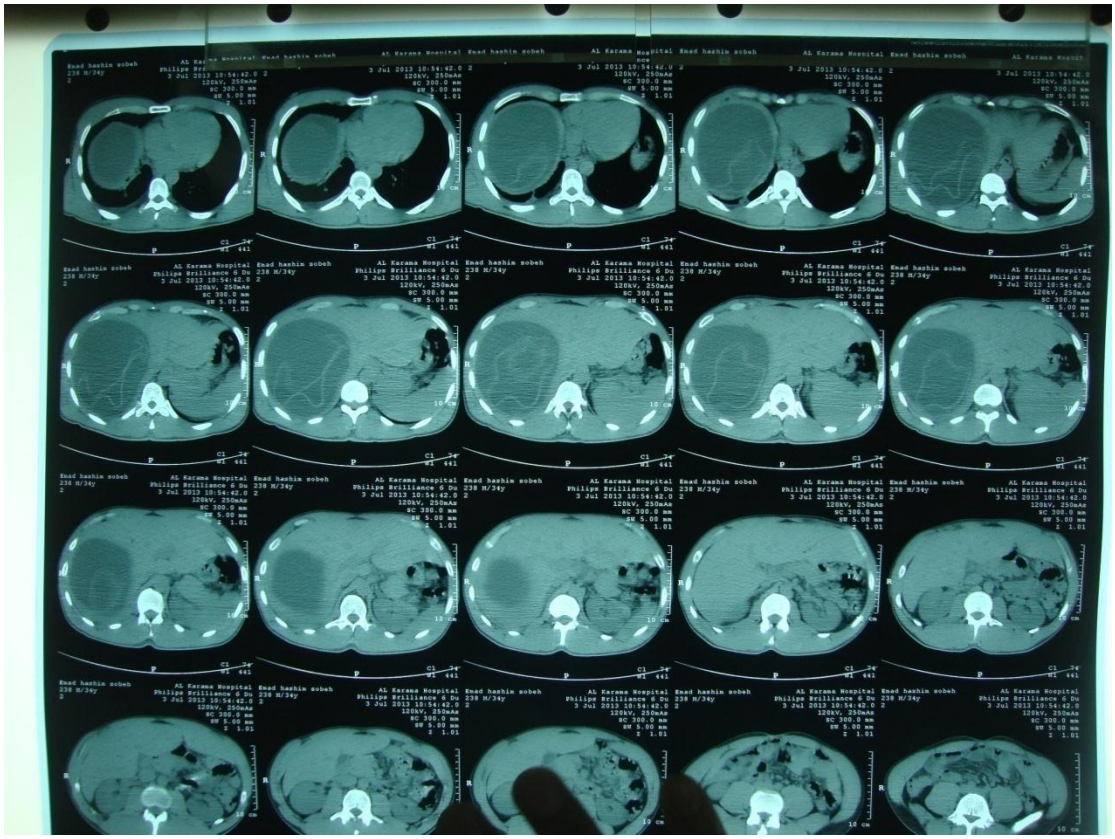

Figure (2) :CT of abdomen

Figure (3): Sites of port insertion

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