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Infected Hydatid Cyst of the Liver Presenting as Retroperitoneal Abscess

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Abstract

Introduction: Hydatid disease is most frequently located in the liver. Complications are not uncommon and can be life-threatening. Retroperitoneal growth of a hepatic hydatid cyst is an exceptional event; bacterial infection within the cyst may mimic a retroperitoneal abscess.

Case report: A 44-year-old man was admitted to the emergency department for right lumbar pain and fever. Computed tomography revealed a large infected hydatid cyst of the liver with an unusual expansion in the retroperitoneum. The lesion was managed surgically by evacuation of the purulent fluid and partial cystectomy through a midline laparotomy. A biliary fistula emerged the first day after surgery and dried up after a month. Albendazole was administered postoperatively for six months. No recurrence was recorded after two years of follow-up.

Conclusion: Large infected hydatid cyst of the liver with retroperitoneal growth is a rare presentation. Differential diagnosis with right upper retroperitoneal abscesses and management are challenging. Medical imaging plays a key role in the diagnosis. Surgery via transperitoneal approach seems to be the best therapeutic method, and conservative surgical procedures are preferred for their safety and simplicity, especially when the lesion progresses and adheres to retroperitoneal structures.

Key words: *Cystic echinococcosis; hydatid cyst; retroperitoneum; bacterial infection; complicated hydatid disease; liver*

Introduction:

Hydatid disease or cystic echinococcosis is a zoonosis caused by the larval form of the parasitic tapeworm *Echinococcus granulosus*. Diagnosis is usually obtained with both radiologic imaging and serodiagnostic techniques. Most hydatid cysts (HC) are located in the liver, and their potentially life-threatening complications are not a rare event [1]. Secondary bacterial infection is the second most common complication after cystic rupture into the biliary tree [2,3]. The retroperitoneal growth of hepatic hydatid cyst is unusual, and bacterial infection within the cyst may be confused with retroperitoneal abscesses.

We describe the case of an infected HC of the liver with an unusual expansion in the retroperitoneum.

Case Description

A 44-year-old man who had undergone surgery for HC of the left hepatic lobe 10 years earlier presented to the emergency department with right lumbar pain and fever. Deep palpation of the right hypochondriac region triggered a pain which accentuated when shaking the right lumbar fossa. There were no other symptoms such as jaundice, pain urination, haematuria or palpable mass.

Blood tests disclosed leukocytosis (21000/mm^3), liver function studies revealed a slight elevation of transaminase while renal function parameters were normal. Abdominal ultrasonography showed a finely echogenic, heterogeneous mass under the liver (150 × 80 mm) with a thick wall. The liver, biliary tract, pancreas and kidney were intact. Computed tomography (CT) identified a large retroperitoneal mass measuring 160 × 110 × 120 mm with a thickened wall (6 mm) which seemed to be inseparable from the right hepatic lobe. The lesion adhered to the posterior abdominal wall, causing anterior displacement of the right colon, duodenum, inferior vena cava and right renal vein. The right kidney and adrenal gland showed downward displacement (Figures 1, 2, 3). On completion of these examinations, we suspected an infected HC of the liver with retroperitoneal involvement.

Surgery was performed, using a midline laparotomy, to drain the abscess and treat the cyst. After freeing the hepatic flexure of the right colon, the posterior parietal peritoneum, inferior vena cava and right renal vein appeared to have been displaced anteriorly by a large retroperitoneal fluctuating mass. The posterior parietal peritoneum was opened

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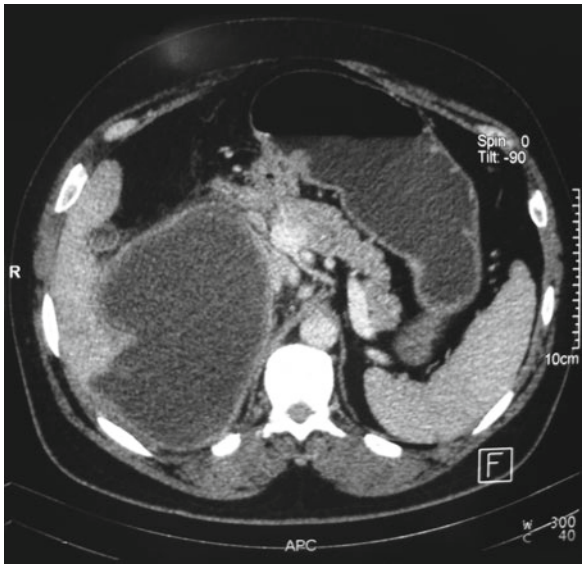

Figure 1. Axial view CT scan showing a large heterogeneous cyst adherent to the right hepatic lobe with retroperitoneal growth

allowing access to this mass which adhered firmly to the right adrenal gland and moved down the kidney. The top of the cyst seemed to belong to the visceral surface of the right posterior lateral segment of the liver (VII). The cyst was opened and a purulent fluid was drained. Subsequently, a large germinal membrane was extracted confirming the echinococcal nature of the cyst. The residual cavity was sterilized by the hydrogen peroxide. Complete excision of the cyst was difficult because it was firmly attached to the adjacent structures; hence, a partial excision of the cystic wall was performed. A meticulous search found no evidence of a biliocystic fistula. A drain was left in the retroperitoneal space at the end of the operation.

A biliary fistula through the drain formed the first day after surgery and dried up after a month. Bacteriological culture of pus specimen revealed *Escherichia Coli* highly sensitive to cefazolin and metronidazole. To prevent recurrence, Albendazole was administered postoperatively for 6 months (800 mg/day in 2 divided doses). The patient has been monitored for two years with no evidence of recurrence.

Discussion

An infected HC is defined as a cyst with inconstant symptoms of infection, specific radiological findings, pus at surgery and positive microbiology culture. Haematogenous, lymphatic or iatrogenic (puncture of the cyst) routes may lead to secondary infection, but cystic rupture into the biliary tree is the main cause of bacterial entrance and suppuration. The infection of the cyst can evolve insidiously for a long time and diagnosis may be delayed or it may present in the

Figure 2. Sagittal view CT scan demonstrating the large cyst and downward displacement of the right kidney

Figure 3. Sagittal view CT scan showing the retroperitoneal cyst and anterior displacement of retroperitoneal structures

context of intra-abdominal suppuration, as in this case. CT and MRI play a key role in recognizing this complication. The presence of an air fluid level inside the cyst, air bubbles within the lesion, sunburst sign or a ring enhancement due to hypervascularization of the pericyst are CT findings in infected HCs. A halo may also be noted, caused by oedema, necrosis or inflammatory reaction of the surrounding liver tissue [4]. Secondary bacterial infection is generally caused by Gram-positive cocci and Gram-negative bacilli. Not surprisingly, *Escherichia Coli* is the most frequently identified bacteria in microbiology culture [5].

Hydatid disease should be considered in the differential diagnosis of any infected cystic mass in endemic areas. When bacterial infection affects a large hydatid cyst of the liver with retroperitoneal growth, differential diagnosis with abscesses of the right upper retroperitoneum becomes challenging. Consequently, many diseases should be considered: kidney disease, retroperitoneal appendicitis [6], diverticulitis [7], pancreatitis [8], hepatic and biliary tract disease, peptic ulcer disease, bowel and pancreatic cancer, inflammatory bowel disease, osteomyelitis of the spine, and postoperative complication [9]. Past surgical history of hepatic echinococcosis and the lack of associated medical illnesses of retroperitoneal abscesses reinforced the possibility of infected HC in this patient.

Retroperitoneal abscesses are generally lethal if untreated, and require antimicrobial therapy and percutaneous or open surgical drainage. Ideally, upper retroperitoneal abscesses are drained via extraperitoneal flank incisions; hence, transperitoneal drainage should be avoided if possible. Given the strong suspicion of infected HC, we opted for surgical management in order to drain the abscess and treat the cyst. We proceeded with a transperitoneal midline incision which offers better exposition of the liver as well as the right upper retroperitoneal region. Complicated HC of the liver are best managed with radical or conservative surgery. Radical procedures (total cystectomy, total pericystectomy and liver resections) aim at complete removal of the cyst with or without hepatic resection. They are favoured because of the low rate of recurrence and postoperative complications such as infection or biliary fistulas [10]. Most surgeons remain widely devoted to conservative procedures which are safe and easier to perform, though they are exposed to complications that could be avoided by radical approaches. In retroperitoneal HCs, complete excision of the lesion may not be possible because of dense adhesions with neighbouring organs. In such instances, a partial cystectomy may be the procedure of choice. In the case of a large cystobiliary fistula, the common bile duct should be cleared from the hydatid material. T-tube drainage, internal transfistulary drainage, bilioenteric anastomosis and sphincterotomy contribute to the acceleration of the fistula healing. Suture and/or omentoplasty are intended for patients with small biliary communication. Laparoscopic techniques are rapidly gaining momentum, retaining the same basic principles as open surgery. However, such techniques demand surgical experience and should be utilized in selected patients with accessible cysts [11]. Medical treatment (Benzimidazole) aims to prevent recurrence after surgery [12]. Considered as the drug of choice, Albendazole is administered several months after emergency surgery for complicated HC. If a biliocystic communication is suspected, PAIR is contraindicated [13].

Postoperative morbidity rates in complicated HC remain relatively high [2, 10, 14], while very low rates of mortality were reported in literature.

In conclusion, secondary bacterial infection of hepatic HC can be life-threatening if left untreated. Infrequently, large infected HC of the liver grows in the retroperitoneum and poses the problem of differential diagnosis with retroperitoneal abscesses. Although surgery with the transperitoneal approach seems to be the obvious therapeutic modality, complete resection of the cyst is not always possible because of adhesions to retroperitoneal structures. Albendazole is administered several months after emergency surgery to prevent recurrence.

Informed Consent

Written informed consent was obtained from the patient.

Conflict of Interest

There is no conflict of interest.

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