






Unexpected subdiaphragmatic benign cyst

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QUESTION

A 61-year-old female patient was admitted due to a month-old history of tenderness and pain in the right hypochondrium, which was increased by effort and orthostatism and had worsened in the past week. Her surgical history included laparoscopic cholecystectomy, performed ten years ago. Clinical examination revealed an afebrile patient. The

laboratory report showed increased values of gamma-glutamyl transpeptidase and erythrocyte sedimentation rate, while the other biochemical results were normal. Abdominal ultrasound, contrast-enhanced abdominal computed tomography (CT), and magnetic resonance imaging (MRI) were performed to complete the diagnosis (Figures 1-4). What kind of lesions can these images suggest?



Figure 1. Abdominal sonography view of the giant hypoechoic collection.

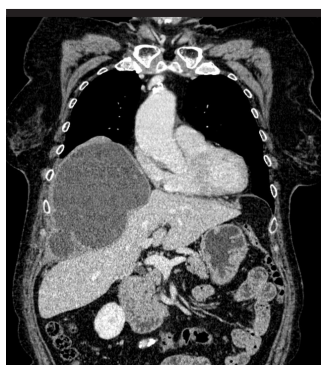


Figure 2. Coronal slice of thoraco-abdominal CT scan showing the cystic collection at the level of the right hemidiaphragm.



Figure 3. Coronal slice of abdominal enhanced MRI of the cystic encapsulated lesion.



Figure 4. Exploratory laparotomy revealing the remaining cavity after removal of the cystic mass.

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ANSWER**Benign cyst (foreign body giant-cell granuloma) mimicking hydatid disease**

Sonography showed a subdiaphragmatic well-delimited hypoechogenic collection of 186x112 mm size, with septa and intralesional calcifications. Contrast-enhanced CT scan revealed a polycystic expansive process, with an iodophilic wall, polyseptate, originating at the level of the right hemidiaphragm, having a maximum size of 176x102 mm, which associates minimal compression atelectasis of adjacent lung parenchyma. The collection suggests a hydatid cyst-stage II, but anti-Echinococcus granulosus and multilocularis immunoglobulin G antibody were negative. Contrast-enhanced MRI investigation was also ordered and described an expansive process, with solid and cystic mixed infiltrations, affecting the deep muscular layers of the superior anterior abdominal wall and the right hemidiaphragm. Tumoral marker profile-carbohydrate antigen (CA) 19-9 and carcinoembryonic antigen (CEA) were in normal limits. Abdominal laparotomy was performed. Intraoperatively, an amount of pus was drained from the cyst and then the mass was removed. Histopathological examination described a giant-cell reaction of foreign body type.

The foreign body giant-cell reaction is a morphological diagnosis, which represents an organized collection composed of histiocytes, which are non-immune cells involved in phagocytosis in response to the presence of exogenous or endogenous foreign agents especially to medical materials (for example gauze, clips, surgical thread) after invasive procedures. Necrosis is not present in this type of granuloma and irregular arrangement of the nuclei can be observed (1, 2).

Different studies that have analyzed the iatrogenic condition of the retained intra-abdominal sponges have described cholecystectomy as the second most common type of medical intervention after pelvic surgery, which can cause this rare complication. This kind of situation can be avoided by using medical sponges with radiopaque markers that facilitate their radiological recognition. Diagnosis of foreign body granulomas is often difficult with physical examination, serological, or radiological procedures, and a detailed patient history is essential in clinical practice. There are cases when a giant-cell reaction may mimic a tumor-like mass. About half of the cases need surgery in order to establish correct diagnosis (2).

Rare cases of foreign body granuloma after laparoscopic cholecystectomy due to the spillage of gallstones have also been reported. Usually, patients are asymptomatic for many years and are incidentally recognized (3).

Diaphragmatic tumor pathology is mainly benign while primary malignant tumors are less common in clinical practice. Cysts, inflammatory lesions, and metastases of the diaphragmatic muscle are also described in literature (4). Hydatid disease may be a part of the differential diagnosis of all soft tissue lesions, particularly in patients from endemic zones and developing countries (5).

In conclusion, the nature of a benign cyst in the subdiaphragmatic region can create diagnostic problems even after careful clinical and imaging investigations.

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