Symptomatic simple hepatic cyst: ruptured into the pleural cavity
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Section: Abdominal imaging
Case Type: Clinical Cases
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Patient: 77 years, female

Clinical History:
A 77 year old woman presented to the emergency room referring pain and discomfort at the right upper quadrant of the abdomen. CT examination was performed before and after the administration of intravenous contrast medium and the findings are presented.

Imaging Findings:
She had no prior medical problems. On examination there was tenderness and pain in the upper abdomen and a palpable slightly enlarged liver. All the laboratory examination results and serum tumour markers were within the normal limits.

CT examination revealed a huge cyst, (7,5x10x8,5cm) in the right lobe of the liver. It was a homogeneous and hypoattenuating lesion, with densities <20HU, with no enhancement of its wall or content after the intravenous administration of contrast medium.

The CT examination revealed also spontaneous rupture of the cyst (but with no signs of haemorrhage in it) in the right pleural cavity and so a concomitant right pleural effusion (Fig. 1,2,3).
Percutaneous transhepatic cyst drainage by CT guidance was performed to relieve symptoms.
Cytological examination revealed no malignant cells, so the patient was discharged.

Discussion:
Simple hepatic cysts are benign developmental lesions that do not communicate with the biliary tree. Hepatic cysts are presumed to be present in 2-5% of the population. They can be solitary or multiple and are usually presented as an incidental finding on imaging or at laparotomy. At histopathologic analysis, they contain serous fluid, are lined by a single layer of cuboidal epithelium, and a thin underlying rim of fibrous stroma. Ultrasonography is readily available, noninvasive, and highly sensitive for the study of simple cysts. On US they are presented as anechoic, well-defined lesions, with absence of internal echoes.

On nonenhanced CT scans they appear as a well-defined, round or ovoid, homogeneous and hypoattenuating lesion (with densities <20HU), with no enhancement of its wall or content after intravenous administration of contrast material.

On MRI, hepatic cysts have homogeneous very low signal intensity on T1-weighted images and homogeneous very high signal intensity on T2-weighted images. No enhancement is seen after administration of gadolinium chelates. In cases of intracystic haemorrhage, the signal intensity is high, with a fluid-fluid level, on both T1- and T2-weighted images when mixed blood products are present.
Specific CT and MR imaging findings are the size of the lesion, the presence and thickness of a wall, the presence of septa, calcifications, or internal nodules, the enhancement pattern.
They are almost always asymptomatic. Only 15-16% of such cysts are symptomatic. They become symptomatic
usually after the fifth decade of life, when they become large in size (more than 5cm) or when they are complicated. Complications such as intracystic haemorrhage, spontaneous rupture, secondary infection, acute torsion, portal hypertension, obstructive jaundice and malignant transformation have been reported. Patients with cyst torsion may present with an acute abdomen. When simple cysts rupture, patients may develop secondary infection, leading to a presentation similar to a hepatic abscess. Differential diagnosis must be made between simple cysts and large solid neoplasms with central necrosis, cystadenoma and cystadenocarcinoma that usually appear multiloculated with internal septations, heterogeneous density, and irregularities in the cyst wall (calcifications are rare in cystadenoma and cystadenocarcinoma), an abscess that appears cystic but has a particular clinical presentation, an unilocular hydatid cyst that presents the snowstorm sign on US due to hydatid sand or demonstrate a high-attenuation wall at unenhanced CT even without calcification. Ductal cysts, choledochal cysts, and Caroli disease are differentiated by involvement of the bile ducts. Bile duct hamartomas are multiple, have a more irregular outline and measure less than 1.5cm in diameter. A biloma appears as a well-defined or slightly irregular cystic mass without septa or calcifications and diagnosis is made in combination with the clinical history and location. Percutaneous aspiration under ultrasound or CT guidance is simple but has a high recurrence rate. Aspiration combined with sclerosis, with alcohol or other agents has been successful in some patients. Laparoscopic resection of symptomatic liver cysts is an effective method to relieve symptoms. Traditional surgical methods should be reserved when a malignancy is expected. 

**Differential Diagnosis List:** Symptomatic simple hepatic cyst: ruptured into the pleural cavity

**Final Diagnosis:** Symptomatic simple hepatic cyst: ruptured into the pleural cavity

**References:**

**Figure 1**

Description: CT image demonstrating a huge simple cyst in the right hepatic lobe ruptured in the right pleural cavity. Concomitant right pleural effusion and atelectasis of the adjacent pulmonary parenchyma.

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Origin:
Description: CT image demonstrating the right hepatic lobe cyst and concomitant right pleural effusion.
Origin:
Figure 3

Description: CT image revealing the ruptured hepatic cyst in the right pleural cavity. Origin: