Case 4624

Hepatic brucelloma
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**Patient:** 60 years, male

**Clinical History:**

A 60-year-old man presenting with insidious abdominal pain in the right hypochondrium, intermittent fever with chills and profuse sweating, cephalgia, asthenia, anorexia, and body weight loss over a period of 2 months.

**Imaging Findings:**

A 60-year-old man presented with a right upper quadrant abdominal pain and fever. Blind antibiotherapy including gentamycin was established. Physical examination yielded an enlarged liver. The patient reported a family history of brucellosis, and he was also from an endemic area for brucellosis. He had a prolonged febrile illness of unknown origin during childhood. Biological findings were increased sedimentation rate, increased white cells count (12.200/mm³) with 75% neutrophiles, and increased alkaline phosphatase (235 U/L). Mantoux, serology test for hydatidosis, and the Rose Bengal test were all negative. Chest x-rays were normal. A ring-like liver calcification was seen on plain films (Fig. 1). Ultrasonography (Fig. 2) demonstrated a hypoechoic liver mass, 7 cm in diameter, with a 3-cm peripheral calcification. Plain CT (Fig. 3) revealed a mixed hepatic lesion containing fluid, solid tissue and the above-mentioned calcification. The spleen was normal. Fine-needle aspiration of the lesion (Fig. 4) yielded an inflammatory component and no malignant cells. Blood and hepatic samples from the fine-needle aspiration were negative for brucellae cultures, for both conventional and prolonged incubation periods. Finally, a positive anti-brucella Coombs test in a titer of 1/2560 confirmed the diagnosis. Doxycyclin completed the treatment with a good early response.

**Discussion:**

Brucellosis is a worldwide zoonosis endemic in the Iberian peninsula, Mediterranean countries, parts of Asia and Central and South America. Brucella melitensis causes 98% of brucellosis in Spain. Liver involvement is common in acute brucellosis, given the affinity of brucella for the reticuloendothelial system. Chronic hepatosplenic brucellosis (brucelloma or chronic suppurative brucellosis) is uncommon (~ 50 cases have been reported in the medical literature), but not so rare in regions where the disease is endemic. The three largest series with 16, 7, and 6 cases, respectively, were published by Spanish authors1,2,3. Brucelloma is a reactivation of brucellosis from a hepatic or splenic granulomatous lesion that had generally started many years earlier. The initial acute brucellosis may have been overlooked. The radiographic findings are characteristic: hepatic and/or splenic lesion, predominantly solid, of variable size that ranges from 1.5 cm to 15 cm, poorly defined, and a central or eccentric large calcification. The calcification is the diagnostic clue, mainly when it is rounded, more than 1 cm in diameter, with a floccular calcified core surrounded by a lucent layer and an outer calcific rim. This large, stratified, calcified lesion noted on a conventional abdominal x-ray has been reported as typical4 and represents an important diagnostic clue. The most common cause of calcified hepatic lesions is granulomatous diseases5. Hepatic calcified granulomas, in both histoplasmosis and tuberculosis, rarely exceed 1 cm in diameter, are usually multiple, and involve the entire lesion. A hydatid cyst may be greater than 10 cm, but it can be distinguished from a calcified brucelloma by the absence of a lamellar appearance and lack of a floccular "snowflake" center. The differential diagnosis of hepatic brucelloma...
includes epithelial and mesenchymal hepatic primary tumors: both benign and malignant tumors can present gross calcifications within the lesion. Other calcified hepatic lesions can be metastases associated with mucin-producing neoplasms, or chondrosarcoma, or sequelae of radiation treatment or systemic chemotherapy. The rare form of focal hepatic tuberculosis producing a macronodular tuberculosis or an abscess occasionally show calcification. In fact, both the calcified tuberculosis and the brucellosa may have the same radiologic appearance, but the former is generally smaller because of low oxygen tension in the liver, which is unfavourable for mycobacterial growth. Although brucellae may be isolated, cultures of blood and of hepatic samples from fine-needle aspiration, biopsy, or surgery are generally negative in cases of brucella. Rose Bengal - a fast seroagglutination test for brucellosis - is negative in up to 40% of brucellomas. However, anti-brucella Coombs test is positive ( titer significantly equal or greater than 1/320) in 85% to 100% cases of chronic suppurative brucellosis. The diagnosis of hepatosplenic brucellosa is based on the association of clinic-epidemiologic features, characteristic imaging findings and positive serology. The treatment includes prolonged antibrucellar medical therapy, alone or combined with percutaneous drainage or surgery. However, because the microorganisms can remain within the calcified granuloma protected from the action of antimicrobial agents, most brucellomas require surgical resection in order to achieve total disease eradication.

**Differential Diagnosis List:** Hepatic brucellosa (chronic suppurative brucellosis).

**Final Diagnosis:** Hepatic brucellosa (chronic suppurative brucellosis).

**References:**


**Figure 1**

**Description:** Upper right quadrant reveals a rounded calcified nodule, 3 cm in diameter, with a flocculent calcific center and a ring of outer calcification giving a halo effect. **Origin:**
Description: Hypoechoic, 7-cm heterogeneous right hepatic lesion, with poorly defined borders (arrowheads). Also shown is an arcuate hyperechoic line (arrow) with posterior acoustic shadow due to a round-shaped 3-cm calcification close to the lesion. Origin:
Figure 3

a

Description: Non-contrast CT. Narrow window (W-150). Subtle hypodense (42 HU) right hepatic lesion with ill defined borders (arrows) and a marginal gross calcification. Origin:

b

Description: Bone window. Rounded, segment 6 subcapsular hepatic calcification, 3-cm in diameter, with a spider's web or radiating network around a densely calcified center and an outer calcified thin ring, creating a "spoke-and-wheel-like" appearance. Origin:
Description: Contrast-enhanced portal phase CT reveals a 75-80 HU enhanced solid hepatic mass with small confluent hypodense areas (arrows). Note the gross eccentrically located calcification.

Origin:

Description: Contrast-enhanced portal phase CT. Above the calcification showing the right hepatic lesion in the greatest diameter (approximately 7-cm) of that ill defined, predominantly solid hepatic lesion with small cyst-like areas (arrows) Origin:
Figure 4

Description: Samples obtained close to the calcification (A) and at the periphery of the hepatic lesion (B) Origin: