

Clinical Image

Hydatid Cysts of the Rib: Unusual Location

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CLINICAL IMAGE

A 25-year old female of rural origin, operated on a hydatid cyst of the left lung 2 years before, and supposedly cured. She was admitted to the hospital with left-sided chest pain without fever or respiratory symptoms. A chest radiograph revealed 8/4 cm well-defined homogenous soft tissue opacity belonging to the left chest wall (Figure 1). The computed tomography (CT) scan showed a lytic lesion of the middle arch of the left third rib, associated with complete destruction of the internal and external compact layers of the rib and a soft tissues mass (Figure 2). No pleural effusions, pulmonary parenchymal involvement, or other thoraco-abdominal masses were visible. Despite the history of hydatid disease, the diagnosis of costal hydatid cyst was uncertain especially since there was no recurrence of the lung cyst in CT scan and magnetic resonance imaging (MRI) was carried out to ascertain the nature of the lesion. MRI showed multicystic lesion with several hydatid daughters and surrounding soft tissue extension (Figure 3). MRI appearance was typical of hydatid disease in T1 and T2 weighted images and no contrast agent injection was necessary. A surgical treatment was performed by a left lateral thoracotomy along the long axis of the mass. The macroscopic intraoperative aspect was of a multilocular osseous hydatid cyst with hydatid daughters, located in the third left rib without exceeding the extrapleural space. The proliger membrane and numerous daughter cysts were removed, a partial resection of the rib and debridement of

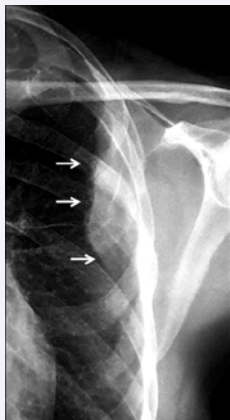


Figure 1 Chest X-ray shows well-defined homogeneous opacity in the left chest wall (arrows).

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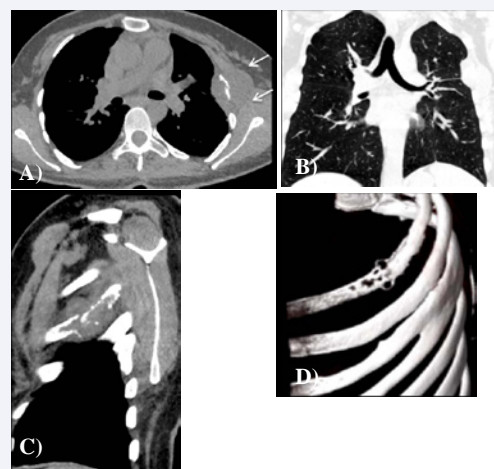


Figure 2 CT scan, axial image (a), three dimensional coronal(b)and sagittal(c) multiplanar reformations and Volume rendered coronal image (d), show chest wall mass causing destruction of the 3th left rib(arrows) without pulmonary cyst recurrence.

the pericystic tissue being necessary. Histological examination of surgical specimen confirmed the diagnosis of hydatidosis. Postoperative treatment included antiparasitic chemotherapy with Albendazole. The patient is currently being monitored with radiological surveillance every 6 months.

DISCUSSION

Hydatosis can affect all organs, particularly the lungs and the liver. Bone hydatid cysts are very rare, between 0.5 and 2.5%, involving frequently the spine (44.2%), long bones (30%) and pelvis (16%). Involvement of the ribs is extremely rare [1]. Costal hydatid cysts can be primary or secondary. Secondary hydatid cysts occur because of a spontaneous or intraoperative rupture of a pulmonary or mediastinal hydatid cyst [1]. In our case, we assume that our patient has a secondary hydatid cyst of the rib, despite the fact that the patient was operated 2 years ago, because the proximity of the current lesion of the operating site of the lung cyst.

Costal hydatid cysts can be asymptomatic and their discovery incidental. Sometimes mild, intermittent chronic chest pain, parietal tumefaction, cutaneous fistula, or intercostal neuralgia

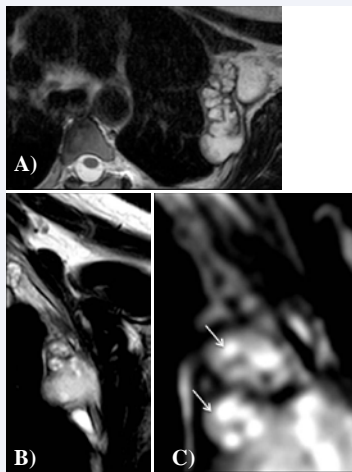


Figure 3 MRI, axial (a) and coronal (b and c) T2weighted images showing multivesicular hydatidosis with miniscule hydatid daughters (arrows).

can be signs of the disease [2]. Following laboratory tests are used in the diagnosis of hydatid disease: eosinophile count, total and specific immunoglobulin E (IgE), enzyme-linked immunosorbent assay (ELISA), Western Blot, immunoprecipitation, indirect hemagglutination test (IHT). The laboratory tests are often negative for osseous uncomplicated hydatidosis, while rupture of the cysts brings higher serological detection rates [1,3]. Due to the slow progress of the disease and the lack of symptoms, a fortuitous radiograph usually achieves imaging detection of bone echinococcosis, usually in advanced stages. Radiographic appearance is nonspecific, consisting of a cystic or irregular bone lysis. Ultrasonography shows up the fluid nature of the lesion and often evokes the hydatid nature, as the costal lesions particular are frequently multivesicular. It also helps to demonstrate abdominal hydatid cyst especially in the liver. CT scan brings important additional information regarding the location, severity of bone destruction and expansion in the surrounding soft tissues and detects pulmonary involvement, it remains a nonspecific technique. The most common findings are multiple cystic images of various sizes with fluid density (10-20 UH) associated with different degrees of osteolysis that can lead to the thinning and eventually rupture of the compact bone [3]. Specific, but rare findings are those of round or ovalary lesions "with a double layered arcuate calcification" and/or containing detached and folded endocysts [4]. MRI is the most accurate imaging technique for osseous hydatidosis. MRI is indicated in case of doubt as to the hydatid nature of the lesion. Generally, T1 and T2 weighted images are sufficient for diagnosis, without the need for gadolinium administration. The cysts usually appear as hyposignal areas on T1-weighted images and as hypersignal areas on T2-weighted images. On T1-weighted images, the intensity of the signal belonging to the parent cysts is similar to that of muscle, while the signal belonging to the daughter cysts is similar to that of water. In case of rupture or super infection of the cyst, the signal is amplified due to increased protein content

[3]. MRI aspect of our patient strongly suggested the diagnosis in T1 and T2 weighted images, no contrast agent was administrated.

The imaging differential diagnosis should include: malignant bone tumors, especially plasmacytoma and metastases, benign tumors such as aneurysmal cysts, neurofibromas or giant cell tumors and osteomyelitis caused by Mycobacterium tuberculosis or common germs [3].

The gold standard for confirmatory diagnosis of hydatid disease is based on demonstration of the parasite either through fine needle aspiration cytology or by biopsy. Fine needle aspiration cytology or by biopsy is a rapid and easy method to diagnose hydatid cyst. It is classically confirmed by direct demonstration of parasitic elements such as hooklets, scolices, scolices with rostellum and calcified corpuscles in the stained aspirated smear [5,6].

Costal hydatid cysts can generate multiple complications. Local expansion may cause pathologic fractures, spinal cord compression, thoracic aperture syndrome, pulmonary atelectasis. Cyst rupture can lead to parasitic dissemination into neighboring organs and to anaphylactic shock [2]. The purpose of treatment in costal hydatidosis is to eliminate all parasitic and pericystic tissues, a similar approach to that of malignant tumors being necessary [7]. Compared to the surgical treatment of osseous hydatid cysts located elsewhere than the ribs, the treatment of costal hydatidosis has the advantage that all of the affected bone tissue can easily be removed with little functional consequences for the patient. Wide excision of the affected tissues, resection and debridement of pericystic tissues are required. Partial costectomy with a margin of approximately 2 cm from the healthy rib is performed in fact, but in some cases a total resection of the rib may be necessary. Albendazole, indicated pre and postoperatively 6-9 months after surgery [1].

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