

Epidermoid Cyst of the Spleen

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Section: Abdominal imaging

Imaging Technique: Ultrasound

Imaging Technique: CT

Imaging Technique: MR

Case Type: Clinical Cases

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Patient: 19 years, female

Clinical History:

Complaints of dull pain in the left upper quadrant and sense of "epigastric fulness".

Imaging Findings:

The patient was admitted to the hospital with complaints of dull pain in the left upper quadrant and sense of "epigastric fulness".

Physical examination revealed a left upper quadrant mass which was presumed to be a splenomegaly.

Ultrasonography, CT and MRI of the upper abdomen were performed.

Ultrasonography of the left upper abdomen, long axis section (fig. 1) showed multiple rounded hypoechoic lesions within a massively enlarged spleen.

CT scan of the upper abdomen (fig. 2) demonstrated on the unenhanced scan (A) multiple sharply marginated hypodense lesions, the more anteriorly located lesion with subtle wall calcification. On unenhanced CT scan at a more caudal level (B), the more anteriorly located smaller lesion was spontaneously hyperdense. Contrast-enhanced CT scan (C) showed absence of enhancement of the lesions.

MRI of upper abdomen (fig. 3) included an axial T1-weighted MR-image (A) which showed multiple well demarcated lesions within the spleen. The most medial lesion was hypointense compared to the splenic parenchyma, whereas the lateral lesions were hyperintense. On axial T2-weighted MR-image (B) most lesions were hyperintense to the splenic parenchyma, while the anteriorly located lesion was hypointense.

Abdominal imaging was consistent with cystic masses of the spleen. After laparoscopic splenectomy and histopathologic examination were performed, the diagnosis of splenic epidermoid cysts was made.

Discussion:

Splenic cysts can be divided into two categories: primary or true and secondary or false cysts. Splenic epidermoid cysts are "true" cysts as they possess an inner epithelial lining, in contrast to "false" cysts which have no cellular lining, and are usually related to prior trauma. Primary cysts make up approximately 20% of splenic cysts. The true origin of epidermoid cysts is not very clear. They may originate from infolding or entrapment of peritoneal mesothelial cells in the splenic parenchyma during embryogenesis. Another explanation can be that they originate from normal lymphatic spaces.

They usually are discovered incidentally in childhood or adolescence. Occasionally, they present as a palpable left upper quadrant mass which may cause epigastric fulness or dull pain. Patients with acute abdomen due to cyst rupture and/or infection have been described.

In 80% of cases, lesions are solitary and unilocular. Occasionally internal septations are seen.

The wall of those primary cysts may show curvilinear or plaque-like calcifications, although these peripheral

calcifications occur more frequently in post-traumatic – false cysts. US classically shows an anechoic and well defined mass. Less commonly, low level internal echoes are demonstrated, secondary to the deposition of cholesterol crystals, hemorrhage, or internal debris.

On CT, a large water-density mass with imperceptible wall is observed. On contrast-enhanced scans, some internal septations may be visible.

MRI T1-and T2-weighted images show well defined, rounded masses with signal intensity equal to that of water in non-complicated cysts. The signal intensity of those cysts, however, may be altered by a high protein content or superimposed hemorrhage. Both phenomena may be responsible for a hyperintense signal on T1-weighted images.

According to the stage of hemorrhage and the different blood degradation product content, signal intensity on T1- and T2-weighted images may vary. An acute hematoma is slightly hypointense on T1-weighted images and hypointense on T2-weighted images (deoxyhemoglobin), whereas a subacute hematoma in the early phase is hyperintense on T1-weighted images and hypointense on T2-weighted images (intracellular methemoglobin). A subacute hematoma in the late phase is hyperintense on both T1-and T2-weighted images (extracellular methemoglobin). In the chronic phase, hemosiderin may be the cause of a hyposignal on both spin echo pulse sequences. No enhancement is seen on post-gadolinium images. False cysts are presumed to be the end stage of an intrasplenic hematoma, previous infection or infarction. They account for 80% of all cysts. Although true and false cysts are usually indistinguishable on imaging studies, false cysts tend to have a thicker fibrous wall, more often eggshell – like wall calcifications and internal debris.

Other differential diagnoses include intrasplenic abscesses, cystic neoplasms (lymphangioma, hemangioma), hydatid cysts, and cystic metastases.

Differential Diagnosis List: Splenic Epidermoid cysts.

Final Diagnosis: Splenic Epidermoid cysts.

References:

Dachman A.H., Ros P.R., Murari P.J., et al.: Nonparasitic splenic cysts: a report of 52 cases with radiologic-pathologic correlation. AJR, 1986, 147: 537-542. (PMID: [3526842](#))

Dawes L.G., Malangoni M.A.: Cystic masses of the spleen. Am Surg, 1986, 52: 333-336. (PMID: [3717778](#))

De Schepper A.M., Vanhoenacker F.: Medical imaging of the spleen. Berlin: Springer-Verlag, 2000, 101-122.

Figure 1

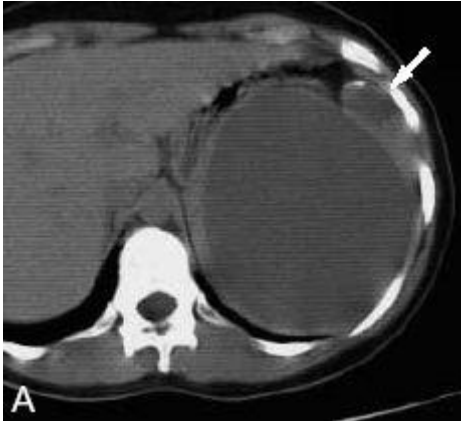
a



Description: Ultrasonography of the left upper abdomen, long axis section shows multiple rounded hypoechoic lesions within a massively enlarged spleen. **Origin:**

Figure 2

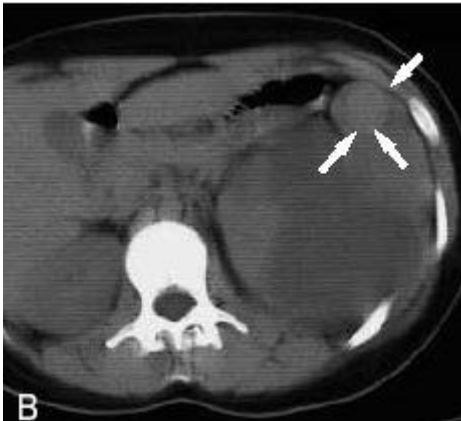
a



Description: CT scan of the upper abdomen demonstrates on the unenhanced scan multiple sharply marginated hypodense lesions, the more anteriorly located lesion with subtle wall calcification (arrow).

Origin:

b



Description: On unenhanced CT scan at a more caudal level, the more anteriorly located smaller lesion is spontaneously hyperdense (arrows). **Origin:**

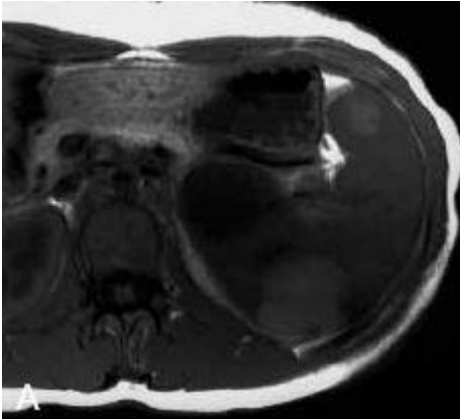
c



Description: Contrast-enhanced CT scan shows absence of enhancement of the lesions. **Origin:**

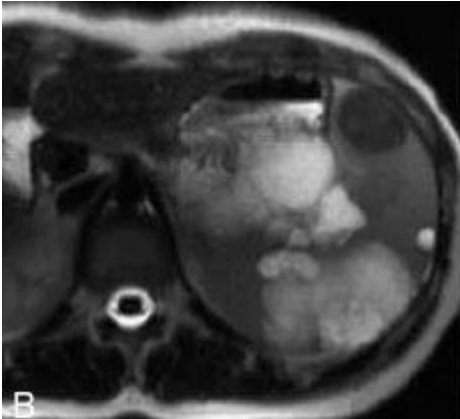
Figure 3

a



Description: MRI of upper abdomen included an axial T1-weighted MR-image which showed multiple well demarcated lesions within the spleen. The most medial lesion is hypointense compared to the splenic parenchyma, whereas the lateral lesions are hyperintense. **Origin:**

b



Description: On axial T2-weighted MR-image (B) most lesions are hyperintense to the splenic parenchyma, while the anteriorly located lesion is hypointense. **Origin:**