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Case Report

Ultrasound detection of spontaneous rupture of accessory spleen: A case report ☆

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ABSTRACT

Accessory spleen rupture can induce acute abdominal bleeding following minimal trauma or by atraumatic mechanisms. Spleen rupture is more frequent in pediatric patients and those affected by hematological diseases. We described the case of a 59-year-old male patient affected by hereditary spherocytosis referred to the emergency department for abdominal left side pain. An early ultrasound performed in the emergency department allowed to diagnosed hemoperitoneum by spontaneous bleeding of hypertrophic accessory spleen. Although abdomen computed tomography is the diagnostic method of choice, ultrasound can early detect sign of emoperitoneum in the emergency setting in case of hemodinamically unstable patient.

Introduction

Accessory spleen rupture can be the cause of acute intraabdominal bleeding following minimal trauma or by atraumatic mechanism [1–3]. The diagnosis of splenic injury should be pointed out according to past medical history and physical examination. Abdomen computed tomography (CT) is the diagnostic method of choice, but ultrasound can early detect sign of emoperitoneum in the emergency setting and in case of hemodinamically unstable patient [1–3].

Case presentation

A 59-year-old male patient came to our emergency department referring abdominal pain on left side that was enhanced

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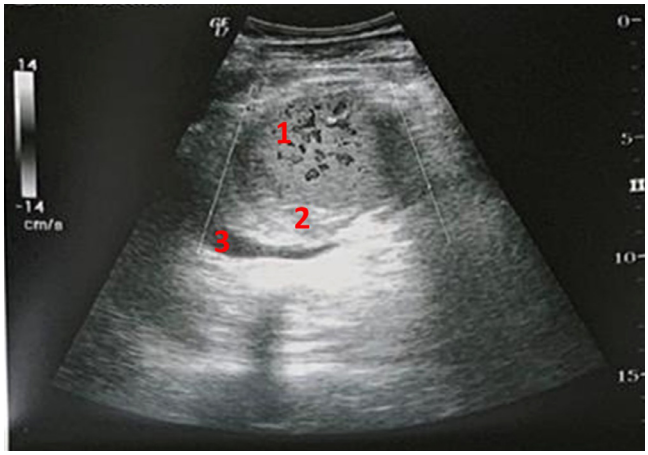

Fig. 1 – B mode ultrasound showed a rounded echogenic formation with subcapsular inhomogeneity and anechoic layer around it. This finding was suggestive for hypertrophic accessory spleen (1) with subcapsular hematoma (2) and hemoperitoneum (3).

by breathing and deep palpation. The patient did not refer recent trauma, fever, or cough. His past medical history was characterized by hereditary spherocytosis, splenectomy and high blood pressure, previous laparoscopic cholecystectomy, and right meniscectomy.

His usual therapy consisted of ramipril 5 mg OD and allopurinol 300 mg OD; the patient reported allergy to penicillins.

On physical examination the patient was alert, collaborating, eupnoic and with good perfusion with capillary refill time <2 seconds. The abdomen was swollen, treatable, and without wall defense and peritoneal irritation; peristalsis was present. The vital parameters were as follows: blood pressure: 160/100 mm Hg; cardiac rate: 80 bpm, peripheral oxygen saturation was 96% on air and respiratory rate was 16 act/min; temperature was 36.4°C.

A point of care ultrasound was performed showing the presence of an accessory hypertrophic spleen with internal inhomogeneity and a peripheral hyperechoic semilunar image referable to subcapsular hematoma (maximum thickness of 18 mm) (Figs. 1 and 2).

Moreover, anechoic layer of peritoneal effusion was detectable on the right around the liver, in the Morison space, in the right parietocolic space, and in the pelvis.

Those ultrasound findings allow to make a diagnosis of hemoperitoneum by spontaneous bleeding of hypertrophic accessory spleen due to hereditary spherocytosis.

The patient was then subjected to abdomen CT with contrast medium which confirmed the diagnosis of spontaneous subcapsular hematoma of hypertrophic accessory spleen with signs of active arterial bleeding and moderate hemoperitoneum (Fig. 2). Based on the clinical findings, a surgical consultation was requested thus suggesting an emergency intervention. The patient underwent surgery to remove the accessory spleen. Moreover, the patient was discharged after 4 days from the surgical intervention, in the absence of complications and in good clinical condition.

Discussion

Our case reinforces the concept that point-of-care ultrasound is a relevant tool for the emergency physician, in order to provide a specific diagnosis in the shortest time and allow to set up a right therapy. Our patient referred acute abdominal pain

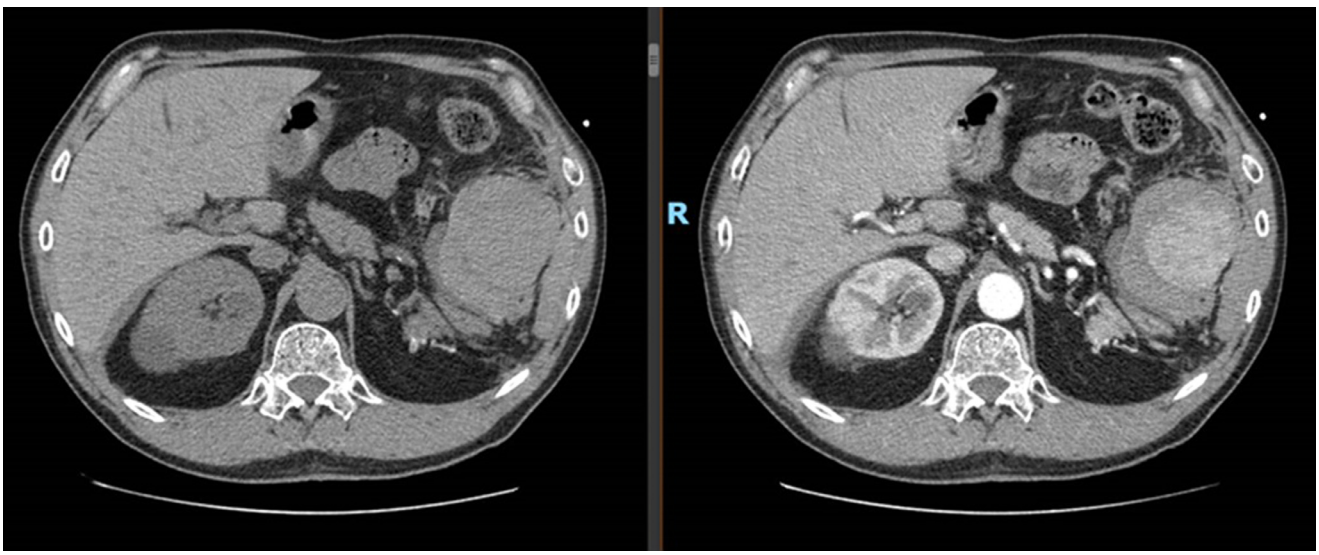

Fig. 2 – Abdomen CT without and with contrast medium showing hypertrophic accessory spleen with an axial diameter of 55 mm with peripheral collection sparing the hilum region identifiable in the posterolateral area. That collection is more relevant on the upper pole, it is spontaneously hyperdense and supplied by an arterial spot from active bleeding on the antero-superior face of the organ. Moreover, an intraperitoneal hemorrhagic diffusion in the perisplenic adipose tissue was evident, which collects in the right perihepatic recesses, in Morrison's space, in the right parieto-colic shower, and in the pelvis.

on the left side, thus leading to a broad differential diagnosis including pleuro-pulmonary, intestinal, splenic, renal, pancreatic, and cardiac diseases [1–4]. In our specific case, the patient was previously subjected to a splenectomy due to ereditary spherocytosis, thus leading at first to exclude an acute splenic pathology from clinical reasoning.

Otherwise, the ultrasound scan revealed a round shape lesion with inhomogeneous parenchimatous echostructure and internal vascularization suggestive for accessory hypertrophic spleen; moreover, a peripheral hyperechoic semilunar image was evident and referable to subcapsular hematoma; in addition, the ultrasound immediately highlighted signs of hemoperitoneum, thus allowing to reach the decision to subject the patient to surgical intervention. In literature some previous works reported similar cases of bleeding and hemoperitoneum by accessory spleen rupture [1–3], in particular in pediatric patients and those affected by hematological diseases (our patient was suffering from hereditary spherocytosis) [2,3]. It is necessary to distinguish traumatic ruptures from atraumatic or spontaneous ones, which are extremely more frequent in patients with onco-hematological diseases (pathologic spleens). Therefore, the peculiarity of our clinical case lies both in the fact that the patient had an unknown pathologic accessory spleen and in the rupture mechanism that was atraumatic.

Regarding the use of ultrasound, although it was not a traumatic condition, the examination must primarily search the presence of free fluid in the peritoneum. The location of the pain reported by the patient contributed to identify the accessory spleen in the "empty" splenic (previous splenectomy), with pathologic sonographic features. The accessory spleen appearance on ultrasound is that of a parenchymal organ with an inhomogeneous echo structure, hypertrophic and irregular margins, and with hypoanechoic areas, especially in the subcapsular site, that is the site of rupture.

Some case reports showed how the accessory spleen can be located in unusual locations other than the splenic area, thus leading to significant diagnostic concerns [1–3].

Conclusion

Our clinical case demonstrates how ultrasound can lead to a fast diagnosis and set up a right therapy, especially in the emergency medicine setting.

The physician examining a patient reporting acute abdominal pain on the left side must maintain a high clinical suspicion for a spleen disease, both with traumatic and atraumatic mechanisms, especially in subjects with pathologic spleens, also in relation to the possible presence of an accessory spleen.

Patient consent

Informed consent was obtained from the patient.

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