

Sudden Onset of Acute Epigastric Pain after Exercise: A Case Report

Sebastijan Krajnc, MD¹, Ana Šušteršič, MD¹

¹Klinični inštitut za radiologijo, Univerzitetni klinični center Ljubljana

1. Introduction

Acute abdominal pain is one of the most common symptoms in clinical practice and can represent a very broad range of possible aetiologies and diagnoses ranging from benign to life-threatening. Diagnostic imaging is often of crucial importance in determining the cause of acute abdominal pain. The initial imaging modality of choice is ultrasonography but in cases with unclear ultrasound findings or unclear severe symptoms computed tomography (CT) should be performed without delay.^{1,2}

2. Case Description

A 67-year-old male patient presented to our emergency department with acute onset of upper abdominal pain after morning exercise. The pain was accompanied by dizziness, nausea, green-stained vomiting and two episodes of fecal incontinence. With the exception of hypothyroidism he had no known comorbidities.

Clinical examination revealed localized epigastric pain on palpation. Routine laboratory examinations were performed which showed elevated serum, elevated circulating leukocytes count and mildly elevated serum liver enzymes. Based upon clinical and laboratory data gastric perforation was suspected. An abdominal x-ray was performed which revealed no signs of pneumoperitoneum or ileus.

A contrast-enhanced triple-phase CT scan of the abdomen was performed which showed hemoperitoneum resulting from a large perforated well-circumscribed subcapsular hypervascular tumor in segment III of non-cirrhotic liver. The lesion had signs of washout and rim enhancement on delayed images, and there were no signs of active bleeding.

3. Management

Because the patient was hemodynamically stable a conservative treatment approach was decided. A control ultrasound showed no change in hemoperitoneum volume. Four days after admission he was symptom free and discharged from hospital. A biopsy with histological examination confirmed well-differentiated hepatocellular carcinoma.

4. Image findings

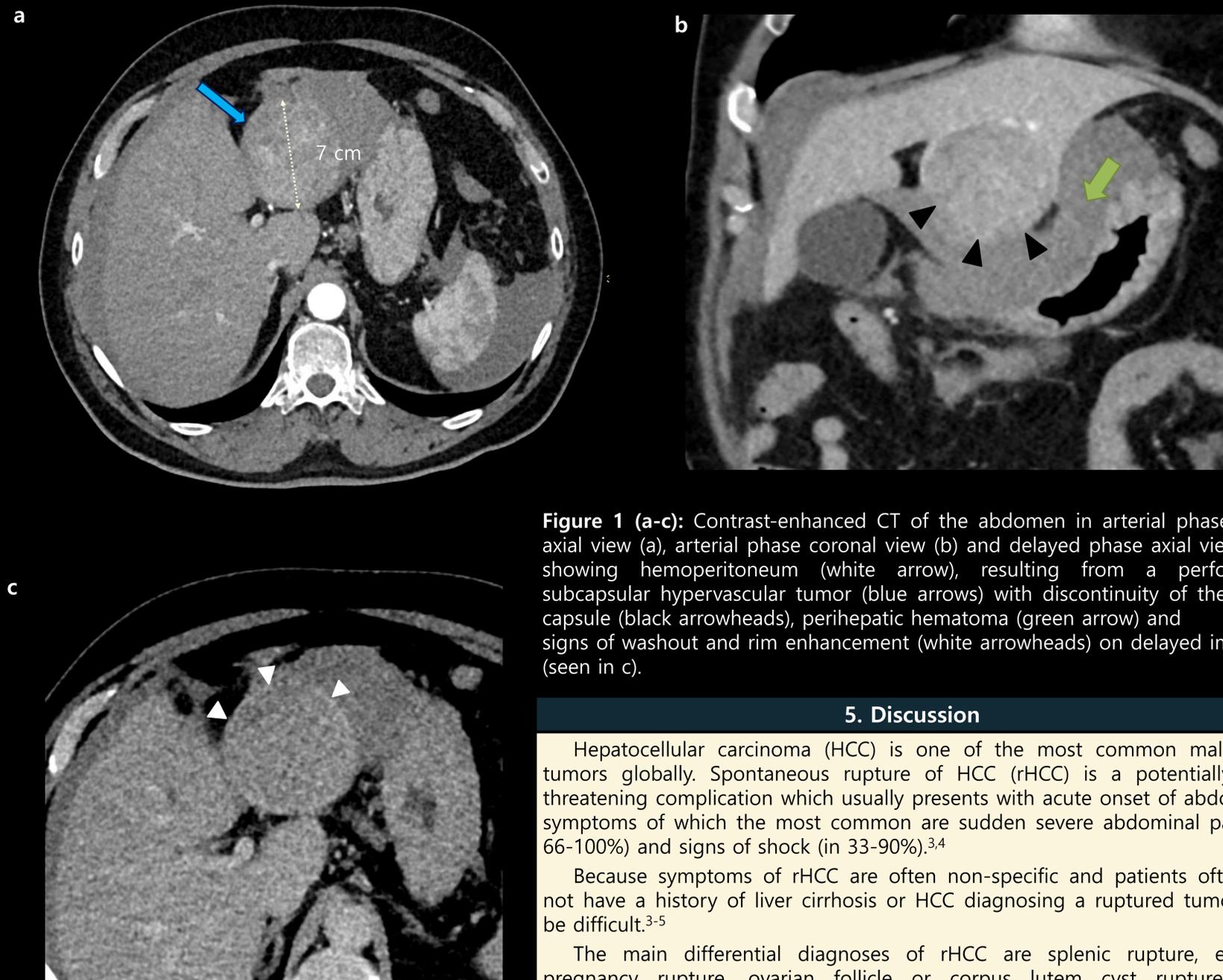


Figure 1 (a-c): Contrast-enhanced CT of the abdomen in arterial phase and axial view (a), arterial phase coronal view (b) and delayed phase axial view (c), showing hemoperitoneum (white arrow), resulting from a perforated subcapsular hypervascular tumor (blue arrows) with discontinuity of the liver capsule (black arrowheads), perihepatic hematoma (green arrow) and signs of washout and rim enhancement (white arrowheads) on delayed images (seen in c).

5. Discussion

Hepatocellular carcinoma (HCC) is one of the most common malignant tumors globally. Spontaneous rupture of HCC (rHCC) is a potentially life-threatening complication which usually presents with acute onset of abdominal symptoms of which the most common are sudden severe abdominal pain (in 66-100%) and signs of shock (in 33-90%).^{3,4}

Because symptoms of rHCC are often non-specific and patients often do not have a history of liver cirrhosis or HCC diagnosing a ruptured tumor can be difficult.³⁻⁵

The main differential diagnoses of rHCC are splenic rupture, ectopic pregnancy rupture, ovarian follicle or corpus luteum cyst rupture, and gastrointestinal perforation.³

The modality of choice in diagnosing rupture of HCC is contrast-enhanced triple-phase computed tomography, and the most common findings which suggest rHCC are a peripherally located tumor with a contour bulge, discontinuity of the liver capsule, hemoperitoneum, subcapsular hematoma, active extravasation of contrast, and "enucleation sign" (separation of tumor content with intraperitoneal rupture into the perihepatic space which is seen as a non enhancing low attenuating lesion with peripheral rim enhancement).⁵

6. Conclusion

The case described here presented a diagnostic challenge because the patient had unspecific abdominal symptoms and no known history of hepatic disease. The purpose of this report is to show that rupture of hepatocellular carcinoma should be included in the differential diagnosis of acute abdomen even in patients with no known history of hepatic disease, and that contrast-enhanced triple-phase CT scan of the abdomen is often of essential importance in the diagnostic evaluation of acute abdominal pain. The role of the radiologist is therefore crucial in the diagnostic process.

Rupture of hepatocellular carcinoma is a rare potentially life-threatening complication with high mortality rate and nonspecific symptoms. The diagnosis of rupture may therefore be difficult, especially in patients with no known hepatic disease may.³⁻⁵

Contrast-enhanced triple-phase CT is the modality of choice in the diagnosis.⁵

7. References

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