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RESEARCH ARTICLE

SPONTANEOUS RUPTURED OF HEPATOCELLULAR CARCINOMA IN A YOUNG PATIENT: A CASE REPORT

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ABSTRACT

Hepatocellular carcinoma (HCC) is the sixth most common cancer and the third leading cause of cancer-related deaths globally. Spontaneous rupture of HCC is a rare and acute complication with a high mortality rate, requiring urgent intervention. This report presents a rare case of spontaneous rupture of HCC in a 36-year-old female who presented to the emergency department of the General Hospital of Fortaleza with severe abdominal pain in the epigastric and right hypochondriac regions. A CT scan revealed a large, heterogeneous mass, mostly liquefied, with heterogeneous enhancement and poorly defined borders in segments II and III of the liver. The mass had an estimated volume of 1248 ml and had caused rupture of the hepatic cortex. Emergency exploratory surgery identified a large hemoperitoneum secondary to the spontaneous rupture of the liver tumor. Immunohistochemical analysis confirmed the diagnosis of hepatocellular carcinoma. Diagnosing rupture in patients without a history of cirrhosis or HCC can be challenging. We emphasize the need for radiologists to consider HCC rupture in the differential diagnosis of acute abdominal pain.

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INTRODUCTION

Hepatocellular carcinoma (HCC) is the most common primary malignant liver tumor and is usually associated with chronic liver disease and cirrhosis.(1,2) Spontaneous rupture of HCC is a rare but highly lethal complication, with a global incidence of less than 3% in Western countries. (3) Ruptured HCC, leading to acute hem operitoneum, is more commonly seen in regions like Africa, Asia, and parts of Europe, and carries a high mortality rate. (4) Clinical presentation in cases of ruptured HCC typically includes sudden and severe epigastric pain, dizziness, fainting, restlessness, palpitations, shortness of breath, abdominal distension, jaundice, and other liver-related signs.

Several risk factors for HCC rupture have been identified, including tumor size larger than 5 cm, hypertension, cirrhosis, and vascular thrombosis. (5) Imaging modalities such as ultrasound and computed tomography (CT) are valuable in the diagnosis of HCC rupture. Studies indicate that correct diagnosis of HCC rupture was achieved in 86% of cases through paracentesis, 66% through ultrasound, 100% through CT, and 20% via conventional angiography. (3) Recent case series suggest that first-line embolization followed by elective hepatectomy is an effective therapeutic strategy for treating this critical condition. Unfortunately, cases where resection is performed after rupture have a poorer prognosis, with first-year survival rates between 50-100%, third-year survival rates between 21-50%, and fifth-year survival rates between 15-33% (7).

OBJECTIVE AND METHODS

This report describes the case of a young female patient presenting with spontaneous rupture of HCC, successfully treated with endovascular embolization using hepatic microspheres, followed by hepatic segmentectomy.

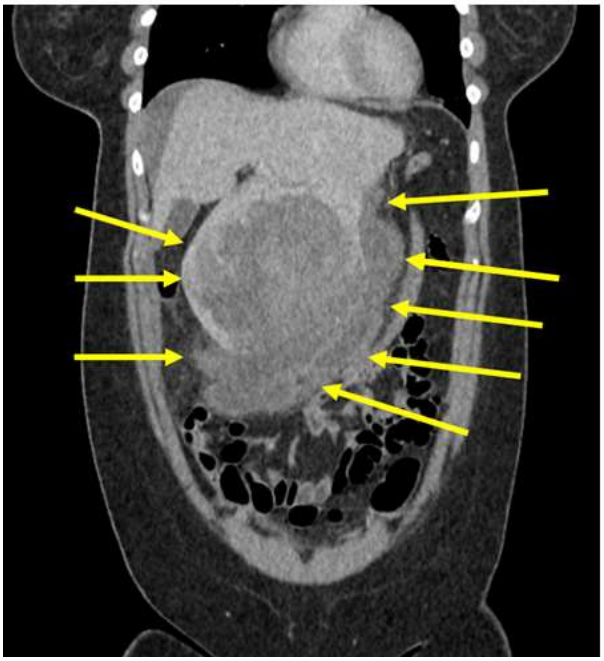
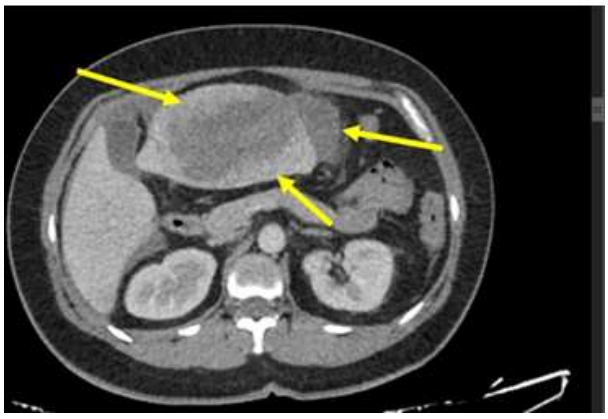
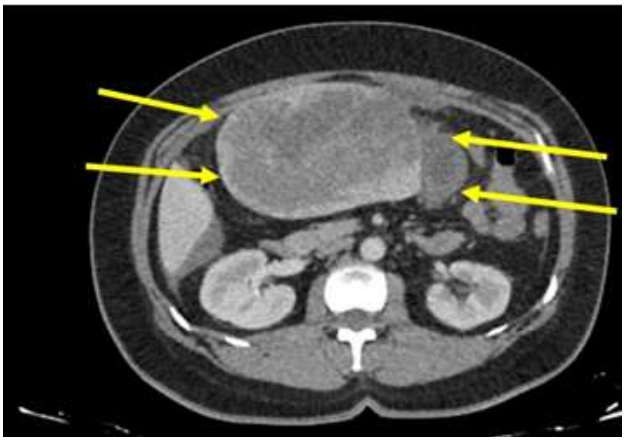


Figure 1. Preoperative abdominal Computed Tomography in coronal, axia le sagitalplanes, aquired during portal phase post contrast. The arrows indicate a ruptured liver lesion located in segments II and III, with dissemination of blood content through the abdominal cavity





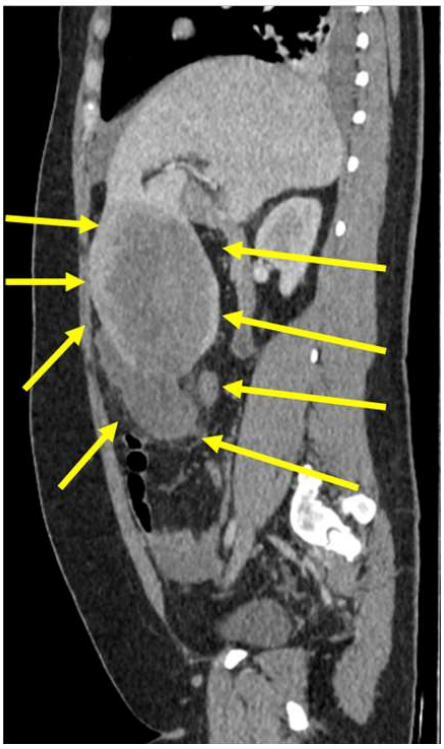


Figure 2. Post operatory abdominal Computed Tomography in coronal, sagittal and axial planes, during arterial phase post contrast. The red arrows indicate the surgical site and the complete removal of the liver lesion

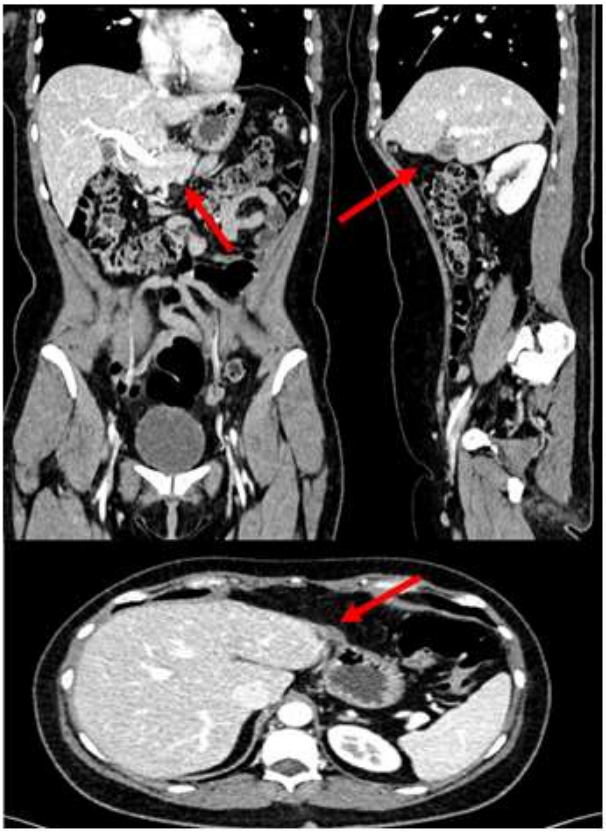
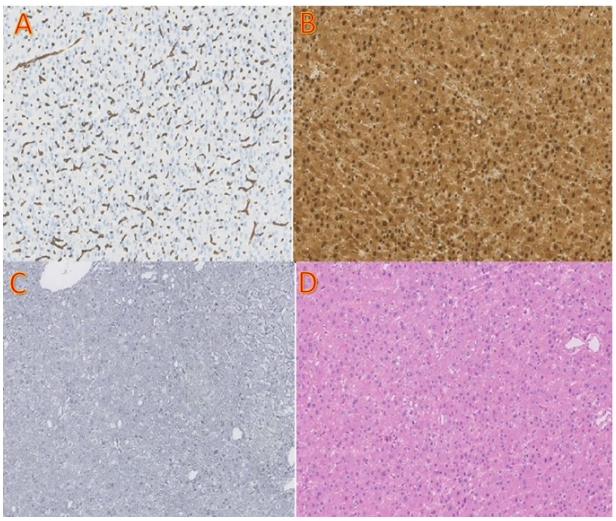


Figure 3: Imunohistochemistry of the tissue sample.A: CD34 Positive in sinusoids of malignant component of hepatocellular neoplasm, 200x.B: HSP70, 200x. C: Rarefaction of reticulin pattern in malignant component of hepatocellular neoplasm, reticulin, 200x.D: Atypical hepatocytes in malignant component of hepatocellular neoplasm, HE, 200x



DISCUSSION

G.K.R.A., a 35-year-old female, was admitted to the emergency department of Fortaleza General Hospital with severe, throbbing abdominal pain localized to the right hypochondrium and epigastrium, accompanied by nausea and vomiting. Upon admission to the critical care unit, she was tachycardic and hypovolemic, with abdominal tenderness in the right hypochondrium. A blood transfusion of one unit of packed red blood cells was administered. Imaging studies revealed a large, heterogeneous mass (17 x 15.6 x 9 cm), predominantly liquefied, with heterogeneous enhancement and poorly defined boundaries in liver segments II and III, with an estimated volume of 1248 ml. The mass had extended into the lower mesogastrium and ruptured through the hepatic cortex, making close contact with the transverse and anterior peritoneal surfaces. For the initial management of hepatic bleeding, endovascular embolization of branches of the left hepatic artery was performed using microspheres, with no complications. Subsequently, the patient underwent hepatic segmentectomy and removal of the hepatic hematoma, both of which were completed without complications. Postoperatively, she remained clinically stable. Histopathological and immunohistochemical analysis confirmed the diagnosis of hepatocellular carcinoma, staged as pT1b.In the present case report, a patient with ruptured HCC and hemoperitoneum, without a previous history of cirrhosis and viral infections, benefited from the role of hepatic vessel embolization as preliminary treatment with subsequent segmentectomy as definitive treatment.

CONCLUSION

This case highlights the importance of recognizing spontaneous rupture of hepatocellular carcinoma as a differential diagnosis in patients with acute abdominal pain, even in those without a history of cirrhosis or liver disease. With the availability of imaging tests and laboratory analyses, rapid diagnosis is possible, but in some cases it is still a challenge, as in the case of HCC in non-cirrhotic liver. Early diagnosis and appropriate intervention, such as endovascular embolization and hepatic resection, are critical for improving patient outcomes in this life-threatening condition. Radiologists and clinicians should maintain a high index of suspicion to facilitate timely diagnosis and treatment.

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