

# Hemoperitoneum as a complication of a Riedel lobe hepatocellular carcinoma. About a case

## Hemoperitoneo como complicación de un carcinoma hepatocelular en lóbulo de Riedel. A propósito de un caso

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Hemoperitoneum  
Hepatocellular cancer  
Abdominal pain

### Palabras clave (DeCS)

Hemoperitoneo  
Carcinoma hepatocelular  
Dolor abdominal

### Summary

Hemoperitoneum can occur under various conditions, including tumorous ones. We present a case of an 80-year-old female patient, with a history of arterial hypertension, heart failure and stroke who was admitted due to abdominal pain in the right flank, on physical examination a palpable mass was noted. In the tomographic study, a hepatic carcinoma associated with Riedel's hepatic lobe was characterized. After five days he suffered a partial hepatic rupture with active bleeding into the peritoneum. He died as a result of complications.

### Resumen

El hemoperitoneo puede ocurrir en diversas condiciones, entre ellas las tumorales. Se presenta el caso de una paciente de 80 años de edad, con antecedente de hipertensión arterial (HTA), falla cardíaca y accidente cerebrovascular (ACV) que ingresa por dolor abdominal en el flanco derecho; al examen físico se describe una masa palpable, en el estudio tomográfico se caracterizó un hepatocarcinoma asociado al lóbulo hepático de Riedel. A los cinco días sufrió una ruptura hepática parcial con sangrado activo al peritoneo. Falleció como consecuencia de las complicaciones.

### Introduction

Hemorrhage in the abdominal cavity or hemoperitoneum can occur in various situations and is a true emergency. Although there are many classifications, the most practical one is to identify initially whether the hemoperitoneum is of traumatic origin or not, and according to the patient's context and history, the search can be oriented to its possible etiology. In the case of a possible traumatic origin, the entry study in emergency departments is EcoFAST (Focused Assessment with sonography for trauma); however, both in traumatic and non-traumatic etiology, ultrasonography can miss small amounts of intra-abdominal blood, unlike tomography (CT) (1). Likewise, it has inherent limitations to the study unlike CT.

### Case report

An 80-year-old female patient with antecedents of arterial hypertension (AHT), heart failure and cerebrovascular accident (CVA) in 2016, was admitted to the emergency department for an episode of abdominal pain in the right flank associated with a sensation of tumor. On physical examination, a tumor was palpated in the right flank associated with pain of moderate intensity,

so he underwent multiphasic abdominal CT with intravenous contrast medium. The result showed a completely exophytic lesion dependent on the hepatic lobe of Riedel: a heterogeneous solid mass with a mosaic pattern, hypervascular in nature extending into the pelvic cavity, with mixed wash out in the portal phase and capsular enhancement in the late phase, but without evidence of vascular involvement, nor liver morphological changes of cirrhosis or peritoneal free fluid (Figure 1); due to its behavior with the contrast medium it was interpreted as a pedunculated hepatocarcinoma (HCC) in healthy liver. During his hospitalization he suddenly presented signs and symptoms of acute abdomen. A tomographic study was performed with the result of perihepatic and perisplenic free fluid (Figure 2) and in the abdominal cavity of high density (68 HU), compatible with hemoperitoneum, which was considered secondary to pedunculated HCC, although no active focus of bleeding in the arterial phase was identified. Emergency surgery was performed, with the finding of 2,000 mL of hemoperitoneum and active hemorrhage of the lesion described, so it was resected. Microscopic anatomical pieces showed well-differentiated hepatocellular carcinoma (Figure 3). On the second day of hospitalization in intensive care he died as a result of hemodynamic instability and complications per se.

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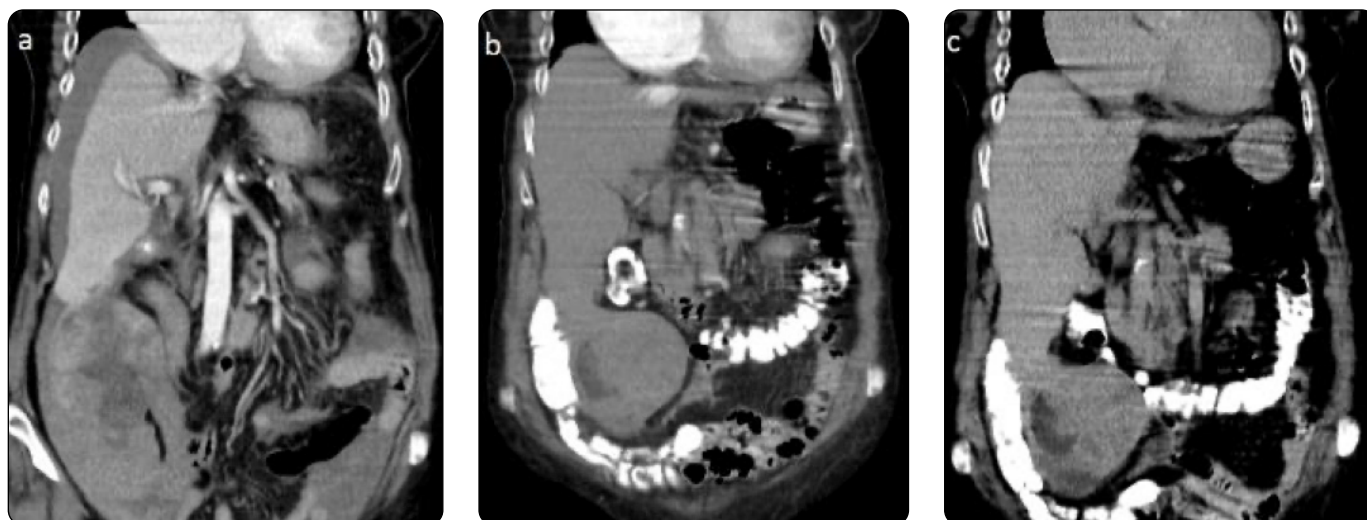


Figure 1. Abdominal CT with contrast medium and coronal sections. Prolongation of the right hepatic lobule is identified towards the right iliac fossa configuring Riedel's lobe. a) In arterial phase and in intimate contact with Riedel's lobule, solid lesion of defined edges and hypervascular with mosaic pattern due to the areas of necrosis in its interior. b) Venous phase: wash out. c) Peripheral capsule in late phase.

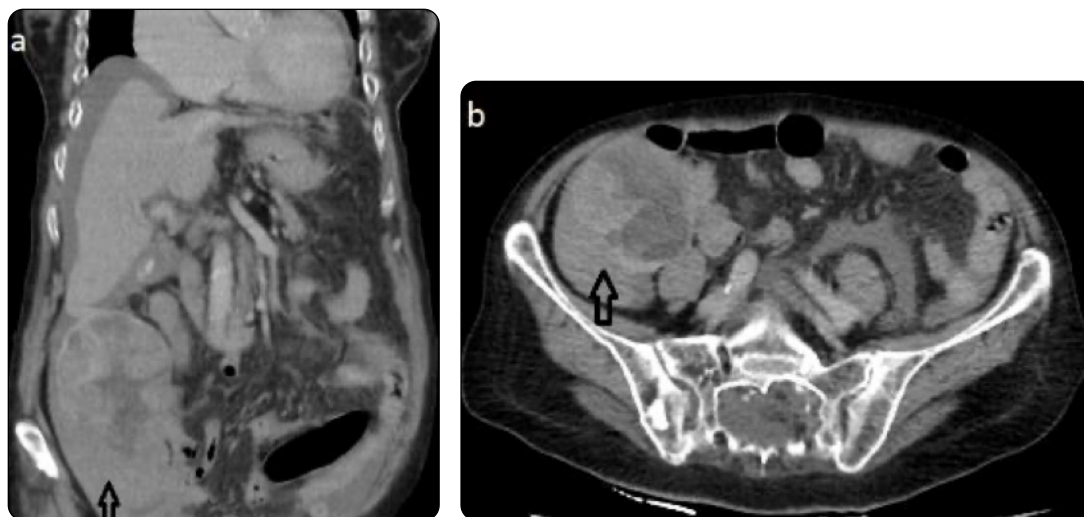


Figure 2. Abdominal CT. a and b) Acute bleeding (hemoperitoneum) is identified adjacent to the lesion described in the Riedel's lobe (black arrows). It is not possible to identify an active active focus of bleeding by the present method.

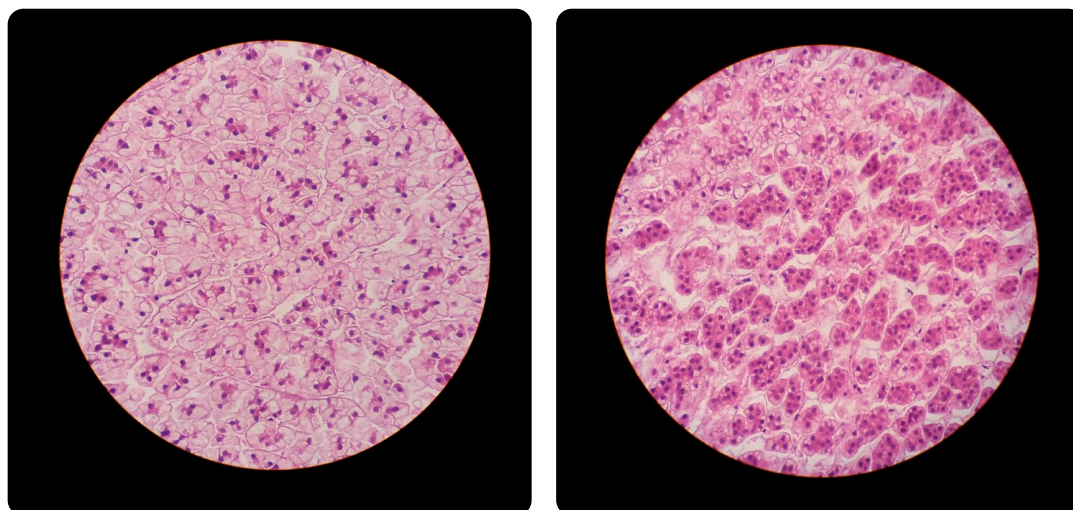


Figure 3. Microscopic pathology specimens. Neoplasm composed of atypical hepatocytes arranged in a mixed pattern with pseudoacinar, trabecular and solid sectors with subtypes of clear and steatohepatic cells.

## Discussion

Spontaneous hemoperitoneum rarely occurs in the absence of trauma, surgical intervention, interventionism or in the context of anticoagulation (2). In such cases, the possibility of rupture of a neoplasm must be excluded. The most common causes of non-traumatic liver hemorrhage are hypervascular neoplasms, such as HCC or hepatocellular adenoma (3). HCC is usually seen in chronic liver disease, and is the most common primary malignant neoplasm of a solid organ in the world population (4). The prevalence of ruptured HCC in various Western series is low, not exceeding 2.8-3.2 %; in contrast, in Asia and Africa it is higher (6.9 % and 14 %, respectively), as is the predominance of this type of cancer, and it is the most common cause of non-traumatic hemoperitoneum in patients of all ages (5, 6). Furthermore, due to the increase in life expectancy, the number of patients with HCC over 80 years of age has been steadily increasing and studies are beginning to focus on this population group (7).

The pathophysiological mechanism of this complication is unknown, but there are risk factors for rupture, such as the subcapsular location of HCC, peripheral location devoid of overlying normal tissue, size and its predominant arterial irrigation (8).

Therefore, the location in Riedel's lobe is considered among the risk factors for spontaneous rupture. Riedel's lobe is the best known type of accessory hepatic lobes. In 1888, Riedel described it as a tongue-shaped elongation of hepatic segments V and VI, located in the right upper quadrant and which can extend towards the right flank and iliac fossa, according to the findings - confirmed by surgery (9) - in 7 women with palpable mass in the right hypochondrium. However, there are cases in the literature of Riedel's lobules in the left hepatic lobe, although this is not the rule. They can be sessile or pedunculated depending on their type of connection to the liver, and even ectopic (10).

The prevalence of Riedel's lobe, determined mainly from radiological series, ranges from 3.3 % to 14.5 % in the literature, and is higher in women than in men. The wide range of prevalence is possibly the cause of the diverse definitions found in the literature, as well as the lack of standardization of diagnostic criteria in imaging (10).

It is easy to foresee the relationship between accessory hepatic lobules and certain pedunculated hepatocellular tumors. Indeed, hepatocellular or metastatic tumors have been described in accessory or ectopic lobes. Pedunculated hepatocellular tumors are rare, the incidence is estimated to range from 0.2 % to 4.2 %, but is probably underestimated, as the literature reports consist of small surgical series (10-12).

The association between accessory liver lobes, including Riedel's lobe and pedunculated tumors has not been clearly demonstrated. However, some authors believe that the ectopic liver may be more prone to malignant transformation due to metabolic dysfunction. Although this is a possibility, it should be remembered that the development of hepatocellular carcinomas in a normal liver (without cirrhosis, chronic active hepatitis or fibrosis) and in the absence of known risk factors is not a rare event (10-12).

## Conclusion

Radiologists must recognize the risk factors that increase the prevalence of spontaneous neoplastic rupture, among which is its lo-

cation, so it is important to know the anatomical variants -such as the hepatic lobe of Riedel- that can be associated in a small percentage with hepatocarcinoma, sometimes without cirrhotic changes. Due to their location and size in a healthy liver, these tumors must be resected; in cirrhotic patients who are not allowed to undergo surgery, if the tumor is larger than 5 cm or if they have comorbidities, chemoembolization is performed -not as tumor treatment, but to avoid this abdominal catastrophe-. Finally, the high mortality secondary to HCC rupture obliges radiologists to be highly suspicious of the acute presentation of massive hemoperitoneum, which leads to hemodynamic instability and even death of the patient, so its timely diagnosis is essential.

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