



Figure 1. (A) The scans without contrast show a large inhomogeneous, hypodense, hepatic area (right lobe) associated with a subcapsular and perihepatic hyperdense layer (arrow) matching the hematoma; (B) presence of blood in the pelvis (arrow). (C) Post-contrast arterial phase- parenchyma and vessels enhancement (arrows) without signs of active bleeding. The arterial branches are small irregular ones likely to be compressed or infiltrated (D) The portal phase shows a large area of contrast wash-out not typical for hematoma, indicative of the presence of a mass (arrow). The right portal branch cannot be visualized (suspicion of portal vein thrombosis, arrow). (E) Surgical specimen of HCC demonstrates right portal infiltration (arrow), (F) and bleeding area (arrow).

of spontaneously hyperdense material (due to bleeding) can hide the presence of the liver mass. Even the patient's medical history (in this case recent trauma and lack of knowledge of hepatic mass) can be confusing. This case reminds us that we must not exclude the possibility of pre-existing pathologies (such as the presence of an HCC) in the evaluation of trauma, even minor ones.

Bleeding, which is not recognized promptly, can lead to patient's death. The correct diagnosis that includes both the recognition of bleeding and the presence of the mass is essential to choose the correct treatment.

Conclusion

In case of a minor trauma, as in our case, in the absence of indicative symptoms the patient can be discharged. However pre-existing conditions (such as the presence of a liver mass, in this case unknown at the time of trauma) can complicate the course. It is essential in this case that the contrast CT examen can highlight both the bleeding and the presence of the liver mass. The characterization of the mass guides us in choosing the type of treatment (in this case surgical).

What is new?

Hemoperitoneum secondary to liver HCC rupture is a rare but potentially lethal condition. In our case the tumor was not known, and the bleeding was slow. It is important to recognize the typical characteristics of liver lesion presence to imaging in order to quickly decide the treatment. Proper management of this condition remains the subject of some debates; in patients with a resectable tumor, surgery may be an option.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

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References

1. Thomas AJ, Menias CO, Pickhardt PJ, Shaaban AM, Gaballah AH, Yedururi S, et al. Bleeding liver masses: imaging features with pathologic correlation and impact on management. *AJR Am J Roentgenol.* 2019;1–9.
2. Rowell SE, Barbosa RR, Holcomb JB, Fox EE, Barton CA, Schreiber MA. The focused assessment with sonography in trauma (FAST) in hypotensive injured patients frequently fails to identify the need for laparotomy: a multi institutional pragmatic study. *Trauma Surg Acute Care Open.* 2019;4(1):e000207.
3. Marini P, Vilgrain V, Belghiti J. Management of spontaneous rupture of liver tumours. *Dig Surg.* 2002;19:109–13. <https://doi.org/10.1159/000052022>
4. Srinivasa S, Lee WG, Aldameh A, Koea JB. Spontaneous hepatic haemorrhage: a review of pathogenesis, aetiology and treatment. *HPB (Oxford).* 2015;17:872–80. <https://doi.org/10.1111/hpb.12474>
5. Darnis B, Rode A, Mohkam K, Ducerf C, Mabrut JY. Management of bleeding liver tumors. *J Visc Surg.* 2014;151:365–75. <https://doi.org/10.1016/j.jviscsurg.2014.05.007>
6. Zhong F, Cheng XS, He K, Sun SB, Zhou J, Chen HM. Treatment outcomes of spontaneous rupture of hepatocellular carcinoma with hemorrhagic shock: a multicenter study. *Springerplus.* 2016;5:1101. <https://doi.org/10.1186/s40064-016-2762-8>

Summary of the case

1	Patient (gender, age)	A 42-year-old Chinese man
2	Final diagnosis	Bleeding HCC
3	Symptoms	At the time of trauma, mild symptoms. After a week, signs of hemorrhagic shock
4	Medications	At the time of trauma, no medication
5	Clinical procedure	After a week, hepatic resection for HCC
6	Specialty	Radiology, Gastroenterology and Hepatology