

## CLINICAL CASE

**CENTRAL NECESSITY HEPATECTOMY FOR SPONTANEOUS RUPTURE OF HEPATOCELLULAR CARCINOMA AT A PATIENT WITH PORTAL BIFURCATION THROMBOSIS****A. Istodor<sup>1,2</sup>, R. Ilina<sup>1,2</sup>, M. Preda<sup>1,2</sup>, O. Ardelean<sup>1,2</sup>, O. Mazilu<sup>1,2</sup>**<sup>1</sup>First Department of Surgery, Second Discipline of Surgical Semiology, “Victor Babes” University of Medicine and Pharmacy, Timisoara, Romania<sup>2</sup>Department of General Surgery and Surgical Oncology, Emergency City Hospital, Timisoara, Romania

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**Abstract**

*Hepatocellular carcinoma (HCC), one of the commonest primitive malignant tumors of the liver, is currently considered one of the very high life-threatening tumors. Surgery remains the treatment of choice of HCC and is indicated whenever possible. We present the case of a patient 66 years old, at which abdominal CT scan reveals the presence of HCC in segments 4 and 8, broken, and perisplenic and perihepatic fluid accumulation in the context of declining hemoglobin. Associate there is an incomplete picture of the portal convergence of 1.9 cm, with the lack of visualization of the left portal wreath. Even in the absence of the possibility of curative resection due to spontaneous rupture of the liver tumor, it is made a central necessity hepatectomy and subsegmentectomy 2 and 3 for the other three formations located at this level. Patient's postoperative course was favorable and he was discharged 11 days after surgery. Abdominal MRI performed 2 months postoperatively revealed the presence of multifocal recurrence. Patient dies at 6 months postoperatively.*

**Keywords:** *hepatocellular carcinoma, ruptured liver tumor, portal thrombosis, hemoperitoneum, central hepatectomy*

**Introduction**

Hepatic resection is the treatment of choice for a wide variety of benign or malignant tumors, the last one being either primary or secondary [1]. HCC is one of the most common primitive malignant tumors of the liver, with high lethal potential. In case of non-cirrhosis patients with HCC, liver resection is indicated whenever it is possible, being the only option of curative treatment and may confer long-term survival [2, 3].

The portal vein tumor thrombus in patients with HCC is a frequent complication, with a strong negative impact on survival [4, 5].

However, the treatment of these patients is highly controversial [5], its standardization is still pending. The following is a patient 66 years old with a broken HCC with consecutive hemoperitoneum presenting the associated portal convergent thrombosis.

**Case presentation**

Patient 66 years old, obese, coronary and hypertensive, imaging diagnosed in another service with heterogeneous tumor in the right hepatic lobe, is hospitalized in General Surgery

and Surgical Oncology Clinic, Emergency City Hospital, Timișoara accusing right hypochondrium and epigastric pain, fatigue and accelerated intestinal transit. Biologically, the patient experiences a mild anemia (Hb = 10.2 g/dl), while the remaining constants were within normal limits.

An abdominal CT scan is performed that reveals marked hepatomegaly, mostly due to right hepatic lobe, with the view at the segments 4 and 8 of a native heterogeneous tumor mass and after the SDC, about 12/147/12.7 cm, with possible rupture in the dome. Perihepatic and perisplenic is detected the presence of fluid accumulation, that were not visible at previous imaging explorations and is interpreted as being secondary to spontaneous rupture of liver tumor. Portal vein appears dilated, with a diameter of about 2 cm at the hilum, with incomplete picture inside the lumen of about 1.9 cm, with the remarking of an unviewed wreath of left portal vein. (Figure 1, Figure 2).



**Figure 1 – Hepatic tumor rupture with hemoperitoneum**

The operation starts with a surgical incision type Mercedes, observing presence of blood throughout the peritoneal cavity, at approximately 1000 ml. The liver shows an active bleeding bulky tumor that partially occupies segments 4, 5 and 8. The segments 2 and 3 show other 3 tumors with a maximum diameter of 2 cm, not seen at preoperative imaging.



**Figure 2 – Portal vein thrombosis**

The central hepatectomy is practiced using pedicle clamping continuously for 35 minutes, achieved by suprapancreatic approach to avoid possible mobilization of thrombus, with conservation of suprahepatic vein, completed with subsegmentectomy 2 and 3 for tumor formations at this level.

Histopathological examination of the resected specimen shows the presence of multicentric HCC with pseudoglandular pattern, solid and clear cells with microfocus of tumor necrosis and areas of ischemic necrosis, without evidence of changes in non-tumor liver.

The evolution of the patient was uneventful, being discharged 11 days after surgery. After postoperative recovery, the patient refuses cancer treatment and imagistic exploration performed 30 days postoperatively did not reveal the presence of tumor recurrence. At 60 days after surgery, abdominal MRI images show multiple nodular liver parenchyma remaining disseminated, interpreting it as a miliary relapse. Patient died at 6 months postoperatively, secondary to the solid hepatic recurrence.

## Discussions

Portal thrombosis in patients with hepatocellular carcinoma, occurring in approximately 50% of cases, is accompanied by a grim prognosis; survival does not exceed 2-4 months in the absence of treatment [6]. The multitude of the literature, which describe various therapeutic modalities, surgical or

nonsurgical, of which some with contradictory approach suggests a lack of uniformity in the treatment of these patients, finding an optimal therapeutic protocol in HCC associated with portal thrombosis remains open to further research.

In case of portal convergent thrombosis or right or left portal vein, hepatic resection is not recommended [7], because the results are much weaker compared with the remaining patients with HCC. In this case, hepatic resection, the central hepatectomy was not seen as a potentially curative intervention, but rather as a necessary solution for this patient with spontaneous rupture of liver tumor with massive hemoperitoneum. Hepatic resection has been, in this case, a short-term saving solution allowing the stopping of the bleeding. Hepatic artery ligation was not possible in this case due to the extremely high risk of liver failure, massive hepatic necrosis, while there is a portal convergent and its left branch thrombosis. Even if thrombectomy associated liver resection, 5-year survival does not exceed 30% [5] in patients with HCC and portal vein thrombosis. Minagawa et al [8] obtains superior results to 5 years, in association with liver resection with various other therapeutic approaches in a sequential treatment: 42% for transarterial chemoembolization, 36.3% in the case of liver resection followed by intra-arterial chemotherapy, and that 56% for internal irradiation chemotherapy followed by liver resection. In this case, the presence of hemoperitoneum, surgery was imperative as a first-time treatment. In these circumstances, it would have been a possibility a combination of intra-arterial or systemic chemotherapy described as having superior results, but this was not possible due to patient refusal to perform oncological treatment. Moreover, making transarterial chemoembolization could not be possible, the same considerations as for the ligation of the hepatic artery. However, in their study, Lee et al suggest that transarterial embolization may be secure enough for the development of collateral circulation around the portal trunk [9].

Using oncology treatment in patients with HCC and portal thrombosis led to improved results. In this regard, the administration of Sorafenib, especially intra-arterial administration of 5-fluorouracil associated with subcutaneous

administration resulted in improved response rates in these patients [7]. Usefulness of chemotherapy is confirmed by Kobayashi et al's report that get a complete radiological remission in a patient with HCC and portal thrombosis after intra-arterial administration of 5-fluorouracil and Cisplatin in combination with systemic administration of  $\alpha$ -interferon [10].

Regarding remote survival of patients with HCC and portal vein thrombosis, Jia et al [5], in a study of 107 consecutive patients, found a 6-month survival of 72.1% and a 5-year survival of 29.6%, based on clinical and imaging criteria. In the same study, Jia identifies several positive prognostic factors, including age of maximum 65 years, initial treatment with the intention of respectability or limited to a certain lobe carcinoma. In this case, the survival of only 6 months after the discovery of portal vein thrombosis can be partially explained by the absence of all these positive prognostic factors.

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## Conclusion

The presence of portal vein thrombosis worsens prognosis of patients with HCC. In cases of rupture of HCC with portal thrombosis that associates hemoperitoneum, hepatic resection may be a short-term saving solution for these patients.

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