

Right Hepatectomy Extended to Segment I with Prosthetic Replacement of the Inferior Vena Cava Due to Hepatocarcinoma Invasion

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Abbreviations:
IVCI - inferior vena cava invasion;
HCC - hepatocellular carcinoma;
IVC - inferior vena cava;
MVI - macrovascular invasion;
BCLC - Barcelona Clinic Liver Cancer.

Rezumat

Hepatectomia dreaptă extinsă la segmentul I cu înlocuirea protetică a venei cavă inferioare datorită invaziei hepatocarcinomului

Invazia venei cavă inferioare (IVCI) datorită carcinomului hepatocelular (HCC) este o entitate neobișnuită, dar agresivă. Când se întâmplă, boala este considerată a fi într-un stadiu foarte avansat, iar tratamentul propus este chimioterapia paliativă. Cu toate acestea, există studii recente care susțin tratamentul chirurgical radical ca o opțiune terapeutică, astfel încât rezultatele lor arată supraviețuiri mai lungi decât chimioterapia fără complicații chirurgicale majore. Prezentăm cazul clinic al unui pacient cu HCC și IVCI tratat prin rezecție hepatică și înlocuirea venei cavă inferioare (IVC) cu supraviețuire fără boală de 8 luni după operație.

Cuvinte cheie: hepatocarcinom, venă cavă, proteză, chirurgie, ciroză

Abstract

The invasion of the inferior vena cava (IVCI) due to hepatocellular carcinoma (HCC) is an unusual but aggressive entity. When it happens, the disease is considered to be in a very advanced stage, and the proposed treatment is palliative chemotherapy. However, there are recent studies that support radical surgical treatment as a ther-

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apeutic option, so their results show longer survivals than chemotherapy without major surgical complications. We present the clinical case of a patient with HCC and IVCI treated by hepatic resection and inferior vena cava (IVC) replacement with disease-free survival of 8 months after surgery.

Key words: hepatocarcinoma, vena cava, prosthesis, surgery, cirrhosis

Introduction

Hepatocellular carcinoma (HCC) is an aggressive malignant tumour characterised by endovascular proliferation. In advanced stages, HCC may cause thrombosis in major blood vessels such as portal vein and suprahepatic veins (1). Tumour thrombosis of the IVC is an uncommon finding that appears in 3-4% of patients with HCC (2). In those cases, the disease is considered to be in an advanced stage, and the therapeutic option consists in palliative chemotherapy with sorafenib (3). Nevertheless, the mean survival of patients with HCC and macrovascular invasion (MVI) treated with sorafenib is 8.1 months (4). Nowadays, there are recent studies that prove a significant increase in terms of survival in those patients treated with R0 liver resections (5-7). We report a case of a patient with a large HCC, IVCI and tumour thrombus treated surgically.

Case Report

We present a case of a 62-year-old male, ex-smoker, with a personal history of resection of malignant melanoma in the scapular region two years ago without recurrence and hepatitis B infection in the past (HBsAg-, anti-HBs +, anti-HBc +). During the follow-up of the malignant melanoma, a liver mass of 8 cm is detected by abdominal ultrasound. Alpha-feto-protein, CEA, CA19.9 and CA125 levels are in the normal range. Magnetic resonance of the liver is performed verifying a 10 cm hepatic mass that includes segments V, VI, and VII as well as IVCI (*Fig. 1*). A liver biopsy is carried out to establish the differential diagnosis between primary hepatic tumour and

melanoma metastasis, resulting in hepatocarcinoma. After evaluating the case in the hepatobiliary tumours committee, it is decided to proceed to a hepatic radioembolisation with yttrium-90. Finally, this treatment is rejected due to severe pulmonary shunt and the surgical option is proposed to the patient. The surgical intervention included a right hepatectomy extended to segment I, exeresis of the retrohepatic IVC from the right renal vein to the suprahepatic veins and a 22 mm Dacron prosthesis replacement (*Fig. 2*). The surgical time was about 350 minutes and the patient was discharged after 15 days of admission.

Ascites was the only postoperative complication, and it was solved with depletive treatment. The patient is free of the disease after eight months from the intervention (*Fig. 3*). The histopathology reveals a hepatocellular carcinoma of 13 cm and an extensive tumour thrombosis of the IVC with free margins (>1cm) (pT4).

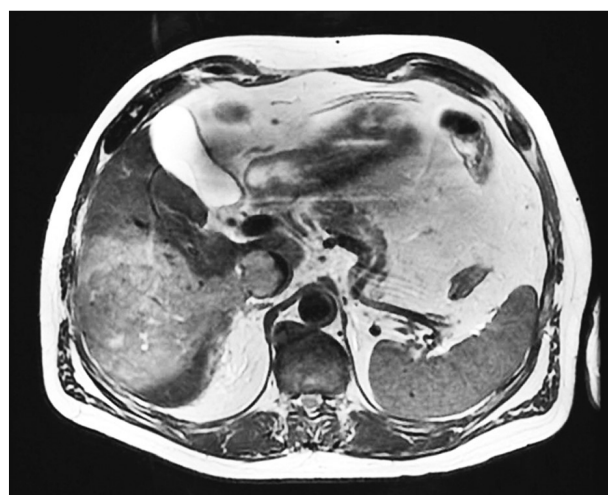


Figure 1. Magnetic resonance showing a 10 cm hepatic mass in segments V, VI, VII and IVCI

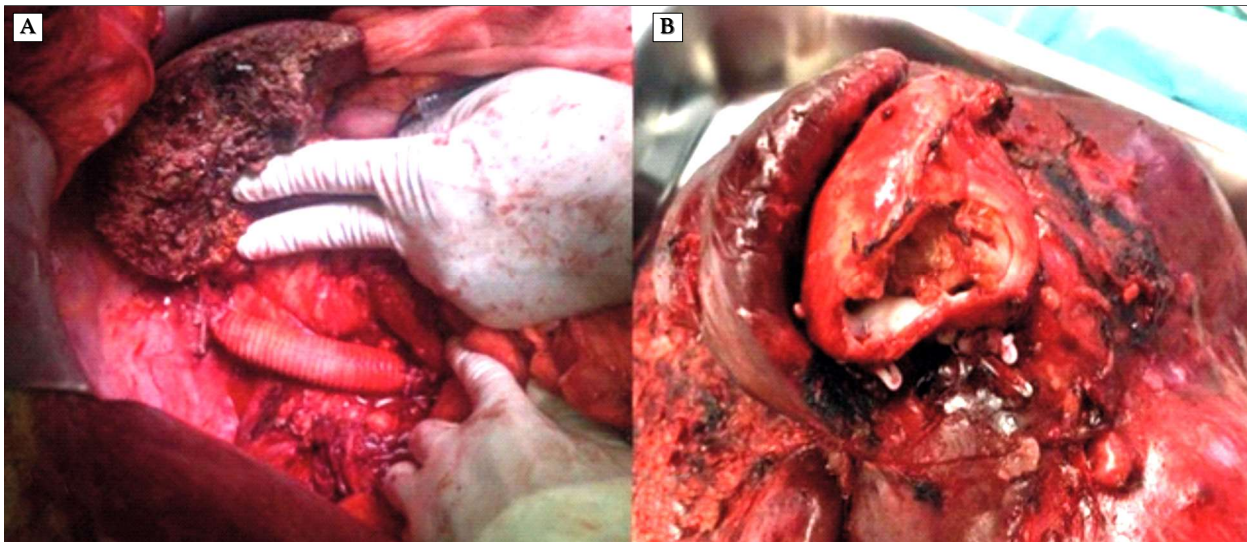


Figure 2. (A) Right hepatectomy extended to segment I performed with exeresis of the retrohepatic IVC and 22 mm Dacron prosthesis replacement. (B) Surgical specimen removed: 13 cm hepatic mass with extensive tumour thrombosis of the IVC

Discussion

Vascular invasion is one of the most important prognostic factors in patients with HCC (8). Patients with HCC and IVCI have a very poor prognosis with survivals from 1 to 4 months without treatment (8). Currently, there is no global consensus about the treatment of HCC with IMV (7). The staging system of the Barcelona Clinic Liver Cancer (BCLC) classifies patients with IMV as stage C,



Figure 3. Computed Tomography scan performed eight months after de the surgery with no evidence of tumor recurrence.

recommending only chemotherapy with sorafenib (6). As a result of that, the survival time of these patients is no longer than a year with prolongation of their lives of 3.2 months (7). The available evidence of the most appropriate strategies for the treatment of HCC with IVCI is very limited due to the rarity of this disease. In a recent Japanese study with more than 77,000 patients, the frequency was less than 1.4% (7). In these cases, there is a dilemma not only about the therapeutic effect of surgical intervention but also because of higher surgical risk. In general, it has been assumed that hepatic resection with a concomitant IVC thrombectomy or IVC replacement is a dangerous procedure because the technical challenges involved in this type of surgery can lead to higher rates of morbidity and mortality. Nonetheless, in the last published series (5-8), the postoperative mortality was less than 10% and most of the complications were managed by medical treatment. Regarding the survival of these patients, the Japanese series mentioned above (7) observed a mean survival of 1.48 years, and a 1 and 3-year survival rates of 63.2% and 33.1%, respectively. The most frequent recurrence was distant metastasis (58.2%) (7). The difference between the results

of the Japanese studies and previous series (9, 10) in which the mean survival was 7-8 months resides in the lack of total exeresis of the primary tumour or the thrombus. Therefore, if a complete surgery of both entities cannot be achieved, it is not recommended to perform a palliative surgery (8). Our patient was a relatively young person with a normal hepatic profile in blood tests and no signs-neither cirrhosis nor portal hypertension. According to the BCLC scheme, the appropriate treatment would be chemotherapy with sorafenib (6). Recently, radioembolisation with yttrium-90 has shown favourable results in patients with HCC and IMV (7). As a consequence, the multidisciplinary committee of our hospital advocated this option but in the end, it was rejected due to severe pulmonary shunt. After a new evaluation of the case, it a surgical intervention was decided because a radical resection was possible to perform with a sufficient liver remnant to maintain its function.

Conclusion

In conclusion, it can be affirmed that hepatic surgery with complex vascular resections due to HCC and IMV can be a valid therapeutic option in tertiary referral hospitals with a high volume of hepatobiliary surgeries.

Conflict of Interest Statement

There are no financial disclosures and no conflict of interest.

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