Advanced hepatocellular carcinoma extending to the inferior vena cava and right atrium

S. M. Habib, L. C. W. De Jonge, R. A. Carels, C. Verveer, A. A. M. Zandbergen

ABSTRACT
Abstract is not required for Clinical Images
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CASE REPORT

A 65-year-old Surinamese male visited our outpatient clinic due to fatigue and weight loss of five kilograms in the last three months. The patient was diagnosed with chronic hepatitis B five years ago for which he did not receive treatment. Furthermore, he was a moderate alcohol drinker (1 drink/day) and had a 40 pack-year history of smoking. At physical examination, a cachectic man was seen with a blood pressure of 109/67 mmHg and a pulse rate of 84 beats per minute. He had no signs of jaundice. Physical examination of the abdomen revealed distended superficial abdominal veins and an enlarged liver, but no signs of ascites. Laboratory testing revealed a normal hemoglobin level of 9.9 mmol/L, an elevated bilirubin level of 95 µmol/L, an elevated alpha-fetoprotein level of 36 µg/L, and elevated liver enzymes (alanine aminotransferase 91 U/L, gamma glutamyl transferase 576 U/L, and alkaline phosphatase 245 U/L).

Subsequently, a computed tomography (CT) scan was performed, showing a large mass in the right lobe of the liver extending to the caudal lobe with occluded portal vein branches. Importantly, the mass was found to be invasive, compressing the vena cava inferior, and extending into the right atrium (Figure 1). No sign of liver cirrhosis were seen on computed tomography (CT) scan.

A magnetic resonance imaging (MRI) scan was performed to establish a final diagnosis. MRI scan confirmed the presence of a 13.5x8.4 cm mass in segment 6 and 7 of the liver with a tumor thrombus invading the inferior vena cava (Figure 2) and right atrium.

DISCUSSION

Hepatocellular carcinoma (HCC) is frequently a fatal malignancy and accounts for the majority of cases...
with primary liver cancer worldwide. The incidence of hepatocellular carcinoma (HCC) is low, however, seems to be as high as 11–20 cases per 100,000 male inhabitants in some countries [1].

Significant risk factors of HCC include chronic hepatitis B virus infection and other chronic liver diseases, usually in combination with cirrhosis [1, 2]. The most common locations of extrahepatic metastases of HCC include the lung, abdominal lymphnodes, and bones [3]. An initial presentation of HCC with tumor thrombus invasion in the vena cava inferior and right atrium is extremely rare (1–4%) and hazardous. An atrial thrombus can cause right heart failure and pulmonary embolism, and most patients die within the first year after diagnosis [4].

Establishing the diagnosis of HCC is a challenge, but preferably must be done based on non-invasive techniques, such as imaging (CT and/or MRI), in most cases without histological confirmation [2]. HCC in our patient was diagnosed based on the presence of the typical radiological criteria including the irregular tumor surface, the early arterial enhancement and the fast washout of tumor areas on the dynamic contrast-enhanced MRI scan.

The management of HCC requires a multidisciplinary approach and is closely linked to the stage of disease. Treatment options include radiofrequency ablation, partial liver resection, liver transplantation, systemic medical treatment (e.g., Sorafenib), and transcatheter arterial chemoembolization [2]. Given the limited treatment options and incurability of HCC with an atrial tumor, our patient was discharged from the hospital after one week with supportive care.

CONCLUSION

In conclusion, this case illustrates an uncommon presentation of advanced hepatocellular carcinoma (stage IIIC), which could be successfully diagnosed non-invasively by radiological imaging.

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Author Contributions

S. M. Habib – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

L. C. W. De Jonge – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

R. A. Carels – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

C. Verveer – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

A. A. M. Zandbergen – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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