



Case Report

A rare case of Hepato Cellular Carcinoma (HCC) with Cardiac Metastasis : A case report

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Summary

Background- Cardiac metastasis is a rare but unfortunate event of hepatocellular carcinoma (HCC). Early evaluation and treatment may improve prognosis of this dreadful phenomenon.

Case summary- A 68 years old man with 20 days history of dyspnoea, pedal edema and decreased appetite was evaluated for the cause. Relevant blood investigations and different modalities including 2D echo, chest x ray, USG abdomen and MRI were done. HCC was confirmed with extension to IVC and right atrium and lung metastasis. Pt was managed medically in view of advanced disease and is still under follow up.

Discussion - Hepatocellular carcinoma has poor prognosis and no curative therapy available yet. Cardiac involvement may accelerate the symptoms and can cause poor quality of remaining life. (Indian J Cardiol 2022;25 (1-2):38-43)

Keywords: Hepatocellular carcinoma, right atrium, inferior vena cava, case report.

Introduction

Hepatocellular carcinoma (HCC) is the most common primary malignant tumor of the liver and unfortunately most of these are diagnosed in advanced stages. Most of the occurrences of HCC follow already compromised liver parenchyma by chronic disease, mostly by hepatitis B virus or hepatitis C virus infection^{1,2}. HCC metastases tend to spread through intrahepatic blood vessels, lymphatics, or direct infiltration. HCC frequently invade the vascular system at points such as the portal and hepatic veins. Intracardiac involvement of HCC rarely develops and mostly metastasizes by direct extension of the tumor to the heart via hepatic vein and inferior vena cava³. A correct diagnosis is important in the clinical setting since cardiac metastases are able to induce sudden cardiac arrest.

Case report

A 68-year-old man presented with bilateral pedal edema, dyspnoea and decreased appetite for 20 days.

On physical examination, pitting edema in both lower extremities and dilated veins over chest and abdomen. Flow in dilated veins was from below upwards. Mild abdomen distension was also present. Patient was evaluated for the cause. Blood investigations revealed SGOT 326 U/L, SGPT 126 U/L, hypoalbuminemia with albumin : globulin ratio reversal, gamma GT raised significantly and INR value was 1.5. Patient was found to be HbsAg positive with antigen level value 6950. Alpha fetoprotein levels were 18400 ng/ml. All other bio chemical test were within normal limits.

2-D transthoracic echocardiography demonstrated a large mass extending from inferior vena cava to right atrium and compressing right atrial

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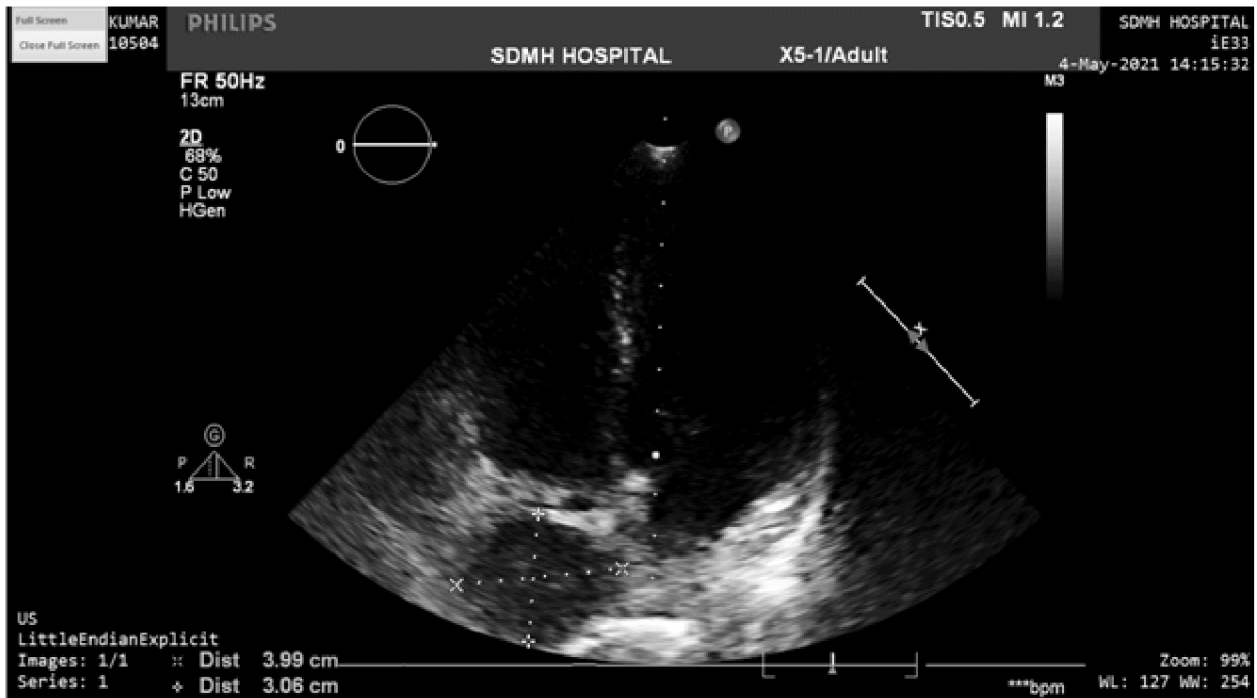


Fig. 1 : 2D echo in modified 4C view showing large mass encroaching right atrial cavity, sized 3.99 X 3.06 cm.

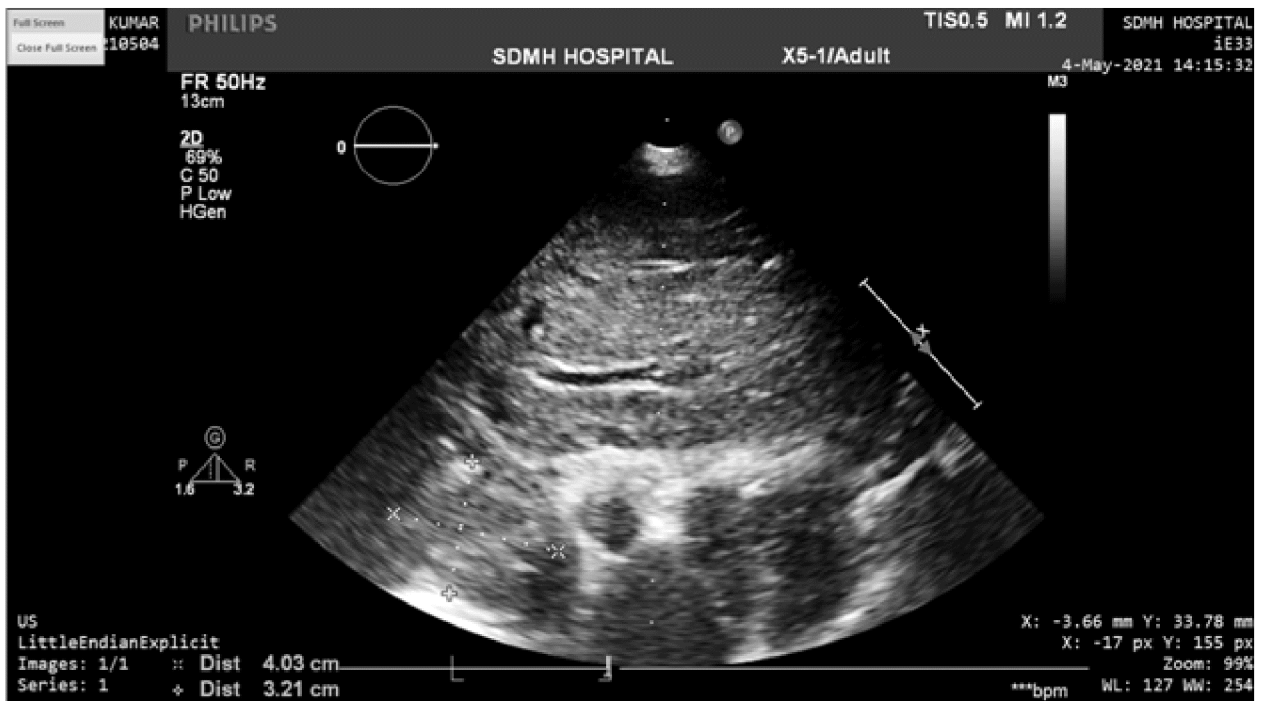


Fig. 2 : 2 d echo imaging in subcostal view showing liver mass compressing right atrium.

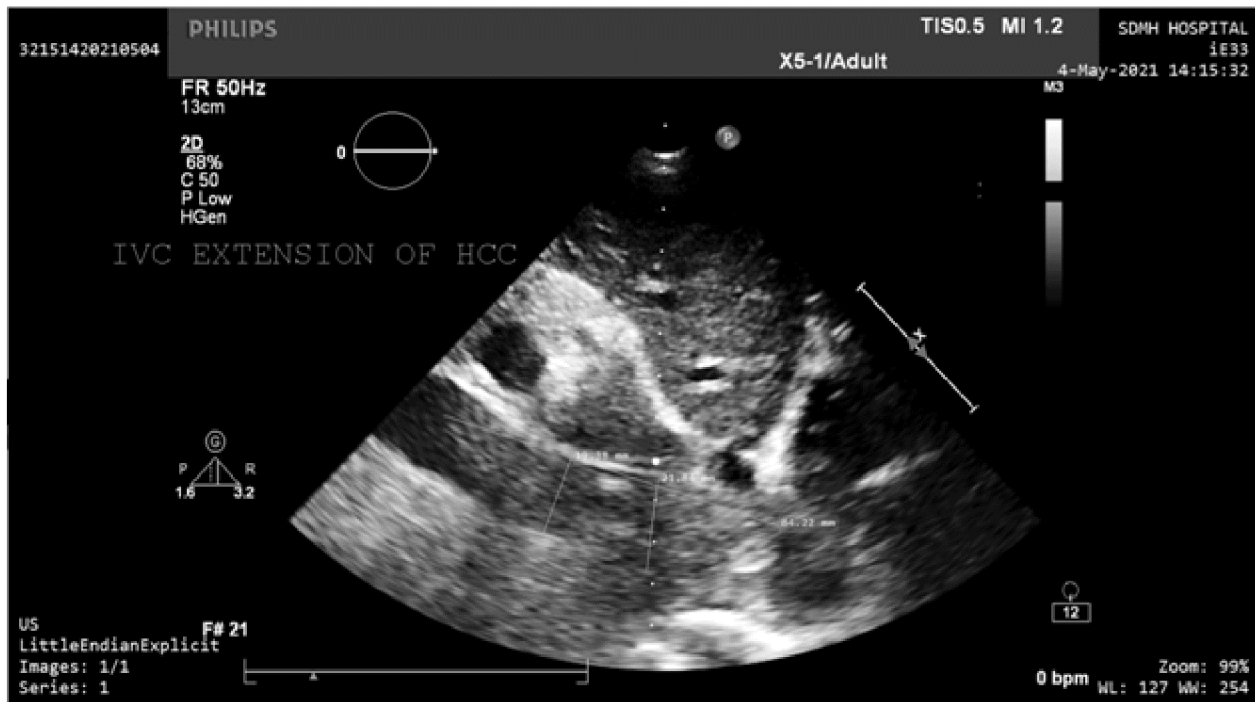


Fig. 3 : 2 D echo imaging in subcostal view showing liver mass extending from IVC towards right atrium (8.4 cms x 2.1 cms)



Fig. 4 : USG abdomen showing IVC with mass extending intrahepatic part of IVC to right atrium sized 5.36 X 2.72cms.



Fig. 5 : USG abdomen showing liver mass from VII and VIII segment, sized 2.16x 2.34 cms



Fig. 6 : Chest x-ray showing multiple rounded opacities seen in both lung fields predominantly in mid and lower lung zones.

cavity, likely originating from liver (Fig 1, 2). Further evaluation with ultrasonography revealed liver parenchymal disease with space occupying lesion in VIIth and VIIIth lobe of liver sized 2.3 x 2.1 cm and at IVC insertion sized 5.6 x 2.7 cm. (Fig 3,4)

Chest x ray was suggestive of multiple rounded opacities seen in both lung fields predominantly in mid and lower lung zones. (Fig 5) Magnetic resonance imaging showed reduced liver span with irregular nodular liver, heterogenous mass lesion in segment

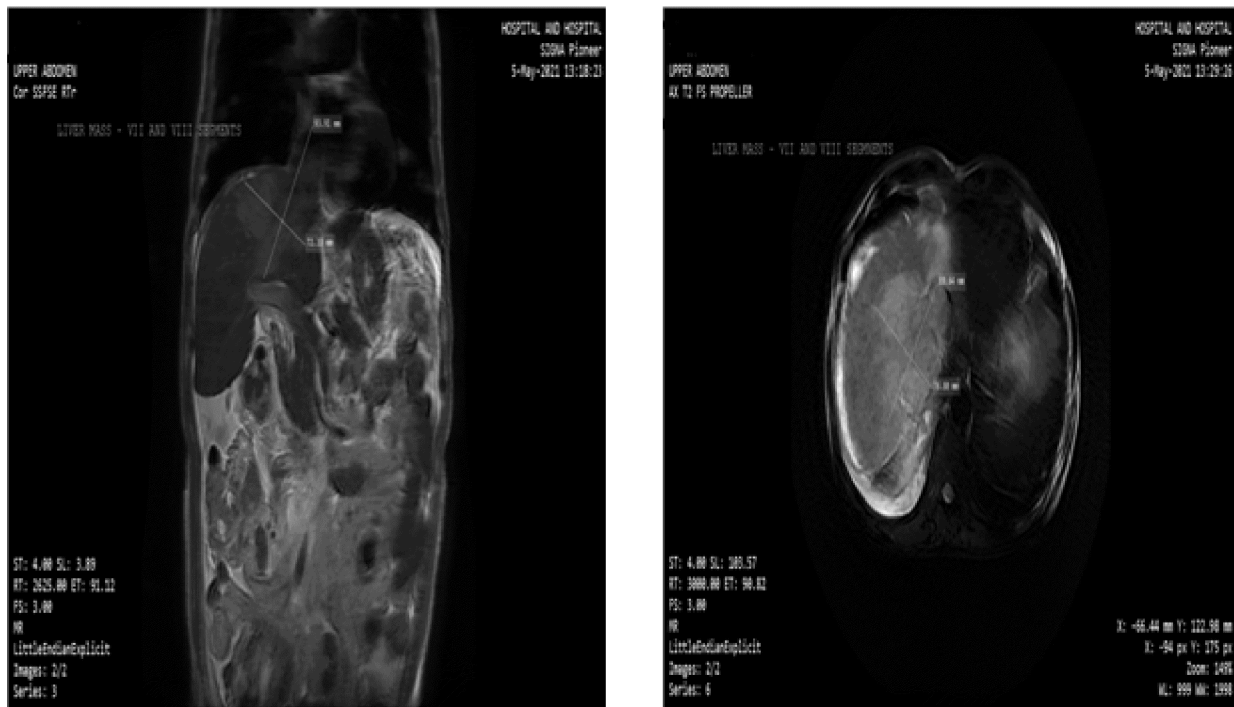


Fig. 7 : MRI upper abdomen - saggital view - showing large liver mass from VII and VIII segments extending to IVC and right atrium (sized 9.3 cm x 7.2 cm)

VIIth and VIIIth lobe of liver showing extension in upper part of intrahepatic IVC and cavoatrial junction (9.3 X 7.2 cms)- suggestive of hepatocellular carcinoma with bilateral multiple lung nodules suggested metastasis. Other findings were mild pleural effusion right side, mild ascites, diffuse mesenteric stranding and diffuse abdominal wall edema. (Fig 6, 7)

Patient was managed with multi disciplinatory approach of cardiologist, oncologist and oncosurgeon. Unfortunately because of late presentation with consequent cardiac and lung metastasis, and high mortality risk of the surgical intervention, patient was inoperable and conservative medical management in form of Sorafinib and antiviral for Hep B with supportive care were only left options.

Discussion

Extrahepatic metastasis of HCC most commonly involves lungs, lymph nodes, adrenal glands, and bones⁴. Intracardiac involvement rarely occurs in patients with HCC, and its frequency was found around 2% in various case series⁵. Despite of extensive research over literature we could find only 30 case reports

till now.

HCC is usually asymptomatic until late. The main mechanism of metastasis into the cardiac cavity is through a direct vascular extension of the tumor to the right side via the hepatic vein and IVC². Various cardiac symptoms or findings such as dyspnea, lower extremity edema, sudden death, or dilatation of the jugular veins are generally seen in HCC patients with intra-cardiac involvement^{6,7}. Intracardiac metastasis has very poor prognosis, with a median survival of 1-4 months only. Heart failure and sudden death are the most common causes of death in patients with HCC which account for 25% of the patients⁸.

For initial assessment of cardiac involvement, transthoracic echo is a simple and readily available, noninvasive modality defining its exact site, size, mobility, extension, and compressive effect. Chest and abdomen computed tomography (CT) and magnetic resonance imaging (MRI) can provide further tissue characterization, extension and metastasis location⁹.

As per literature review this is a rare case. Patient was apparently asymptomatic for long and had a history of pedal edema, dyspnoea and decreased appetite for 20 days only. Sequential workup with

help of blood investigations, transthoracic echo, UGS abdomen and MRI revealed HCC with cardiac extension and lung metastasis and chronic Hep B as primary cause.

Presently, there is no standard treatment for HCC with involvement of right atrium. Palliative resection may be necessary to avoid sudden hemodynamic deterioration, but the prognosis is still very poor⁹.

The present report describes an unusual case of metastasis of HCC in the right atrium. In such cases, early diagnosis and treatment is the only key to add months or years to patient's life span.

Studies have reported that the median overall survival of patients with surgery was 12 to 19 months, whereas that of patients with other treatments (e.g., TACE, radiation therapy, chemotherapy) was 4.2 to 10 months¹⁰⁻¹². Endovascular stenting of IVC has shown rapid symptom alleviation and low complication rates and should be considered as an option in patients with malignant obstruction¹³. Treatment should be individualized to the patient, and a multidisciplinary approach including cardiologist, oncologist, vascular surgeon and oncosurgeon should be used.

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