Right Hepatectomy in Icteric Type Hepatocellular Carcinoma—Report of a Case and Literature Review

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Introduction

Obstructive jaundice caused by tumor invasion in Hepatocellular carcinoma (HCC) in cirrhotics was first reported in 1947 by Mallory [1]. In 1975 Lin classified these as ‘Icteric type hepatoma’ [2]. We herein report one such patient who underwent a major liver resection.

Case Presentation

A 54 year old male patient presented with weight loss of two months duration and jaundice of one week duration. He had no prior history of gastrointestinal bleed, ascites or hepatic encephalopathy. He is a diabetic on oral hypoglycaemic agents.

His laboratory tests showed a total bilirubin of 3.5 mg/dl, serum albumin 3.6 gm/dl, alkaline phosphatase 208 IU/ml, GGT 480 IU/ml and INR of 1.1.

An ultrasound of the abdomen revealed coarse liver echo texture and a tumor in the right lobe (segment 5) of liver with mild splenomegaly and no ascites.

Endoscopy showed grade II varices, Alpha feto protein was 5.2 ng/ml and his markers for hepatitis B and C were negative.

Triphasic multidetector computerised tomography (MDCT) of the abdomen showed chronic liver disease, right lobe atrophy, a tumor in Segments 5, 6 and 8 of liver with enhancement pattern suggestive of HCC and no portal venous or hepatic venous involvement (Fig. 1).

CT volumetry showed left lobe with inclusion of middle hepatic vein to be 55 %.

Magnetic resonance cholangiopancreatography (MRCP) revealed intrabiliary extension of the tumor into right hepatic duct with associated intrahepatic biliary dilatation.

Although by Child-Pugh score he was in category B, this was due to high score associated with elevated value of bilirubin, which in his case was presumably secondary to biliary obstruction and not primary liver dysfunction.

He subsequently underwent a right hepatectomy. Per operatively there was a cirrhotic liver with atrophic right lobe and hypertrophic segment IV and left lateral segment. The Right duct and common hepatic duct was filled with tumor. On cut section the tumor in the liver showed a contiguous extension into the right and common hepatic ducts.

Histopathology showed a moderately differentiating hepatocellular carcinoma infiltrating the right bile duct with intrabiliary extension of tumor and negative margins on the left hepatic duct and the distal bile duct. The adjacent liver showed cirrhosis.

He made an uneventful recovery and he remains asymptomatic at 33 months follow-up with normal AFP values and no recurrence on CT imaging.

Discussion

Obstructive jaundice in cirrhosis caused by tumour invasion was first reported by Mallory et al. in 1947 [1]. It was later classified by Lin et al. in 1975 as ‘Icteric type hepatoma’ [2]. Bile duct invasion by HCC occurs in 0.8–12.9 % [3–5]. Patients with cirrhosis and icteric type HCC have a poorer prognosis when compared to HCC patients without bile duct invasion.

Lau et al. classified icteric type of HCC into the extrahepatic and the intrahepatic types [6]. Patients with extrahepatic biliary involvement secondary to HCC have a higher curative resection rate, and improved survival rate compared with those with intrahepatic biliary obstruction.

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Fig. 1 **a, b** and **c** Triphasic multidetector computerised tomography (MDCT) of the abdomen showed chronic liver disease, right lobe atrophy, a tumor in Segments 5, 6 and 8 of liver with enhancement pattern suggestive of HCC and no portal venous or hepatic venous involvement. Picture **a** and **b** arterial phase, Picture **c** Portal venous phase. **d** Magnetic

resonance cholangiopancreatography (MRCP) revealed intrabiliary extension of the tumor into right hepatic duct with associated intrahepatic biliary dilatation. **e** and **f** Follow up CT after 15 months showed no recurrence, hypertrophy of the remnant left lobe, minimal ascites, patent hepatic and portal veins

Patients with cirrhosis and jaundice in HCC can be classified into two types: hepatocellular type and icteric type. The hepatocellular type is secondary to extensive parenchymal infiltration by tumour, which then leads to hepatic parenchymal insufficiency, accounting for 90 % of patients.

Imaging of the biliary tract is important to establish the cause of jaundice in cirrhotics with HCC. Ultrasound (USG) may show a hypervascular biliary tumor thrombus which can be differentiated from portal vein thrombosis. MRCP may show the presence of enhancing intraluminal soft tissue in the bile duct in the arterial phase which are typical features of HCC with biliary tumour thrombi. Endoscopic Retrograde Cholangiopancreatogram (ERCP) or Percutaneous Transhepatic Cholangiography (PTC) can further delineate the level of block and afford the ability to drain obstructed segments while stabilising the patient [7].

Management consists of stabilisation of the patient, drainage of obstructed segments, control of hemobilia and assessment for resectability. In the presence of high bilirubin or cholangitis biliary drainage should be preferentially performed intero-externally.

Curative resection includes complete extirpation of the tumor and in case of involvement of the extrahepatic biliary system the involved ducts are resected along with the tumor and biliary enteric anastomosis is performed. A controversial issue is whether tumor thrombi in the extrahepatic system / contralateral ducts be removed via a choledochotomy versus en bloc resection. The risk being tumor seedling at the choledochotomy site / peritoneal seedling [8].

Summary of Literature

The prognosis for cirrhotics with HCC and bile duct invasion is poorer when compared to those without invasion with median survival of 11.4 versus 56.1 months [3–5, 9, 11]. Curative resection in those with bile duct invasion have better survival than those who without resection (25.3 vs 2.1 months) [5]. The incidence of portal vein invasion and bile duct invasion was higher, however incidence hepatic vein invasion was similar to regular HCC [10, 13]. Pre-operative detection rates of 53–74 % were achieved [12]. Bilirubin, Alkaline Phosphatase and CA 19–9 levels were higher among icteric type HCC than non icteric type [10]. Gross confluent multinodular type (40 %) and infiltrative type were predominant histological patterns seen [10]. Intrahepatic recurrences were more common and early intrahepatic recurrences (within 1 year) were significantly higher in those with bile duct invasion [11].

Surgical resection with chemotherapy has been reported to be beneficial in advanced HCC with intra-biliary tumor thrombus, however there is no confirmatory evidence [14].

Conclusions

With the availability of better diagnostic tools, strategies to deal with obstructive jaundice in cirrhotics with HCC and aggressive hepatic resection when feasible occasional long term survival is possible as in the case reported by us.

Conflict of Interest There are no disclosures, disclaimers and no support was received for this article.

Ethical Standards and Patient Consent The case report was approved by the Hospital ethics committee and has been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

The patient has given informed consent prior to his inclusion in the report.

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