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Fibrolamellar Hepatocellular Carcinoma Presenting as Obstructive Jaundice: Uncommon Presentation of a Rare Entity

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	Summary
Background:	Fibrolamellar hepatocellular carcinoma is a rare primary malignant liver tumor, significantly different from generic hepatocellular carcinoma with distinct demographics, risk factors, imaging features, histopathology and prognosis.
Case Report:	Unlike conventional hepatocellular carcinoma, it presents in young individuals with no preexisting hepatitis or cirrhosis and does not cause elevation of serum alpha feto proteins in most cases. This paper presents a case report of this rare tumor in a young female with an unusual clinical manifestation of obstructive jaundice (which has not been reported so far) along with a review of its imaging and pathological features, with treatment options.
Conclusions:	Fibrolamellar HCC is a rare variant of classic HCC with different epidemiology, risk factors, clinical manifestations, radiological, pathological and prognostic features. Therefore, it is important to be familiar with the entity for its early diagnosis and management.
MeSH Keywords:	Carcinoma, Hepatocellular • Magnetic Resonance Imaging • Tomography, Spiral Computed
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Background

Fibrolamellar hepatocellular carcinoma is a rare primary malignant liver tumor, significantly different from generic hepatocellular carcinoma with distinct demographics, risk factors, imaging features, histopathology and prognosis. Unlike conventional hepatocellular carcinoma, it presents in young individuals with no preexisting hepatitis or cirrhosis and does not cause elevation of serum alpha feto proteins in most cases [1]. This paper presents a case report of this rare tumor in a young female with an unusual clinical manifestation of obstructive jaundice (which has not been reported so far) along with a review of its imaging and pathological features, with treatment options.

Case Report

A 25-year-old female patient presented with a two-month history of vague upper abdominal pain, jaundice and weight loss. Her general physical examination revealed

icterus, and mild hepatomegaly was observed on per abdominal examination. Ultrasound of the abdomen was advised which showed a well-defined rounded hypoechoic mass involving the left lobe of the liver with a central stellate echogenic scar (Figure 1A). The lesion showed evidence of internal vascularity on Color Doppler (Figure 1B). There was evidence of another small rounded hypoechoic lesion at the porta with dilatation of intrahepatic biliary radicals with blocked confluence of the right and left hepatic ducts (Figure 1C). Plain and triple-phase contrast-enhanced computed tomography of the abdomen was advised which showed a well-defined isodense mass in the left lobe of the liver with no calcification and with central stellate hypodensity (Figure 2), showing enhancement in the arterial phase (Figure 3A, 3B). The tumor was isodense to liver in the portal venous phase with a central non-enhancing stellate scar (Figure 4A, 4B). There was evidence of a partial washout in the equilibrium phase with a part of the scar showing enhancement (Figure 5). Additionally, T2-weighted Magnetic Resonance Imaging of the abdomen

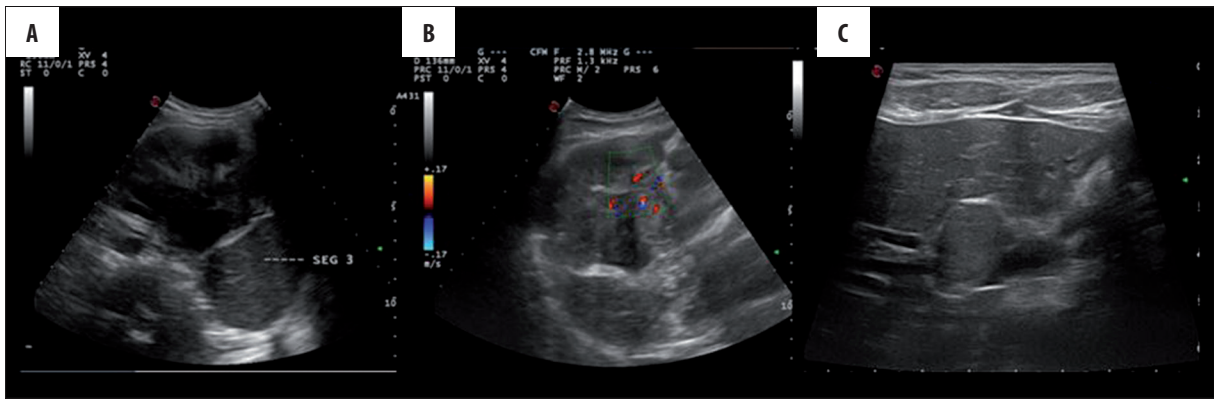


Figure 1. Ultrasound of the liver showing a well-defined rounded hypoechoic mass involving the left lobe of the liver with a central stellate echogenic scar (A). The lesion shows internal vascularity (B) and there is an enlarged lymph node at the porta, with dilatation of intrahepatic biliary radicals with blocked confluence of the right and left hepatic ducts (C).

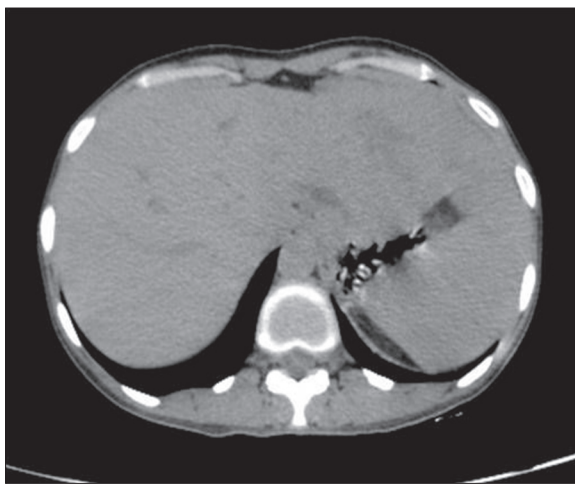


Figure 2. Non-contrast CT of liver axial section showing a well-defined isodense mass in the left lobe of the liver with no calcification and with central stellate hypodensity due to the scar.

was performed (to search for signal intensity of the scar), which showed an isointense lesion with a central hypointense stellate scar (Figure 6). The diagnosis of fibrolamellar hepatocellular carcinoma was made based on pathognomonic features on imaging. Preoperative PTBD (percutaneous transhepatic biliary drainage) was carried out in this patient to relieve obstructive jaundice and hepatic derangement before surgery. The patient was advised to undergo surgery after 2 weeks. However, the patient did not turn up later on.

Discussion

Fibrolamellar hepatocellular carcinoma (HCC) is an uncommon malignant hepatic neoplasm which was first described by Edmonson in 1956. The lesion demonstrates unique clinical, radiological, histopathological and prognostic features, making it important to differentiate from benign liver lesions like focal nodular hyperplasia and adenoma, and malignant lesions, especially conventional HCC. It typically occurs in young adults with no gender bias, with the exception of a few cases [2,3]. Marrannes J. et al. reported a case of fibrolamellar HCC in a 65-year-old woman.

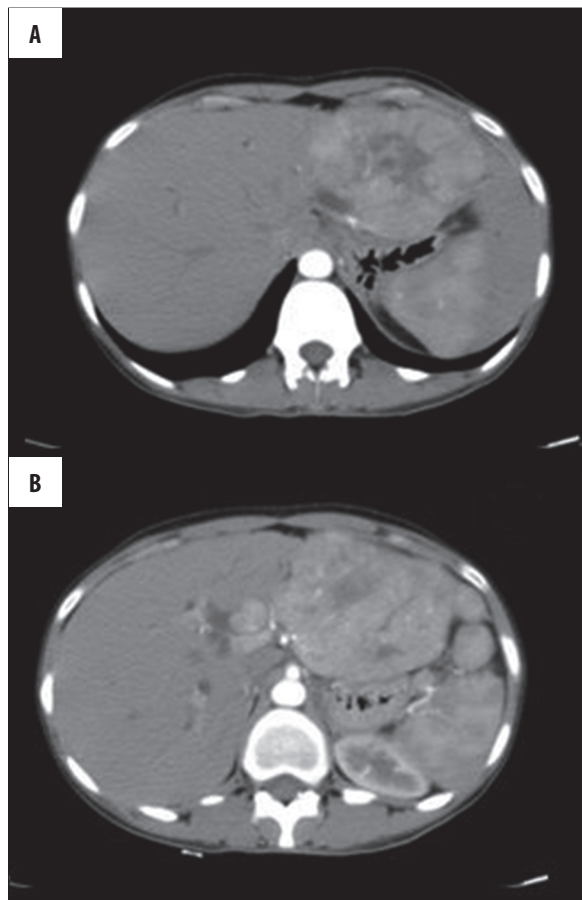


Figure 3. (A, B) Contrast-enhanced CT arterial phase axial sections showing enhancement of the left lobe mass (with non-enhancing central scar) as well as lymph node at the porta (B).

Geographically, its incidence is quite high in USA, followed by Europe, and it occurs less often in Asia, showing a predilection for Caucasians [2,3].

The tumor has no association with underlying liver diseases like cirrhosis, hepatitis B or C, and alcoholism. Clinically, patients often present with non-specific symptoms like abdominal pain, weight loss and malaise. Per abdominal

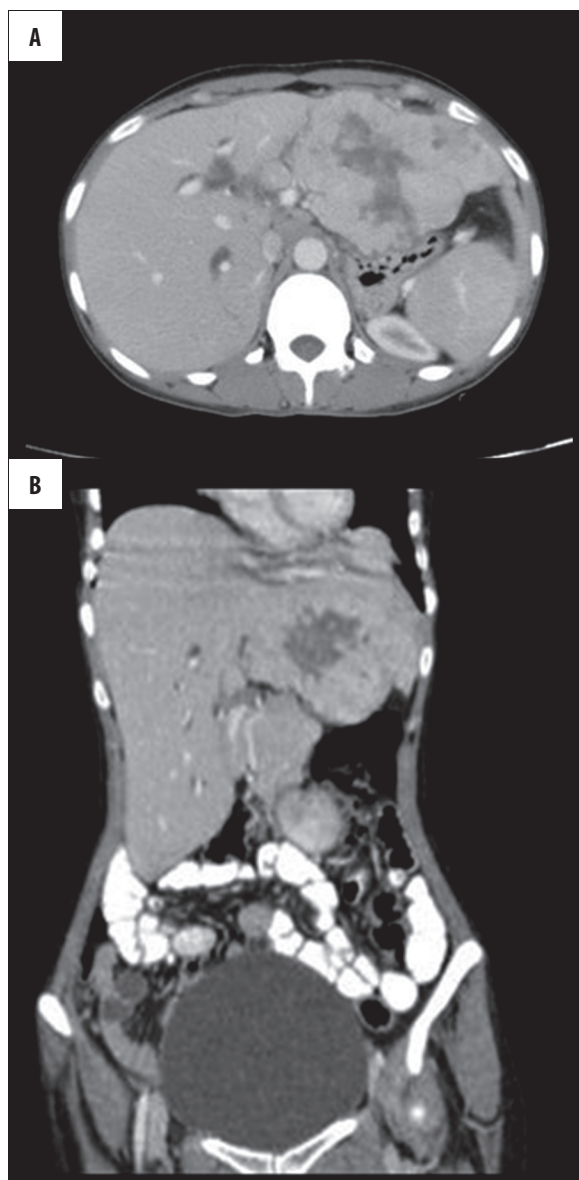


Figure 4. Contrast-enhanced CT venous phase axial (A) and coronal reconstructed image (B) showing a mass with enhancement similar to the surrounding liver (A, B) and gross hepatomegaly (B).

examination often shows an abdominal mass in the right upper quadrant or hepatomegaly, as these masses are generally large at the time of presentation. Occasionally, these lesions manifest with gynaecomastia in patients because of elevation of oestrone levels (likely due to aromatase expression within these tumors) [2,4]. Obstructive jaundice as seen in our case is quite rare and has not been reported so far.

Histopathological features are quite characteristic and help to distinguish it from the classic HCC. Generally, these tumors are pale tan to yellow, and a central scar is seen in almost 75% of the cases. Histological examination reveals diffuse fibrous stroma comprising fibrocytes and bands of collagen arranged in a lamellar pattern between cords of large, polygonal tumor cells with prominent eosinophilic

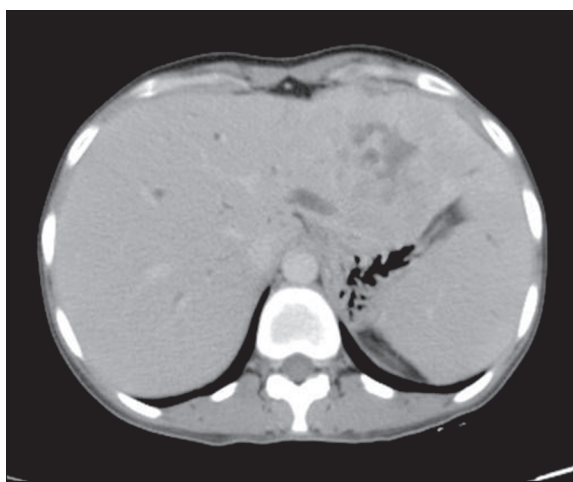


Figure 5. Contrast-enhanced CT equilibrium phase showing partial wash-out of contrast from the mass with a part of the scar showing some enhancement.

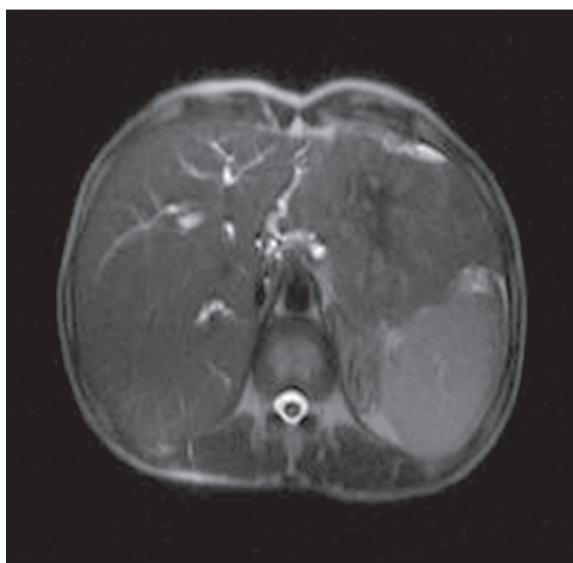


Figure 6. Axial T2-weighted MR image showing an isointense mass with a central hypointense scar in the left lobe of the liver.

cytoplasm, large vesiculated nuclei and large nucleoli (hence the name fibrolamellar HCC) [2,5].

Imaging features of different modalities are classic and correlate well with microscopic features. They are often seen as large, well-circumscribed masses with lobulated surface (80%), usually located in the left lobe of the liver. The central stellate or amorphous scar is seen in about 75% of tumors, with calcification within the scar in 35–65% of the cases. Intralesional necrosis and hemorrhage are quite infrequent and macroscopic fat is almost never seen. Nodal enlargement is noted in more than 50% of the cases in the hepatic hilum or the hepaticoduodenal ligament [2,6]. On ultrasound, the lesions are seen as sharply-defined, mixed-echogenicity masses with a central hyperechoic scar with or without calcification [6]. Computed Tomography (CT) depicts these masses as heterogenous with an area of central low attenuation (due to scar) and calcification within the scar. Arterial phase enhancement is seen in 80% of the

cases. Fibrous tissue within the scar and radial septa shows persistent enhancement in the delayed phase with early wash-out in the rest of the tumor. On magnetic resonance imaging (MRI), these demonstrate isointense signal on T1 and hypointense to slightly hyperintense on T2-weighted images. The central scar shows hypointense signal on T1- and T2-weighted sequences on MRI (compared with hypervascular scars of FNH which are hyperintense on T2-weighted sequences) [1,2,5]. The lesions are photopenic on technetium-99m sulphur colloid scans (taken up by kupffer cells) in contrast to focal nodular hyperplasia (FNH). Imaging features on CT and MRI along with clinical manifestations allow confident diagnosis in most cases.

Differential diagnosis includes FNH, conventional HCC and cavernous hemangioma. FNH can be distinguished mainly on the basis of findings on T2-weighted MRI and sulphur colloid scans (described earlier). Presence of regional lymphadenopathy and metastatic disease rules out benign lesions like FNH and hemangioma. Calcification is quite rare in FNH (unlike fibrolamellar HCC). Moreover, hemangiomas show a hyperintense signal on heavily T2-weighted

images (light bulb sign) and peripheral nodular enhancement with centripetal fill-in. Generic HCC can be differentiated on the basis of the presence of old age, background liver disease, elevated alpha fetoproteins, presence of areas of necrosis, hemorrhage, and sometimes macroscopic fat on imaging and microscopy, as well as absence of scars and calcifications [1,2,5].

Resection is the first-line treatment in operable cases and the prognosis is good (with a 5-year survival of 76% after surgery), in contrast to HCC, in which apart from surgery, chemotherapy and local ablative techniques are also used for treatment, and prognosis is bad (5-year survival rate of 37–56% after surgery) [2].

Conclusions

Fibrolamellar HCC is a rare variant of classic HCC with different epidemiology, risk factors, clinical manifestations, radiological, pathological and prognostic features. Therefore, it is important to be familiar with the entity for its early diagnosis and management.

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