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Liver fibrosis with FNH or HCC in men - a controversy topic

Gabriel Fridolin Hess[1], Savas Deniz Soysal[1]*, Matthias S Matter[2], Tuyana Boldanova[1], Daniel Boll[3], Otto Kollmar[1]

[1]Clarunis University Center for Gastrointestinal and Liver Disease, St. Clara Hospital and University Hospital Basel, Switzerland

[2]Pathology, Institute of Medical Genetics and Pathology, University Hospital Basel, University of Basel, Switzerland

[3]Department of Radiology and Nuclear Medicine, University Hospital Basel, Switzerland

***Corresponding author:** Savas Deniz Soysal, Clarunis, University Center for Gastrointestinal and Liver Disease, St. Clara Hospital and University Hospital Basel, Spitalstrasse 21, CH-4056 Basel, Switzerland. Email: savas.soysal@clarunis.ch

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Abstract

This case report presents a 68-year-old patient with regular alcohol consumption. In a routine ultrasound examination, cirrhosis of the liver and a high degree of suspicion for Hepatocellular Carcinoma (HCC) in segment IVb were detected. The subsequent Computed Tomography (CT) confirmed the suspicion. Due to the anatomical situation, a biopsy of the tumor was not possible, and therefore a resection of the suspected HCC was performed, following an interdisciplinary discussion. Histology showed Focal Nodular Hyperplasia (FNH), and not the suspected HCC. FNH is rarely detected in men. The medical history with chronic alcohol consumption, pre-damaged liver and a macroscopically suspicious finding in the liver pointed to a diagnosis of HCC. This unusual constellation shows the importance of complete preoperative diagnostics for suspect liver lesions.

Keywords: Focal Nodular Hyperplasia; Hepatocellular Carcinoma; Imaging in Hepatocellular Carcinoma

Introduction

Although Focal Nodular Hyperplasia (FNH) is the most common benign hepatocellular lesion with an incidence of 0.6% to 3%, it is mostly seen in females, with <10% of cases seen in men [1, 2]. The constellation presented here, of a FNH in a male patient with concomitant alcohol abuse, is extremely uncommon [3].

Case Presentation

A 68-year-old male patient underwent routine abdominal ultrasound for liver fibrosis/cirrhosis due to chronic alcohol consumption. The patient consumed about one bottle of wine per day. With a presumed alcohol volume of 12%, the estimated alcohol intake was 9 units of alcohol daily. Since the ultrasound showed signs of liver cirrhosis with an indistinct formation, a CT scan was performed, which in turn showed a suspicious tumor in liver segment IVb with classic CT findings characteristic for a Hepatocellular Carcinoma (HCC) (Figure 1). Transabdominal biopsy of the tumor was not performed due to the subcapsular position of the lesion. A biopsy of liver segment VII revealed a slightly florid chronic sclerotic steatohepatitis with severe fibrosis of the portal fields, compatible with Alcoholic Steatohepatitis (ASH). Following discussion in our multidisciplinary tumor board, we decided to perform a resection of the liver mass due to the high suspicion of HCC. Metastases were ruled out in a whole body CT

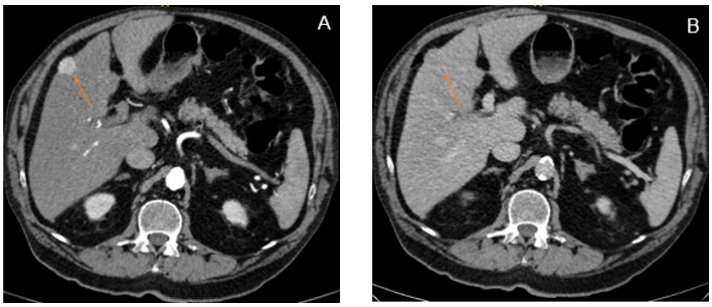

Figure 1: The CT-scan shows the 17mm measurement in the arterial (A) and portal venous phase (B).

Concomitant diagnoses included an atrial fibrillation treated by oral anticoagulation, Chronic Obstructive Pulmonary Disease (COPD) and type II diabetes. Subsequently, open resection of liver segment IVb along with cholecystectomy and direct closure of an umbilical hernia was successfully performed. There were no postoperative complications, and the patient was discharged on the fifth postoperative day. Histopathological examination of the fully

excised nodule showed a well demarcated, round, subcapsular lesion with a diameter of 1.5 cm (Figure 2A). Cut surface was slightly lighter in color than the surrounding liver tissue and showed a central scar. Histology of the lesion revealed bland hepatocytes with steatosis and mixed inflammatory infiltrate. Hepatocytes were surrounded by fibrous septa that contained variable degree of bile ductular reaction and small muscular vessels. Portal tracts were absent (Figure 2B and 2C).

Non-tumoral surrounding liver parenchyma showed macrovesicular steatosis in approximately 50% of hepatocytes and slightly florid chronic sclerotic steatohepatitis, well compatible with ASH. Portal fields revealed severe fibrosis, but no cirrhosis. Interestingly, in a reticulin staining, the lesion showed hepatocyte plates of 1 - 2 cells thickness which argued against the diagnosis of a HCC but rather indicated a Focal Nodular Hyperplasia (FNH) with steatohepatitis (Figure 2D). Therefore, additional immunohistochemical staining for glutamine synthetase was performed, which showed a map-like staining pattern, typical for a FNH (Figure 2E). Additionally, in an immunohistochemistry for CK7, a prominent ductular reaction was recognized (Figure 2F). In conclusion, the diagnosis of a FNH was made, and no further treatment or therapy was indicated.

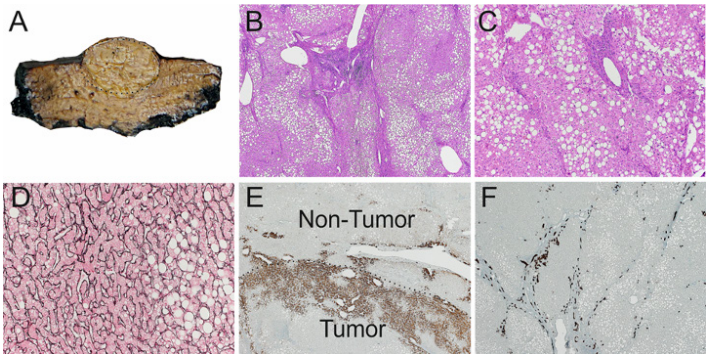

Figure 2: Images of FNH. **(A)** Macroscopy revealing a pale, non-encapsulated mass with a diameter of 15 mm, which is sharply demarcated (dotted line) from the non-tumoral tissue. **(B)** Microscopy showing thick fibrous bands, central scarring and severe steatosis on H&E staining. **(C)** Thick walled vessel within the lesion. **(D)** Retained reticular framework in reticulin staining. **(E)** Immunohistochemistry for Glutamine Synthetase (GS) shows positivity within the lesion with map-like pattern. **(F)** Prominent ductular reaction at the septal-parenchymal interface revealed by immunohistochemistry for CK7.

Discussion

The presented constellation of an FNH in a liver with severe fibrosis in a male patient is rare. Nevertheless, FNH has been found to be associated with cirrhosis, likely due to vascular alterations [4, 5]. In this patient with chronic alcohol abuse, and radiologically strong suspicion of HCC, a FNH was found within the resected specimen. Kemal et al. described the steatohepatitis-like changes in FNH and consequently the overlapping pathologic findings with the Steatohepatitic Variant of HCC (SH-HCC) for the first time in 2017 [2]. SH-HCC as a variation of HCC has been known since 2010 [6]. Kemal et al. defined the presence of ballooned hepatocytes and/or Mallory-Denk bodies were defined as characteristics for steatohepatitis-like changes [2]. Highly suggestive for FNH are thick-walled vessels, ductular reaction and/or thick bands of fibrosis [2].

In their study, the FNH patients had at least two of the named characteristics and all showed positive evidence of the typical map-like pattern of glutamine synthetase immunostaining [2]. In our patient, the history of chronic alcohol consumption, the diagnosis of chronic sclerosing steatohepatitis and the CT- detected lesion were highly suspicious for HCC. Therefore, surgical intervention with anatomical liver resection was indicated. Retrospectively, magnetic resonance imaging, contrast-enhanced ultrasound and microflow imaging or spectral computed tomography could have provided evidence to distinguish between FNH and HCC and spare this patient extended liver surgery [7-10].

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