



A Case of Fibrolamellar Hepatocellular Carcinoma Presented with Elevated Serum Vitamin B12 Levels

Ahmet Cumhuri Dülger¹, Murat Atmaca¹, Enver Aytemiz², Ebru Altındal³, Hüseyin Akdeniz⁴

Yuzuncuyil University School of Medicine,
Departments of Gastroenterology¹, Endocrinology², Pathology³ and Radiology⁴,
Van, Turkey

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ABSTRACT

Fibrolamellar carcinoma of the liver is a variant of hepatocellular carcinoma. It is relatively common in young people and has equal gender distribution. The disease presents as abdominal pain, weight loss and malaise. In several reports of fibrolamellar liver tumors, high cobalamin level has been demonstrated in the human's serum. Therefore, serum cobalamin has been found as a good tumour marker for fibrolamellar hepatocellular carcinoma. Elevated production or decreased elimination of haptocorrin may play an important role for this phenomenon. For early fibrolamellar carcinoma, surgical resection, when feasible, is the gold standart for the treatment. In advanced stage of the disease; single-modality treatments (recombinant interferon a-2b or sorafenib) can be tried. Herein, we report a case of metastatic fibrolamellar hepatocellular carcinoma that was presented with high vitamin B12 levels and continued subcutaneous recombinant interferon a-2b thrice-weekly.

Key words: *Fibrolamellar hepatocellular carcinoma, vitamin B12*

Yüksek Vitamin B12 Düzeyleri İle Ortaya Çıkan Bir Fibrolamellar Hepatosellüler Karsinom Olgusu

ÖZET

Karaciğer fibrolamellar karsinomu hepatosellüler karsinomun bir varyantıdır. Tümör genç insanlarda nisbi olarak daha sık görülür ve cinsiyet baskınlığı yoktur. Hastalık karın ağrısı, kilo kaybı ve yorgunluk ile ortaya çıkar. İnsan serumunda yüksek kobalamin düzeylerinin saptandığı fibrolamellar karsinom olguları yayınlanmıştır. Bundan dolayı yüksek serum kobalamin düzeyleri iyi bir tümör markırı olarak kullanılabilir. Haptocorrin düzeylerinin değişikliği bu fenomende önemli bir rol oynar. Erken evre tümörde cerrahi rezeksiyon uygun bir seçenektir, tek ajanlı kemoterapi rejimleri de kullanılabilir. Bizler; yüksek vitamin B12 düzeyleri ile ortaya çıkan ve haftada üç kez subkutan rekombinan interferon a-2b verilen bir hastayı sunuyoruz.

Anahtar kelimeler: *Fibrolamellar hepatosellüler karsinom*

Correspondence: Dr. Ahmet C Dülger
Yuzuncuyil University School of Medicine,
Departments of Gastroenterology
E-mail: acdulger@gmail.com

INTRODUCTION

Fibrolamellar hepatocellular carcinoma (FLHCC) is a rare form of hepatocellular carcinoma (HCC). It was first reported by Edmondson(1), but the work of Craig and others during the 1980's showed that the disease was associated with many different clinical and pathologic features. FLHCCs are usually well circumscribed masses characterized by well differentiated large hepatic cells with eosinophilic hyaline or pale bodies and intranuclear cytoplasmic pseudoinclusions. It mostly arises in a noncirrhotic liver (2). Several overexpressed genes involved in the RAS, MAPK, PIK3, and xenobiotic degradation pathways have been found in patients with FLHCC and they may play a role in the pathogenesis of disease (3). Serum vitamin B12 (cobalamin) is measured by enzyme-linked immunoadsorbent (ELISA) assay. Normal serum levels range 145-860 pmol/L. Cobalamin is synthesized by liver and hepatic disorders may affect in plasma cobalamine levels. Its production is tightly regulated by the transport factors transcobalamin II (TC II) and haptocorrin (HC). Diminished clearance of HC by the liver may play a role in this phenomenon (4). Elevated plasma level of vitamin B12 and an unsaturated vitamin B12-binding capacity has been reported to be associated with FLHCC (5). In this report, the first case of FLHCC presented with elevated vitamin B12 levels is clarified. The clinical, radiologic and pathologic features of FLHCC are also discussed.

CASE

A 30-year-old woman was admitted to the hospital because of abdominal pain and malaise. The temperature was 37.2°C, the pulse was 78, and the respirations were 18. The blood pressure was 120/80 mm Hg. On examination, there was hepatomegaly with non-specific right upper abdominal pain. No splenomegaly was detected. Remainder of the examinations were normal. Hematocrit was 38%, white-cell count (per mm³) was 7,600 and platelet count (per mm³) was 280,000. Prothrombin time and partial-thromboplastin time were also in normal limits. Plasma level of vitamin B12 was 1560 pg/ml (normal range, 150-900). Hepatitis B surface antigen and hepatitis C and D virus antibodies were negative and serum alpha-fetoprotein (AFP) was normal. ALT and AST levels were slightly elevated. An ultrasonography of abdomen revealed diffuse enlargement of the liver and a mass, 20 by 12 by 12 cm, in the right lobe. T2-weighted magnetic resonance images

of abdomen, showed a large hepatic mass with portal vein thrombosis (Figure 1). A thorax CT scan revealed solitary nodules in the left lung, measuring between 10 and 30 mm in diameter. A liver biopsy performed and the pathologic examination revealed cords of polygonal cells in a collagenous stroma with granular eosinophilic bodies. Immunohistochemically they were positive for cytokeratin-7 (Figure 2). The tumor was solely diagnosed as a typical FLHCC. A dose of 200 mg/m² FU continuously over 21 days and subcutaneous recombinant interferon alpha-2b three times weekly initiated as a first line treatment.

DISCUSSION

Unlike HCC, FLHCC occurs in equal numbers of males and females (6). FLHCC is known to be relatively common in Western countries but very rare in Asian countries such as Japan (7). The prevalence and characteristics of FLHCC in Turkish population is almost unknown. FLHCC constituted 0.85% of all cases of primary liver cancer and the mean age of diagnosis is usually below 40 years (4). Unlike HCC, it is characterized by an indolent course but FLHCCs usually are larger when detected than classical HCCs (8). FLHCC presents on MRI images as a large and lobulated mass that may contain a hypointense central scar. Because of its fibrous nature, the central fibrous scar is hypointense (9). In this case, T2-weighted images showed a large and lobulated mass without a central scar and revealed portal vein thrombosis. Our diagnostic procedure was a liver biopsy. Microscopical examination revealed eosinophilic hepatocytes, fibrous stroma and cytoplasmic pale bodies. Furthermore, immunohistochemically they were positive for cytokeratin-7. A histopathological diagnosis of FLHCC was made.

Approximately 90% patients with FLHCC have normal AFP levels. As a result, the level of AFP is not a good guide to identify patients with FLHCC as was seen in our case. In some patients with liver diseases, elevated levels of serum vitamin B12 have been reported (10,11). The serum level of vitamin B12 has also been reported as a good diagnostic marker in patients with FLHCC (5,7). The gold standard therapy for FLHCCs remains surgical, either hepatic resection or liver transplantation (12). The mean survival rate has been reported as 32 months among patients whose tumors either are not resectable or have metastasized at the time of diagnosis (13). The combi-

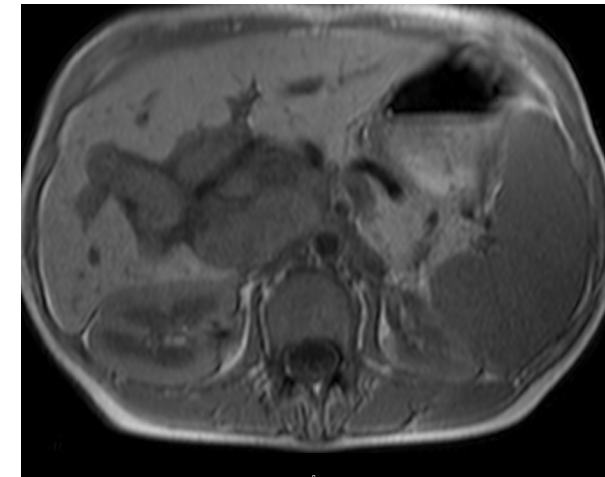


Figure 1. T2-weighted magnetic resonance image showed a large mass with portal vein thrombosis

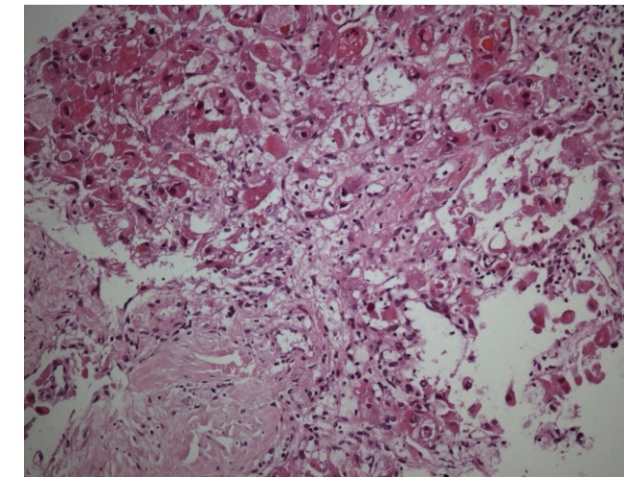


Figure 2. Microscopic appearance of the tumor. They were large polygonal cells with eosinophilic cytoplasm and hyperchromatic nucleus (H-E X 200).

nation of systemic continuous 5-fluorouracil and thrice-weekly subcutaneous recombinant interferon alfa-2b is associated with a significant antitumor response especially in FLHCC patients (14). Our patient was ineligible for surgical resection due to extrahepatic (pulmonary) disease as determined by CT. So, we initiated this new treatment modality. This is the first report of a Turkish case of FLHCC in which increased vitamin B12 level was a suitable biochemical marker and higher vitamin B12 levels might help to support the diagnosis of FLHCC.

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