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Case Report

AFP-Producing Tumor: A Rare Case of Hepatoid Gastric Adenocarcinoma Mimicking Hepatocellular Carcinoma

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Abstract

Alpha-fetoprotein (AFP)-producing hepatoid adenocarcinoma of the stomach (HAS) is a rare subtype of primary gastric cancer, characterized by a distinct morphology and elevated (AFP) levels, with features similar to hepatocellular carcinoma. The diagnosis of HAS is largely depend on the pathological analysis.

The current study reports a rare case of HAS, initial presentation was suspicious for hepatocellular carcinoma. Upon further diagnostic work-up, the patient was diagnosed with HAS with liver metastasis. The distinction between these two entities is particularly important because HAS is more aggressive, and its therapeutic options are very limited.

Keywords

Hepatoid adenocarcinoma, stomach, alpha-fetoprotein, prognosis, mimickers, hepatocellular carcinoma.

Introduction

Alpha-fetoprotein-producing adenocarcinoma, mimicking hepatocellular carcinoma (HCC) histology, was first reported in 1970 **[**1**]**. Hepatoid adenocarcinoma (HAS) is a special type of extrahepatic alpha-fetoprotein producing adenocarcinoma, which has a morphologic similarity to hepatocellular carcinoma. This makes the differential diagnosis challenging, especially when the primary tumor is unknown and the first diagnosis has to be established by liver biopsy **[**2**]**. HAS is prone to early metastasis, specifically to lymph nodes, the liver and lung, and the prognosis is regarded as dismal.

Herein, we report a rare case of HAC of the stomach with liver metastasis which was difficult to differentiate from HCC.

Case Report

A 76-year-old male patient presented to the emergency department with a 1-month history of weight loss, associated with abdominal distention and bilateral lower extremity swelling. At physical examination, the patient was hemodynamically stable (blood pressure of 120/75 mm Hg, heart rate 84 beats/min); cardiac examination revealed regular heart sounds without murmurs; abdomen with tense ascites; presence of bilateral lower limb edema. There was no jugular venous distension, and lungs were clear to auscultation.

He was admitted to our institution for further investigation and management.

Initial laboratory findings showed normal leucocyte count, anemia with mild thrombocytopenia, prothrombin index was 50%. Liver function tests had a high elevation of aspartate aminotransferase, of gamma glutamyl transferase (448U/L), of alkaline phosphatase (396U/L) and elevation of the bilirubin level, indicators of liver failure. The level of serum alpha-fetoprotein was elevated (over 830ng/ml) with negative viral hepatitis serologies.

Abdominal Ultrasound (US) detected a large-volume ascites in the abdomen, a portal vein thrombosis and heterogeneous liver with multiple nodular lesions suggestive of malignancy.

Abdominal computed tomography (CT) showed multiple hepatic tumors sized 3-7 cm in the bilateral lobes of the liver and wall thickening in the stomach. Hepatocellular carcinoma (HCC) was highly suspected and a US-guided liver biopsy was performed for definite diagnosis. Subsequent upper GI endoscopy also revealed a 5-cm protruding fundic mass with a central ulceration.

Gastric biopsy revealed a poorly differenciated hepatoid adenocarcinoma. The Biopsy of liver showed hepatoid differentiation with identifiable structure.

The final diagnosis in this case was hepatoid adenocarcinoma of the stomach with liver metastasis. He was programmed for chemotherapy, but the patient died 2 days after.

Discussion

Hepatoid gastric adenocarcinoma (HAC) is an extrahepatic tumor which has a striking morphologic similarity to hepatocellular carcinoma (HCC), with an incidence of 0.38-0.73% **[**3**]**. They shared clinical features, such as old age, high serum alpha-fetoprotein level, aggressive behavior, and hepatic tumor in absence of risk factors for hepatocellular carcinoma **[**2,4**]**. Its biologic behavior is due to its extensive

hematogenous metastasis to the liver and to its early involvement of lymph nodes **[**2**]**.

The resemblance of HAC to HCC may be problematic in the diagnosis of hepatic tumors. In our study, multiple hepatic tumors were the first tumor manifestation and the patient had elevated AFP.

The diagnosis of HAC depends on recognition of the characteristic histological features **[**5**]**. The histological finding reveals glandular adenocarcinoma with hepatoid foci. When histology is not typical of HCC and HAC is suspected, a meticulous diagnostic work-up is warranted to locate the origin of this presumably metastatic disease. A pan-endoscopy of the GI tract including stomach, esophagus and colon should be performed, and appropriate liver imaging including dynamic CT scan or magnetic resonance imaging must be applied. The typical pattern of HCC on dynamic CT scan is contrast uptake in the arterial phase followed by "washout" in the venous phases; this pattern is not seen in metastatic liver lesions from HAC **[**6**]**.

Usually, the disease is treated using similar strategies as those used to treat gastric adenocarcinoma. Radical surgery is considered to be the optimal treatment option and, at the same time, adjuvant chemotherapy and radiotherapy should be performed according to the indications of the gastric cancer **[**5,6**]**.

The prognosis of HAS is regarded as poor and is predominantly related to the stage of the disease. The presence of distant metastases, including synchronous or metachronous liver metastases, is significantly associated with poor survival. Improved survival is observed in patients surgically treated for a cure **[**8**]**.

Conclusion

Hepatoid adenocarcinoma of the stomach is an aggressive tumor with liver metastasis being the first clinical manifestation of the neoplasm. HAC of the stomach with liver metastasis should be considered in older patients with elevated serum AFP and multiple hepatic tumors. An upper GI endoscopy should be performed to exclude the possibility of HAC originating from the stomach. Although rare, this entity deserves wide recognition among pathologists and clinicians to avoid potential misdiagnosis and inappropriate therapy.

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