Sarcomatoid combined hepatocellular carcinoma and cholangiocarcinoma of liver with spontaneous intra-tumor bleeding: a case report

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Abstract

Combined hepatocellular carcinoma and cholangiocarcinoma (cHC) is a well-known, uncommon disease. Sarcomatoid changes in this combined tumor are even less common with the clinical features remaining largely unknown. Herein, we report a patient with sarcomatoid cHC and spontaneous intra-tumor hemorrhage that necessitated emergency palliative tumor resection.

Keywords: sarcomatoid, combined, rupture, resection

(Received: September 24, 2017; Accepted September 29, 2017)

Introduction

Combined hepatocellular carcinoma and cholangiocarcinoma (cHC) of liver is an uncommon type of primary hepatic carcinoma, characterized by the simultaneous existence of hepatocellular carcinoma and cholangiocarcinoma in a single tumor mass. This combined cancer might develop through either the two primary carcinomas coming together from different spots or two distinct differentiation processes occurring at the same tissue site, and cHC generally carries a more favorable prognosis than cholangiocarcinoma alone3. Cases of cHC constitute less than 1% of hepatic carcinomas2, with tumors divided into the classical type and types with stem cell features. Herein, we report a case of cHC with sarcomatoid change, an even rarer form of cHC for which the clinical features remain largely unknown3.

Case presentation

A 75-year-old male patient noticed an enlarged palpable mass in the right upper quadrant of his abdomen one month before his initial hospital visit. He had benign prostate hyperplasia and diabetes mellitus. Blood tests revealed serum levels of alpha-fetoprotein at more than 20 x 10³ ng/ml (normal range: < 10.0 ng/ml), PIVKA-II at 2283 mAU/ml (normal range: < 40.0 mAU/ml), and CA19-9 at 5.4 μg/ml (normal range: < 37.0 μg/ml). No viral hepatitis was detected. Enhanced abdominal computed tomography (CT) detected a tumor of 21 cm in diameter originating from the left lobe of the liver and showing a small area of strong enhancement during the early phase (Figure 1A). The tumor involved the stomach (Figure 1B), and several small nodules suggestive of peritoneal dissemination were identified. On MRI, the tumor was low on T1-weighted imaging and high on T2-weighted imaging.

The patient experienced exacerbated abdominal pain during hospitalization due to difficulties in oral intake. Subsequent blood tests showed decreased hemoglobin levels and abdominal CT revealed enlargement of the primary tumor (Figure 1C). There was no fluid collection outside the tumor, and intra-tumor hemorrhage was diagnosed. After emergency arterial embolization was performed to control the bleeding, the patient underwent left hepatectomy and partial gastrectomy to control further hemorrhage and to alleviate symptoms (Figure 1D).

Pathologically, the tumor was 26 cm at the largest diameter (Figure 2 middle panel), and there was no evidence of hepatitis (Figure 2 upper left). Grossly, the tumor revealed two parts: a smaller mass (9 cm) at the liver side and a larger mass (22 cm) protruding to the left side of the body with gastric invasion. The tumor within the liver was diagnosed as hepatocellular carcinoma based on positive staining for AFP and arginase-1 (Figure 2...
The tumor also showed ductular structures that stained positive for CK7 and CD20 (Figure 2 upper right). Finally, a sarcomatoid component was also observed in a small area at the left side of the tumor, characterized by spindle cells and chondro-formation (Figure 2 lower panel), and staining positive for vimentin, but negative for CD34, α-SMA, S-100, AE1/3, AFP, and arginase-1. The tumor invaded the subserosa of the stomach, and the muscle layer was well preserved (Figure 2 lower middle). Part of the tumor was also positive for c-KIT, but gastrointestinal tumor was considered unlikely because of its origin and the diagnosis of cHC. The tumor was diagnosed as sarcomatoid combined hepatocellular carcinoma and cholangiocarcinoma of liver.

Postoperatively, the small nodules of peritoneal dissemination rapidly grew and intra-hepatic metastasis became evident (Figure 3). Although the patient started oral food intake and further hemorrhage was successfully prevented, the patient’s general status gradually deteriorated. The patient died seven weeks after operation due to carcinomatosis peritonitis.

Discussion

In this case, we preoperatively considered the diagnosis of cHC based on the combined radiological features of hepatocellular carcinoma and cholangiocarcinoma, together with raised levels of both tumor markers; however, the accurate diagnosis of this rare disease remains clinically difficult. In particular, sarcomatoid changes within cHC are rarer still and more reported cases are needed to establish diagnostic radiological features.

In a previous report, Chin et al. presented a case of sarcomatoid cHC and summarized seven other similar cases, including two from autopsy. As also described herein, these authors reported that the tumor size of sarcomatoid cHC is generally large, exceeding 10 cm in diameter in five cases. The relationship with viral hepatitis was similar to that found in cHC, with one case of hepatitis C viral infection and three cases of hepatitis B viral
Figure 2 Pathological examination of the resected specimen
(Upper panel) left, normal parenchyma, middle; component of hepatocellular carcinoma, right; component of cholangiocarcinoma.
(Middle panel) macroscopic observation.
(Lower panel) left, fibroblastic spindle cells, middle; tumor cells and preserved muscle layer of the stomach (arrowhead), right; chondroid formation.

Figure 3
(A) Rapid growth of intra-hepatic tumor is shown (B), and rapid expansion of the peritoneal dissemination is evident (arrowhead).
infections reported. Prognosis seemed to depend on size of the primary tumor and the existence of metastasis, and a 59-year-old male patient with sarcomatoid cHC of 2 cm lived for more than 25 months after tumor resection

Hepatocellular carcinoma with sarcomatoid change tends to grow rapidly. Because the tumor size of the reported sarcomatoid cHC is large despite the known viral infection, we assume that the tumor growth is also rapid. In such cases, spontaneous rupture and/or intra-tumor bleeding is always a risk, and surgical resection to control bleeding may be required even in the presence of unresectable metastasis. Of note however, prognosis remains dismal for tumors with distant metastasis.

In conclusion, sarcomatoid changes in cHC are extremely rare. However, we argue that the poor prognosis of this disease requires further investigation into the etiology, risk factors, prevention, and potential treatment options.

References