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Undifferentiated Spindle and Giant Cell Carcinoma of the Common Bile Duct

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Undifferentiated spindle and giant cell carcinoma of the common bile duct has not been reported previously. We present here a case of 71-year-old man with the undifferentiated spindle and giant cell carcinoma of the common bile duct, including immunohistochemical findings. A nodular infiltrating tumor was located at the lower portion of the extrahepatic bile duct, and measured 1.2 × 0.6 cm in size. Histologically, the tumor was composed of proliferated sarcomatoid spindle tumor cells. Numerous multinucleated giant cells were intermingled with the sarcomatoid spindle tumor cells. Immunohistochemically, the tumor cells were positive for both cytokeratin and vimentin. We speculated that the tumor originated from epithelial cells, and showed sarcomatoid neplastic changes.

Key words: common bile duct, undifferentiated carcinoma, giant cells, immunohistochemistry

CASE REPORT

A 71-year-old was admitted to our hospital with jaundice, right hypochondralgia and high fever. He noticed white stool and brown urine one week prior to admission. Laboratory data were as follows: leukocyte count 8,000/μl (normal, 4,000 to 7,900/μl); erythrocyte $276\times10^4/\mu$l (normal, 400×10^4 to $540\times10^4/\mu$l); serum total bilirubin, 6.7 mg/dl (normal, 0.1 to 1.0 mg/dl); direct bilirubin, 4.2 mg/dl (normal, 0 to 0.2 mg/dl); glutamic oxalacetic transaminase (AST), 480 IU/l (normal, 11 to 29 IU/l); glutamic pyruvic transaminase (ALT), 298 IU/l (normal, 9 to 37 IU/l); carcinoembryonic antigen (CEA) 3.2 ng/ml (normal, <5.0 ng/ml). Ultrasonography showed dilation of the intrahepatic bile ducts, but no apparent tumor was observed in the biliary tract. Computed tomography (CT) revealed a non-enhancing obstructed segment at the extrahepatic bile duct. A percutaneous transhepatic cholangeal drainage (PTCD) tube was inserted to decrease the hyperbilirubinemia and for treatment of presumptive cholangitis. Angiography showed only minimal encasement at the posterior superior pancreaticoduodenal artery. These diagnostic imaging examinations could not reach a definite diagnosis of malignancy resulting in the obstructive jaundice. Biopsy specimens were taken from the PTCD catheter route, and showed proliferation of atypical polygonal cells with hyperchromaic nuclei. The biopsy findings highly suggested common bile duct cancer. Under the preoperative diagnosis of common bile duct cancer, pancreaticoduodenectomy (PD) was performed on 18th hospital day. The resected tumor, nodular infiltrating type, was located to the lower extrahepatic bile duct, and measured 1.2×0.6 cm in size (Fig. 1). No distant metastasis was observed at the operation. Histologically, the tumor was composed

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Fig. 1 Gross findings. A nodular infiltrating tumor (arrows) was seen in the lower portion of extrahepatic bile duct, and showed bile duct stenosis.

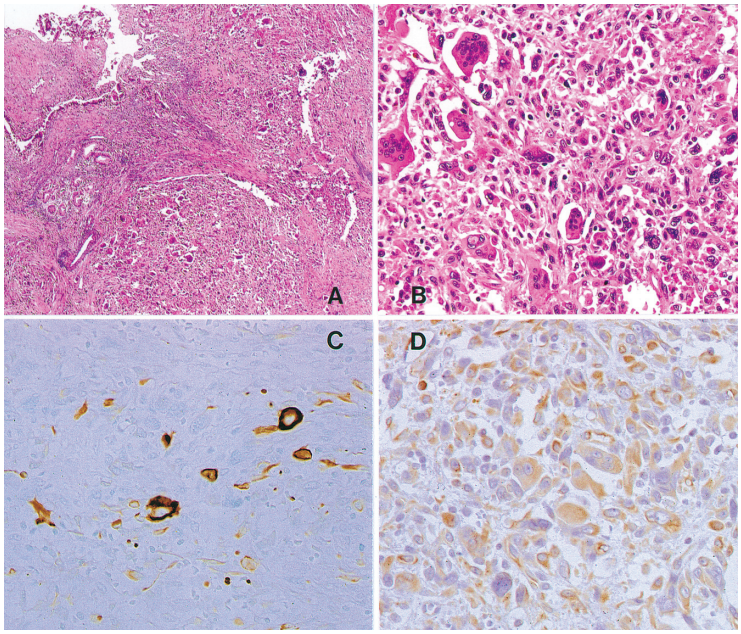

Fig. 2 Microscopic findings. The nodular infiltrating tumor extended down into the subserosa (A; left, top; hematoxylin and eosin, original magnification × 10). The tumor was composed of proliferated undifferentiated tumor cells with hyperchromatic nuclei. Numerous multinucleated giant tumor cells were intermingled with the undifferentiated tumor cells (B; right, top; hematoxylin and eosin, original magnification×50). Immunohistochemically, some tumor cells were positive for cytokeratin (WSS) (C; left, bottom; indirect method, original magnification × 75), while the tumor cells were diffusely positive for vimentin (D; right, bottom; indirect method, original magnification × 75).

of proliferated sarcomatoid tumor cells with hyperchromatic nuclei, i.e., undifferentiated tumor cells (Figs. 2A and 2B). Numerous multinucleated giant tumor cells resembling osteoclasts were intermingled with the sarcomatoid tumor cells. The tumor extended down into the subserosa, but showed neither vascular/perineural invasion nor lymph nodal metastasis. Immunohistochemically, the sarcomatoid tumor cells were diffusely positive for vimentin, while some tumor cells were also positive for cytokeratin (WSS) (Figs. 2C and 2D). Diffuse immunoreactivity of p53 oncoprotein was detected in the tumor cell nuclei. CEA, CA19-9 and epithelial membrane antigen (EMA) were negative. The multinucleated giant cells were positive for CD68. MIB-l (Ki-67) labeling index of the tumor cells was 13.3 %. These findings were interpreted as undifferentiated spindle and giant cell carcinoma. The patient had no postoperative cmplication, and was discharged on 39th day after the operation. He has survived without recurrence for 5 years and 10 months after the surgical treatment.

DISCUSSION

The majority of common bile duct neoplasms are adenocarcinoma, and the other histological types are rather uncommon [1-3]. Cases of undifferentiated spindle and giant cell carcinomas are very rare, and have been reported in the pancreas, gallbladder, lung and thyroid gland [1, 4-13]. There has been only one case report of the undifferentiated spindle and giant cell carcinoma in the hepatic hilum [14]. The tumor we described here is the first case of undifferentiated spindle and giant cell carcinoma of the common bile duct (extrahepatic bile duct).

Several reports have demonstrated that the undifferentiated spindle and giant cell carcinoma have high malignant potentials with frequent metastases [15-18]. In the present case, the tumor was small in size (1.2×0.6 cm), while it extended into the subserosa. The tumor showed neither vascular/perineural invasion nor lymph nodal metastasis, and the patient has survived over 5 years. We considered that the case exhibited a relatively good prognosis, although the majority of the reported cases were highly malignant.

Histogenesis of undifferentiated carcinoma, including undifferentiated spindle and giant cell carcinoma, has not yet clarified [19-21]. We demonstrated that some of the tumor cells were immunohistochemically positive for both cytokeratin and vimentin. Based on the findings and review of the literature [22, 23], we speculated that this tumor originated from epithelial cells and showed sarcomatoid neoplastic changes with multinucleated giant cells.

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