Complete remission by transarterial infusion with cisplatin for recurrent bile duct tumor thrombus of hepatocellular carcinoma: report of a case

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Abstract
Bile duct tumor thrombus (BDTT) of a hepatocellular carcinoma (HCC) is a rare entity which was found microscopically in 1 to 9.2% of the resected specimen of this male patient. An icteric hepatoma was found obstructing the common bile duct (CBD). The prognosis for BDTT with palliative treatment was poor, about 3 to 13 months, and with no treatment was three months or less [1,2]. However, there was a chance for long time survival if the BDTT was surgically removed with the primary lesion [3,4]. The available treatment options for palliative treatment are transarterial chemoembolization, radiation and a combination of these modalities. But the treatment effects are limited because the tumor is usually widespread in the liver.

We experienced a case in which recurrent BDTT was put into complete remission by transarterial chemotherapy (TAC) with cisplatin. TAC with cisplatin may be one of the additional options following a palliative operation.

Case report
A 55-year-old man was admitted to our department for treatment of a 65 mm HCC in segment VI of the liver. An HCC involving the portal vein and bile duct tumor thrombus were found on abdominal computed tomography (CT) (Figure 1A). The patient had severe liver cirrhosis due to a hepatitis B viral infection. The laboratory results showed that liver enzyme and serum alpha-fetoprotein (2.2 ng/mL) were within the normal ranges whereas des-gamma-carboxy prothrombin (DCP) (410 ng/mL) was increased.

Keywords: Bile duct tumor thrombus, Hepatocellular carcinoma, Trans-arterial chemotherapy
During the operation, the intraoperative cholangiography confirmed that the posterior bile duct was branched from the left bile duct and the BDTT extended to the CBD via the left bile duct (Figure 1B). The remnant liver was less than 30% of the whole liver volume when the left lobe was resected along with the posterior segment. Therefore, the patient underwent extended resection of the posterior segment with cholecdothyotomy to remove the BDTT in the left lobe. A massive infiltration of BDTT was found in the resected specimen.

Three months later, the patient was found to have obstacle jaundice due to recurrent BDTT. The serum bilirubin (6.63 mg/dL) and DCP (178 ng/mL) were increased in the laboratory data. Well enhanced BDTT in the arterial phase was confirmed with angiography (Figure 1C). Therefore, we planned trans-arterial chemotherapy followed by endoscopic retrograde bile duct drainage (Flexima, Boston Scientifics, Boston, MA, USA). A total of 70 mg/body of cisplatin powder (IA Call, Kaken, Tokyo, Japan) was infused through the common hepatic artery. After a total of four treatments with TAC with cisplatin, the BDTT was not observed on magnetic resonance cholangiopancreatography (Figure 1D) and the tumor markers were decreased to within normal range. TAC was discontinued but the patient remains in good condition without any new recurrence five years after the liver resection.

**Discussion**

The median survival time in patients with BDTT is more than two to three years when the primary lesion with BDTT is completely resected [1-4]. In contrast, the median survival following the palliative operation is less than six months and with the biliary drainage alone is three months [5,6]. Thus, it is necessary to resect the primary lesion. However, most cases of BDTT are not good candidates for surgery because the primary lesion is advanced or BDTT is widely spread in the liver. Most cases present with liver insufficiency and contraindication for targeted therapy such as Sorafenib. While there are some treatment options for portal venous tumor thrombus caused by HCC, radiation and transarterial chemoembolization therapy enable the survival time to be extended in some studies [7,8].
TAC is an effective option for palliative treatment and median survival time was 13.4 months (range 8 to 26 months) [5,6]. The use of TAC with cisplatin in unresectable or recurrent HCC has been demonstrated recently [9–11]. This treatment regimen might be the best additional treatment for BDTT because the thrombus is fed by arterial blood [5–8]. Moreover, TAC enables to perform when the remnant liver is small or when patients have poor liver function. For our patient, we performed a total of four treatments of TAC with cisplatin and the BDTT subsided and tumor markers were decreased to normal. Due to the design of the study case series, we could not advocate TAC as a first treatment option in all BDTT cases.

The proposed treatment for BDTT is complete resection of the primary lesion with BDTT. However, our case suggested that TAC with cisplatin may have the potential to be an effective treatment option for BDTT in a palliative case.

Conclusions
This case report suggested that transarterial chemotherapy with cisplatin may have the potential to be an effective treatment option for BDTT.

Consent
Written informed consent was obtained from the patient for publication of this report and any accompanying images.

Abbreviations
BDTT: Bile duct tumor thrombus; CBD: Common bile duct; CT: Computed tomography; DCP: Des-gamma-carboxy prothrombin; ERBD: Endoscopic retrograde bile duct drainage; HCC: Hepatocellular carcinoma; IHBD: Intrahepatic bile duct; TAC: Trans-arterial chemotherapy.

Competing interest
The authors declare that they have no competing interests.

Authors’ contributions
CE drafted the manuscript, MM and YM performed TAC. TF and SY revised manuscript. TT designed this report. All authors read and approved the final manuscript.

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References
1. Peng BG, Liang LJ, Li SQ, Zhou F, Hua YP, Luo SM: Surgical treatment of hepatocellular carcinoma with bile duct tumor thrombosis. World J Gastroenterol 2005, 11:3866–3869.
2. Qin LX, Tang ZY: Hepatocellular carcinoma with obstructive jaundice: diagnosis, treatment and prognosis. World J Gastroenterol 2003, 9:385–391.
3. Huang JF, Wang LY, Lin ZY, Chen SC, Hsieh MY, Chuang WL, Yu MY, Lu SN, Wang JH, Yeung KW, Chang WJ: Incidence and clinical outcome of icteric type hepatocellular carcinoma. J Gastroenterol Hepatol 2002, 17:190–195.
4. Lau WY, Leung KL, Leung TW, Ho S, Chan M, Liew CK, Leung N, Johnson P, Li AK: Obstructive jaundice secondary to hepatocellular carcinoma. Surg Oncol 1995, 4:303–308.
5. Shiomi M, Kamiya J, Nagino M, Uesaka K, Sano T, Hayakawa N, Kanai M, Yamamoto H, Nimura Y: Hepatocellular carcinoma with biliary tumor thrombus: aggressive operative approach after appropriate preoperative management. Surgery 2001, 129:692–698.
6. Yeh CN, Jan YY, Lee WC, Chen MF: Hepatic resection for hepatocellular carcinoma with obstructive jaundice due to biliary tumour thrombi. World J Surg 2004, 28:471–475.
7. Kim DY, Park W, Lim DH, Lee JH, Yoo BC, Paik SW, Kho KC, Kim TH, Ahn YC, Huh SJ: Three-dimensional conformal radiotherapy for portal vein thrombosis of hepatocellular carcinoma. Cancer 2005, 103:2419–2426.
8. Lee HS, Kim JS, Choi JI, Chung JY, Park JH, Kim CY: The safety and efficacy of transcatheter arterial chemoembolization in the treatment of patients with hepatocellular carcinoma and main portal vein obstruction. A prospective controlled study. Cancer 1997, 79:2087–2094.
9. Yodono H, Matsuoka K, Shinohara A: A retrospective comparative study of epirubicin-lipiodol emulsion and cisplatin-lipiodol suspension for use with transcatheter arterial chemoembolization for treatment of hepatocellular carcinoma. Anticancer Drugs 2011, 22:277–282.
10. Iwasa S, Ikeda M, Okusaka T, Ueno H, Morizane C, Nakachi K, Mitsuura S, Kondo S, Hagihara A, Shimizu S, Satake M, Arai Y: Transcatheter arterial infusion chemotherapy with a fine-powder formulation of cisplatin for advanced hepatocellular carcinoma refractory to transcatheter arterial chemoembolization. Jpn J Clin Oncol 2011, 41:770–775.
11. Kurokawa T, Yarnazaki S, Moriguchi M, Aoki M, Watanabe Y, Higaki T, Takayama T: Resection of solitary metastatic lymph node metastasis from hepatocellular carcinoma following transarterial chemotherapy with cisplatin: a case report. Anticancer Res 2011, 31:3991–3993.

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