

Direct invasion to the colon by hepatocellular carcinoma: Report of two cases

Tejiro Hirashita, Masayuki Ohta, Kentaro Iwaki, Seiichiro Kai, Kohei Shibata, Atsushi Sasaki,
Kimihiro Nakashima, Seigo Kitano

Tejiro Hirashita, Masayuki Ohta, Kentaro Iwaki, Seiichiro Kai, Kohei Shibata, Seigo Kitano, Department of Surgery I, Oita University Faculty of Medicine, Oita 879-5593, Japan

Atsushi Sasaki, Department of Surgery, Miyazaki National Hospital, Miyazaki 889-1301, Japan

Kimihiro Nakashima, Department of Surgery, Sakai Hospital, Oita 871-0024, Japan

Author contributions: Hirashita T, Kai S, Shibata K, Sasaki A, and Nakashima K were involved in the treatment of these patients; Iwaki K contributed to the pathological examination; Hirashita T, Ohta M, and Kitano S wrote the paper.

Correspondence to: Tejiro Hirashita, MD, Department of Surgery I, Oita University Faculty of Medicine, 1-1 Iidaigaoka, Hasama-machi, Yuhu, Oita 879-5593,

Japan. teij01@ray.ocn.ne.jp

Telephone: +81-97-586-5843 Fax: +81-97-549-6039

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Abstract

Although hepatocellular carcinoma (HCC) is a common tumor, direct invasion of the gastrointestinal tract by HCC is uncommon. Recently, we encountered two cases of HCC with direct invasion to the colon. The first patient was a 79-year-old man who underwent transarterial chemo-embolization (TACE) for HCC 1.5 years prior to admission to our hospital. Computed tomography (CT) showed a 7.5-cm liver tumor directly invading the transverse colon. Partial resection of the liver and transverse colon was performed. The patient survived 6 mo after surgery, but died of recurrent HCC. The second patient was a 69-year-old man who underwent TACE and ablation for HCC 2 years and 7 months prior to being admitted to our hospital for melena and abdominal distension. CT revealed a 6-cm liver tumor with direct invasion to the colon. The patient underwent partial resection of the liver and right hemicolectomy. The patient recovered from the surgery. But, unfortunately, he died of liver failure due to liver cirrhosis one month later. Although the prognosis of HCC that has invaded the colon is generally poor due to the advanced stage of the disease, surgical resection may be a favorable treatment option in patients with a good general condition.

Key words: Hepatocellular carcinoma; Colon; Hepatoma

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INTRODUCTION

Hepatocellular carcinoma (HCC) is one of the most common tumors worldwide^[1]. Direct invasion to the gastrointestinal (GI) tract by HCC is uncommon, with a reported incidence of 0.5%-2% among clinical HCC cases^[2,3]. GI bleeding or stenosis due to HCC invasion is very uncommon. In such cases, the best treatment remains controversial^[4].

Due to improved instruments, techniques, and perioperative management, surgical resection is now safely performed in patients with advanced HCC. Therefore, it is also possible to resect HCC with direct invasion to the GI tract. Here, we present two cases of HCC with direct invasion to the colon that were treated by surgical resection.

CASE REPORT

Case 1

A 79-year-old man with chronic hepatitis C has been followed up since 1983. In August 1998, computed tomography (CT) revealed a 4-cm tumor in the caudate lobe of the liver, which was diagnosed as HCC. The lesion was treated by transarterial chemo-embolization (TACE). In February 2000, the patient suffered from epigastralgia, and was admitted to our hospital. CT revealed that the liver tumor increased to 7.5 cm in diameter and directly invaded the transverse colon (Figure 1). Liver function tests revealed no abnormalities. The serum α -fetoprotein (AFP) level was 331 ng/mL, and the protein induced by vitamin K absence or antagonist 2 (PIVKA-2) level was within normal range.



Figure 1 Computed tomography images showing a 7.5-cm liver tumor (arrows) arising from the caudate lobe in case 1(A), which appears to invade the transverse colon directly (arrows) (B).



Figure 3 Computed tomography images showing a 6-cm liver tumor invades the colon and diaphragm (arrows) in case 2.

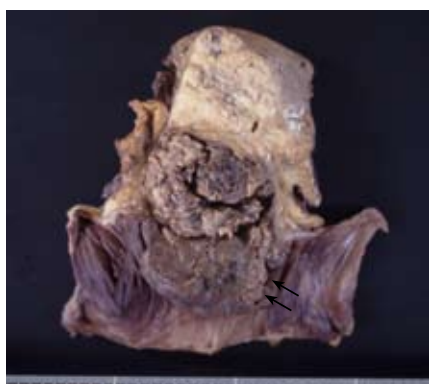


Figure 2 Macroscopic appearance of the surgical specimen in case 1. The liver tumor invades the colon (arrows).



Figure 4 Colonoscopic view showing a hemorrhagic and lobulated tumor with a smooth surface is seen in the ascending colon in case 2.

HCC invading the transverse colon was diagnosed and partial resection of the liver and transverse colon was performed. In the resected specimen, a 96 mm × 58 mm liver tumor invading the transverse colon was found (Figure 2). Histopathologic examination of the specimen also showed poorly-differentiated HCC with direct invasion to the colon. The postoperative course was uneventful, and the patient was discharged on postoperative day 21. He survived symptom free for 6 mo and died of recurrent HCC.

Case 2

A 69-year-old man has been treated since 2000 for liver cirrhosis due to hepatitis C. In July 2004, CT revealed a 4-cm tumor in segment 6 of the liver, which was diagnosed as HCC. The lesion was treated by radiofrequency ablation (RFA) and TACE. In February 2007, the patient suffered from melena and abdominal distension and was admitted to our hospital. CT revealed that the tumor increased to 6 cm in diameter and directly invaded the diaphragm and the hepatic flexure of the colon (Figure 3). The ascending colon was dilated due to stenosis of the colon. Colonoscopic examination revealed a hemorrhagic and lobulated tumor in the hepatic flexure of the colon (Figure 4). Laboratory tests revealed 2.9 g/dL serum albumin, 1.9 mg/dL serum total bilirubin, 52.1% prothrombin activity, and 17.3% indocyanine green retention rate at 15 minutes,

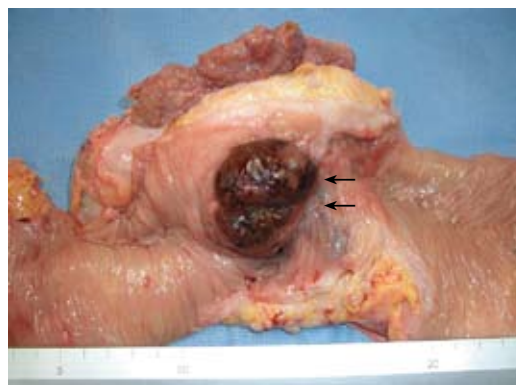


Figure 5 Macroscopic appearance of the surgical specimen in case 2. The liver tumor invades the colon (arrows).

15 ng/mL serum AFP, and 370 AU/mL PIVKA-2. HCC invading the hepatic flexure of the colon was diagnosed, and partial resection of the liver, right hemicolectomy and partial excision of the diaphragm were performed. In the resected specimen, a 65 mm × 47 mm liver tumor, which invaded the hepatic flexure of the colon, was found (Figure 5). Histopathologic examination of the specimen also showed moderately differentiated HCC with direct invasion to the colon and diaphragm. The patient recovered from the operation, and had no evidence of HCC recurrence, but unfortunately, he died of liver failure due to liver cirrhosis 1 mo later.

Table 1 Reported cases with invasion to the colon by HCC

Authors	Age (yr)/Sex	Viral infection	Symptom	Endoscopic shape	Tumor size (mm)	Previous treatment for HCC	Treatment	Prognosis
Hashimoto M ^[8] (1996)	72/F	HCV	Melena	Ulcerated	45	TAE (7 times)	Operation	4 mo alive
Chen CY ^[9] (1997)	71/M	Negative	Bloody stool	Lobulated	200	-	-	6 mo dead
Lin CP ^[2] (2000)	59/M	HCV	Bloody stool	Polypoid	80	TAE (3 times)	-	1.2 mo dead
Lin CP ^[2] (2000)	67/M	HBV	Stool OB (+)	Not observed	150	Operation TAE	-	1.5 mo dead
Lin CP ^[2] (2000)	69/M	HBV	Stool OB (+)	Not observed	200	-	-	1.2 mo dead
Lin CP ^[2] (2000)	63/M	Negative	Bloody stool	Not observed	200	-	-	4.0 mo dead
Strivastava DN ^[10] (2000)	32/M	HBV	Bloody stool	Not observed	n.d.	TAE	TAE	0.7 mo dead
Zech CJ ^[11] (2006)	57/M	HBV HCV	Abdominal pain	Not observed	n.d.	TACE (6 times)	Operation	ND
Our case	79/M	HCV	Epigastralgia	Not observed	75	TACE	Operation	6.0 mo dead
Our case	69/M	HCV	Melena	Lobulated	55	RFA TACE	Operation	1.0 mo dead

HBV: Hepatitis B virus; HCV: Hepatitis C virus; Stool OB (+): Stool positive for occult blood; TAE: Transarterial embolization; TACE: Transarterial chemoembolization; ND: Not described.

DISCUSSION

HCC, one of the most common malignant tumors worldwide, is responsible for more than 250 000 deaths annually^[1]. In some autopsy series, extrahepatic metastasis to the lung, lymphnodes, bone, heart, or adrenal glands has been found in 30%-75% of advanced HCC cases^[5]. HCC with direct invasion to other organs can occur, with the most frequent sites being the diaphragm and gallbladder^[6]. HCC only rarely invades the GI tract, the reported incidence is 0.5%-2% of clinical HCC cases and 4% of autopsy cases^[2,3,7]. GI bleeding or stenosis due to HCC invasion is very uncommon^[8]. The most frequently invaded GI tract sites are the duodenum and stomach^[2] and invasion into the colon is very rare. To date, only eight cases of invasion to the colon by HCC have been reported in the English literature (Table 1)^[2,3,9-11]. Among the 10 patients (including our two cases), the most frequent symptom was bloody stool (8 of 10 patients, 80%). Seven patients (70%) underwent transarterial embolization (TAE) or TACE for HCC prior to development of invasion. Surgical resection or supportive care was almost selected in almost all cases. However, the outcomes were very poor, and the median survival was only 2.5 mo.

GI tract invasion by HCC sometimes occurs after TAE or TACE^[8]. TAE and TACE can induce exophytic growth of the HCC due to an inflammatory reaction and change in the extrahepatic blood supply. As a result, HCC may invade adjacent organs such as the diaphragm, stomach, duodenum, and colon.

TAE or TACE is not an effective treatment for GI invasion by HCC. RFA is difficult to perform in patients with GI tract invasion because of the risk of GI tract perforation. Fujii *et al*^[12] reported that the median survival time of patients with GI tract invasion treated by surgical resection, nonsurgically, or by supportive therapies is 9.7 mo, 3.0 mo and 1.2 mo, respectively. Therefore, surgical resection may be the most effective treatment for GI tract invasion by HCC. In addition, surgical techniques including liver resection and perioperative management have recently improved. Surgical resection is probably the best treatment option for HCC invading the GI tract if the patient's general condition including liver function is good.

In conclusion, although the prognosis of colonic invasion of HCC is generally poor due to the advanced stage of the disease, surgical resection may be a favorable treatment option in patients with a good general condition.

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