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Surgical analysis of 29 cases of hepatocellular carcinoma with bile duct tumor thrombus

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Abstract: **Objective** To investigate the surgical treatment effect of hepatocellular carcinoma (HCC) combined with bile duct tumor thrombus and the impact of Satoh classification on patient prognosis. **Methods** The clinical data of 29 patients with HCC combined with bile duct tumor thrombus who underwent radical surgery (anatomical liver resection/irregular liver resection + bile duct incision and embolectomy) in Affiliated Huai'an No.1 People's Hospital of Nanjing Medical University from January 2010 to October 2016 were retrospectively analyzed. According to Satoh classification, there were 9 cases of type I, 6 cases of type II, and 14 cases of type III. **Results** All 29 patients successfully completed the operation, with perioperative death in 1 case (type III) and loss to follow-up in 1 case (type II). The overall 1-year and 3-year survival rates of patients after surgery were 60.7% and 53.6%, respectively. The 1-year disease-free survival rates of types I, II, and III were 66.7%, 60.0%, and 42.9%, respectively, and the 3-year disease-free survival rates were 55.6%, 40.0%, and 21.4%, respectively. **Conclusion** For patients with HCC combined with bile duct tumor thrombus, active anatomical liver resection/irregular liver resection + bile duct incision and embolectomy can achieve good surgical results; Satoh classification has certain guiding significance for predicting patient prognosis.

Keywords: Hepatocellular Carcinoma; Bile duct tumour thrombus; Hepatectomy; Satoh classification

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The clinical cases of patients with liver cancer complicated with cholangiocarcinoma embolus are relatively rare, and its occurrence rate accounts for 0.7%-2.61% of liver cancer patients [1]. In the past, cholangiocarcinoma embolus was considered as a sign of advanced tumor progression with poor prognosis, and palliative treatment such as jaundice reduction was mostly adopted. However, Satoh *et al.* [2] reported that patients with liver cancer complicated with cholangiocarcinoma embolus could achieve good therapeutic effects through radical surgery, and proposed the Satoh classification based on the location of cancer embolus involving the hepatic ducts. This study retrospectively analyzed the clinical data of 29 patients with liver cancer complicated with cholangiocarcinoma embolus treated in Huai'an First Hospital Affiliated to Nanjing Medical University from January 2010 to October 2016, and explored the surgical treatment effect of liver cancer complicated with cholangiocarcinoma embolus and the impact of Satoh classification on prognosis.

1 Materials and Methods

1.1 Clinical Data

A retrospectively analysis of the clinical data of 29 patients with liver cancer complicated with

cholangiocarcinoma embolus who underwent radical surgery in Huai'an First Hospital Affiliated to Nanjing Medical University from January 2010 to October 2016 was conducted. There were 19 males and 10 females, ranging in age from 41 to 73 years old, with a mean age of 55.4 years old. Details of clinical data were shown in **Tab.1**. Preoperative magnetic resonance cholangiopancreatography (MRCP) diagnosed liver cancer complicated with cholangiocarcinoma embolus in 11 cases (37.9%), CT in 5 cases (17.2%), and B-ultrasound in 4 cases (13.8%). Intraoperative diagnosis of liver cancer complicated with cholangiocarcinoma embolus was made in 9 cases (31.0%). Preoperative clinical manifestations included fever in 6 cases (20.7%), jaundice in 13 cases (44.8%), abdominal discomfort in 15 cases (51.7%), and manifestations of chronic consumptive diseases such as emaciation and anemia in 6 cases (20.7%); 6 cases (20.7%) had no obvious clinical manifestations. According to the Satoh classification (Type I: cancer embolus located in the first-order or higher branch of the bile duct, not reaching the confluence of the right and left hepatic ducts; Type II: cancer embolus involving the confluence of the right and left hepatic ducts; Type III: cancer embolus detached from the primary site and entering the common bile duct), the 29 patients were classified as follows: 9 cases of Type I, 6 cases of Type II, and 14 cases of Type III. All patients underwent radical surgery,

and the surgical methods were anatomical liver resection/irregular liver resection + bile duct incision and embolus removal. Postoperative pathological diagnosis confirmed the presence of liver cancer complicated with cholangiocarcinoma embolus in all patients.

Tab.1 General information of patients with liver cancer combined with bile duct cancer thrombus

Item	Total (n=29)	Satoh I (n=9)	Satoh II (n=6)	Satoh III (n=14)
Male/female(cases)	19/10	6/3	4/2	9/5
Age(years)	55.4±8.1	56.3±9.6	57.0±7.2	54.2±7.1
Basic liver disease(cases)				
HBV	18	6	3	9
HCV	4	2	0	2
Alcoholic liver damage	2	0	1	1
Liver function grading (cases)				
Child A	19	9	4	6
Child B	10	0	2	8
Total bilirubin (μmol/L)	74.1±50.9	31.5±19.4	71.2±51.8	102.7±44.7
Largest tumor diameter (mm)	67.5±23.3	67.8±19.2	73.0±21.7	64.9±25.8
Number of tumors (cases)				
Single	17	4	3	10
Multiple	12	5	3	4
Surgical methods (cases)				
Left hemihepatectomy	11	6	2	3
Right hemihepatectomy	7	3	1	3
Irregular liver resection	11	0	3	8

Note: a meant the data was in form of $\bar{x} \pm s$.

1.2 Surgical Methods

None of the patients underwent preoperative endoscopic retrograde cholangiopancreatography (ERCP), nasal bile duct drainage, percutaneous transhepatic cholangial drainage (PTCD) or other jaundice-reducing measures. Surgical methods: Patients with type I underwent resection of left/right hemi-liver combined with cholangiocarcinoma embolus, and 4 patients underwent resection of caudate lobe; patients with type II and type III underwent resection of left/right hemi-liver or irregular liver resection, with cholangiocarcinoma embolus removal, biliary tract flushing, and T-tube drainage. T-tube radiography or MRCP examination was performed 1 month later, and the T-tube was removed after no abnormality was found.

1.3 Follow-up

Postoperative complications were recorded during hospitalization. After discharge, patients were reviewed every 3 months for AFP, liver and kidney function, and B-ultrasound, and every 6 months for MRCP or enhanced CT. The tumor recurrence and metastasis, as well as survival time, were recorded.

1.4 Statistical Methods

All data were analyzed using descriptive statistics. Count data were expressed as number of cases (%), and measurement data were expressed as $\bar{x} \pm s$.

2 Results

2.1 Overall and Satoh subtype survival

One patient with Satoh type III died of liver failure 3 days after surgery, with a perioperative mortality rate of 3.4%. One patient with Satoh type II was lost to follow-up 9 months after surgery. The remaining 27 patients were followed up until October 2019. The overall survival rates at 1 and 3 years postoperatively were 60.7% and 53.6%, respectively. The overall disease-free survival rates at 1 and 3 years were 53.6% and 35.7%, respectively. The disease-free survival rates for type I at 1 and 3 years were 6/9 and 5/9, respectively; for type II, they were 3/5 and 2/5 (1 patient lost to follow-up); and for type III, they were 6/14 and 3/14, respectively.

2.2 Postoperative Complications

There was 1 case of reoperation for abdominal hemorrhage, 1 case of biliary fistula, 3 cases of lung infection and pleural effusion (>500 mL), and 3 cases of abdominal effusion.

2.3 Tumor Recurrence During Follow-up

There were 14 cases of intrahepatic recurrence and metastasis (including 3 cases of type I, 3 cases of type II, and 8 cases of type III), 1 case of lung metastasis (type III), and 2 cases of abdominal metastasis (including 1 case of type I and 1 case of type III). Among the 14 patients with intrahepatic recurrence and metastasis, 3 patients received ultrasound-guided microwave ablation treatment (1 patient underwent TACE treatment again for tumor recurrence 6 months after ablation); 4 patients received reoperation; and the remaining 7 patients with intrahepatic recurrence received TACE treatment for more than once. Three patients with extrahepatic metastasis were treated with targeted therapy mainly using sorafenib orally.

2.4 Typical Case

The patient was a 63-year-old male with a history of hepatitis B for more than 20 years and long-term use of entecavir. He was admitted to the hospital due to "discovery of skin and sclera jaundice for 1 week". B-ultrasound showed a hypoechoic lesion in the right lobe of the liver, approximately 3.3 cm × 3.2 cm in size; another hypoechoic flocculent lesion was also observed in the common bile duct, with a size of 1.8 cm × 1.0 cm. Subsequent MRCP examination revealed a space-occupying lesion in the right lobe of the liver, accompanied by dilatation of the common bile duct and granular filling defects in the common bile duct (Fig.1A). Liver function tests showed total bilirubin of 86.7 μmol/L and direct bilirubin of 68 μmol/L.

Preoperative diagnosis: liver cancer with cholangiocarcinoma thrombus, Satoh type III. Surgical treatment was performed, during which the irregular lesion in the right lobe of the liver was resected first, and then the anterior wall of the common bile duct was longitudinally incised for about 1 cm. A large amount of turbid bile flowed out from the common bile duct, and black thrombus-like material was visible (**Fig.1B**). The thrombus was separated from the bile duct wall using a suction device and vascular clamp, and there was no dense connection between the bile duct wall and the thrombus. After removing the thrombus with a vascular clamp, the biliary tract was thoroughly rinsed with sterile injection water. Cholangioscopy revealed no residual foreign bodies in the intrahepatic and extrahepatic bile ducts, and the biliary wall was smooth. A T-tube was placed in the common bile duct for drainage. Postoperative pathological examination showed that the liver tumor was moderately differentiated hepatocellular carcinoma, and the thrombus contained a small amount of hepatocellular carcinoma tissue within the blood clot (**Fig.1C**). One month later, biliary radiography showed no abnormalities, and the T-tube was removed. Eighteen months after surgery, the patient developed recurrent tumor in the left lobe of the liver, approximately 4.0 cm × 3.0 cm. Tumor resection was performed again, and postoperative pathology confirmed hepatocellular carcinoma. The patient has been followed up until now and is currently surviving without tumor recurrence.

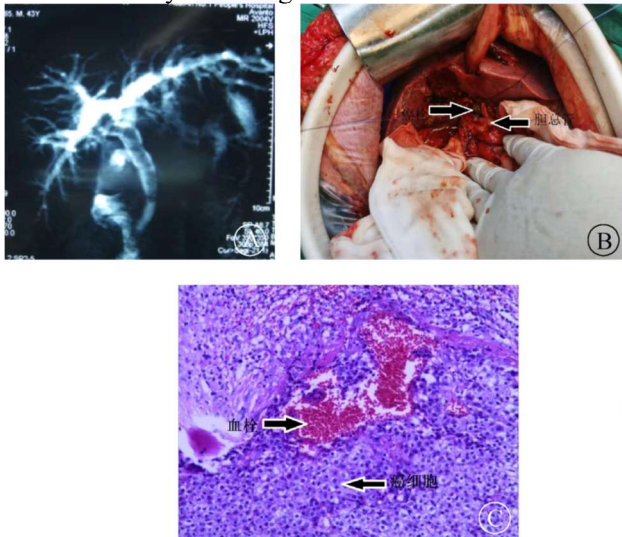


Fig.1 MRCP, intraoperative and pathological findings of a typical case

3 Discussion

It is relatively rare for liver cancer to cause cholangiocarcinoma embolus clinically. It was previously believed that cholangiocarcinoma embolus indicated low differentiation of primary liver tumor and distant metastasis of the tumor [3-4]. Therefore, patients with liver cancer complicated with cholangiocarcinoma

embolus were often treated with palliative treatment mainly for jaundice reduction [5]. With the deepening of research on the biological behavior of liver cancer and the development of precise surgical treatment, surgical strategies such as radical resection of the primary lesion and removal of cholangiocarcinoma embolus can improve the quality of life and prolong the life expectancy of such patients [6].

The formation mechanism of cholangiocarcinoma embolus is relatively complex, which is generally believed to be related to the biological characteristics of tumor cells, the immune function of the body, and anatomical variations of the biliary tract. The mechanism of cholangiocarcinoma embolus may be direct invasion of the bile duct by tumor cells, metastasis of tumor cells to the biliary tract through lymphatic vessels and nerve sheaths, and blockage of the biliary tract by necrotic tumor tissues [7]. We think that the possibility of necrotic tumor tissues falling into the biliary tract is high. Because most patients in this study did not show signs of tumor metastasis such as hepatoduodenal ligament lymphadenectomy, and no tight adhesion was found between the embolus and the bile duct wall during intraoperative separation.

Most patients with Satoh type II and III visit the hospital due to acute cholangitis caused by blockage of the biliary tract by embolus, while the clinical manifestations of patients with type I are mostly similar to liver cancer. For patients suspected of having cholangiocarcinoma embolus, B-ultrasound examination can be preferentially selected. In addition to detecting the primary liver tumor, B-ultrasound can also reveal significant dilation of the bile duct, with "flocculent echo" or "papillary echo" visible within the dilated bile duct. MRCP can clearly show the location, distribution, and morphology of the embolus in the dilated bile duct. The direct signs of embolus displayed by MRCP are columnar or nodular slightly longer T1 and moderate T2 signal shadows within or along the bile duct, with obvious or partial enhancement during the arterial phase after enhancement [8]. ERCP can show the degree of stenosis and the site of obstruction of the bile duct, and sometimes can even detect tumor embolus mixed with bile [9].

Currently, the major controversy about taking active surgical treatment for liver cancer complicated with cholangiocarcinoma thrombus is whether the involved extrahepatic bile duct needs to be resected. Hu *et al.* [10] reported that resection of the ipsilateral hemi-liver combined with caudate lobe resection, extrahepatic bile duct resection, and biliary enteric drainage could achieve a high R0 resection rate and improve the non-recurrence survival time of patients. However, in my opinion, this method is similar to radical resection of hilar cholangiocarcinoma, while liver cancer and hilar cholangiocarcinoma have different biological behaviors. According to relevant

domestic and foreign literatures [11-13], most scholars believe that cholangiocarcinoma thrombus does not invade the bile duct wall, and the resection of the extrahepatic bile duct has little impact on the prognosis of patients and tumor recurrence. Based on my experience, most of the tumor thrombi are not closely connected with the bile duct wall, and the tumor thrombi are easy to remove. If dense adhesion between the tumor thrombus and the bile duct is found during the operation, a bile duct biopsy can be performed. When tumor cells accumulate in the bile duct wall, resection of the extrahepatic bile duct is required. For patients with Satoh type II and III, the bile duct should be longitudinally split from the upper or lower pole of the tumor thrombus, and the tumor thrombus should be separated using techniques similar to "peeling off" with a suction apparatus or vascular clamp [12]. The action should be gentle to avoid damaging the bile duct, crushing the tumor thrombus, or pushing the tumor thrombus into the deep part of the bile duct. When the tumor thrombus is completely separated from the bile duct wall, it can be clamped with a vascular clamp or aspirated with a suction apparatus. During thrombus removal, attention should be paid to aseptic manipulation to reduce intraperitoneal implantation metastasis. After thrombus removal, the biliary tract should be thoroughly irrigated. Intraoperatively, the bile duct can be cut as far as possible towards the hepatic hilum, which is beneficial for irrigating the bile duct of the caudate lobe and avoids recurrence due to residual tumor thrombus. For patients with type I cholangiocarcinoma thrombus located in the first-order branch or above, regular hemi-hepatic resection combined with overall resection of the tumor thrombus is recommended. Some studies have shown that the prognosis of patients with type I Satoh is significantly better than that of patients with type II and III by this method [14]. According to reports, there is no difference in the site of tumor recurrence and subsequent treatment for tumor recurrence between patients with cholangiocarcinoma thrombus undergoing bile duct incision and thrombus removal and patients undergoing resection of the extrahepatic bile duct [15]. For patients with intrahepatic recurrence of the tumor after surgery, reoperation, transarterial chemoembolization (TACE), microwave ablation, and other treatment methods should be actively adopted to improve prognosis. Bile duct incision and thrombus removal preserves the extrahepatic bile duct and avoids biliary enteric anastomosis. Its advantage is that if the tumor recurs, further treatment can be performed using methods such as microwave ablation or TACE. If the extrahepatic bile duct is resected, due to the presence of the biliary enteric anastomosis, ablation or TACE treatment will increase the risk of liver abscess and retrograde biliary infection, which is not conducive to the long-term prognosis of patients [12,16].

In summary, radical surgery can improve the prognosis of patients with liver cancer complicated with cholangiocarcinoma thrombus. The Satoh classification has certain guiding significance for the selection of surgical methods and the prediction of patient prognosis. For patients with Satoh type I, regular hemi-hepatic resection combined with overall resection of the tumor thrombus can be selected. For patients with Satoh type II and III, anatomical liver resection/irregular liver resection + bile duct incision and thrombus removal can be selected.

Conflict of Interest None

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· 论 著 ·

肝细胞癌合并胆管癌栓 29 例手术分析

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摘要: **目的** 探讨肝细胞癌(HCC)合并胆管癌栓的手术治疗效果以及 Satoh 分型对患者预后的影响。**方法** 对 2010 年 1 月至 2016 年 10 月南京医科大学附属淮安第一医院收治的 29 例 HCC 合并胆管癌栓行根治性手术(解剖性肝切除/不规则肝切除+胆管切开取栓术)患者的病例资料进行回顾性分析;根据 Satoh 分型,其中 I 型 9 例, II 型 6 例, III 型 14 例。**结果** 所有 29 例患者手术均顺利完成,围手术期死亡 1 例(III 型),失访 1 例(II 型);患者术后总体 1、3 年生存率为 60.7%、53.6%;I、II、III 型术后 1 年无瘤生存比例分别为 6/9、3/5 和 6/14,术后 3 年无瘤生存比例分别为 5/9、2/5 和 3/14。**结论** 对于 HCC 合并胆管癌栓患者,积极行解剖性肝切除/不规则肝切除+胆管切开取栓治疗可取得良好手术效果。Satoh 分型对患者预后判断具有一定指导意义。

关键词: 肝细胞癌;胆管癌栓;肝切除;胆管切开取栓术;Satoh 分型

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Surgical analysis of 29 cases of hepatocellular carcinoma with bile duct tumor thrombus

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Abstract: Objective To investigate the surgical treatment effect of hepatocellular carcinoma (HCC) combined with bile duct tumor thrombus and the impact of Satoh classification on patient prognosis. **Methods** The clinical data of 29 patients with HCC combined with bile duct tumor thrombus who underwent radical surgery (anatomical liver resection/irregular liver resection + bile duct incision and embolectomy) in the Affiliated Huai'an No.1 People's Hospital of Nanjing Medical University from January 2010 to October 2016 were retrospectively analyzed. According to Satoh classification, there were 9 cases of type I, 6 cases of type II, and 14 cases of type III. **Results** All 29 patients successfully completed the operation, with perioperative death in 1 case (type III) and loss to follow-up in 1 case (type II). The overall 1-year and 3-year survival rates of patients after surgery were 60.7% and 53.6%, respectively. The 1-year disease-free survival rates of types I, II, and III were 6/9, 3/5, and 6/14, respectively, and the 3-year disease-free survival rates were 5/9, 2/5, and 3/14, respectively. **Conclusion** For HCC patients combined with bile duct tumor thrombus, active anatomical liver resection/irregular liver resection + bile duct incision and embolectomy can achieve good surgical results. Satoh classification has certain guiding significance for judging patient prognosis.

Keywords: Hepatocellular carcinoma; Bile duct tumour thrombus; Hepatectomy; Bile duct incision and embolectomy; Satoh classification

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肝细胞癌(hepatocellular carcinoma, HCC)合并胆管癌栓患者临床相对少见,其发生率占 HCC 患者

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的0.7%~2.61%^[1]。以往认为胆管癌栓是肿瘤进展到达晚期的表现,预后差;治疗上大多采取减黄等为主的姑息治疗。但 Satoh 等^[2]报道,对 HCC 合并胆管癌栓患者,可以通过根治性手术获得良好疗效;并根据癌栓累及的肝管部位提出 Satoh 分型。本研究回顾性分析 2010 年 1 月至 2016 年 10 月南京医科大学附属淮安第一医院收治的 29 例 HCC 合并胆管癌栓患者的临床资料,探讨 HCC 合并胆管癌栓的手术治疗效果及 Satoh 分型对预后的影响。

1 资料与方法

1.1 临床资料 回顾性分析南京医科大学附属淮安第一医院自 2010 年 1 月至 2016 年 10 月收治的 29 例 HCC 合并胆管癌栓行根治性手术患者的临床资料。其中男 19 例,女 10 例,年龄 41~73 岁,平均 55.4 岁。具体情况见表 1。术前磁共振胰胆管成像(magnetic resonance cholangiopancreatography, MRCP)诊断 HCC 合并胆管癌栓 11 例(37.9%)、CT 诊断 5 例(17.3%)、B 超诊断 4 例(13.8%);术中诊断 HCC 合并胆管癌栓 9 例(31.0%)。术前临床表现:发热 6 例(20.7%),黄疸 13 例(44.8%),腹部不适 15 例(51.7%),消瘦、贫血等慢性消耗性疾病表现 6 例(20.7%),无明显临床表现 6 例(20.7%)。根据 Satoh 分型(I 型:癌栓位于一级以上分支胆管,未累及左右肝管汇合部;II 型:癌栓累及左右肝管汇合部;III 型:癌栓游离于原发部位进入胆总管),29 例患者分型如下:I 型 9 例,II 型 6 例,III 型 14 例。所有患者均接受根治性手术,手术方式为:解剖性肝切除/不规则肝切除+胆管切开取栓术。术后病理诊断证实所有患者均存在 HCC 合并胆管癌栓。

1.2 手术方法 所有患者术前均未行内镜逆行胰胆管造影术(endoscopic retrograde cholangiopancreatography, ERCP)、鼻胆管引流、经皮肝穿刺胆道引流(percutaneous transhepatic cholangial drainage, PTCD)等减黄措施。手术方式:I 型患者行左/右半肝联合胆管癌栓一并切除,其中有 4 例患者联合尾状叶切除;II 型患者和 III 型患者行左/右半肝切除,或不规则肝切除,同时行胆管切开取出癌栓、胆道冲洗、T 管引流。1 个月后进行 T 管造影或 MRCP 检查,无异常后,拔除 T 管。

1.3 随访 住院期间记录患者术后并发症。患者出院后,每 3 个月复查甲蛋白(alpha-fetoprotein, AFP)、肝肾功能、B 超,每 6 个月复查 MRCP 或增强 CT。记录患者肿瘤复发转移情况以及生存时间。

1.4 统计学方法 所有数据采用描述性统计,计数资料以例(%)表示,计量资料以 $\bar{x}\pm s$ 表示。

表 1 HCC 合并胆管癌栓患者一般资料
Tab. 1 General information of liver cancer patients combined with bile duct cancer thrombus

项目	总体 (n=29)	Satoh I 型 (n=9)	Satoh II 型 (n=6)	Satoh III 型 (n=14)
男/女(例)	19/10	6/3	4/2	9/5
年龄(岁) ^a	55.4±8.1	56.3±9.6	57.0±7.2	54.2±7.1
基础肝脏疾病(例)				
乙型病毒性肝炎	18	6	3	9
丙型病毒性肝炎	4	2	0	2
酒精性肝损害	2	0	1	1
肝功能分级(例)				
Child A 级	19	9	4	6
Child B 级	10	0	2	8
总胆红素($\mu\text{mol/L}$) ^a	74.1±50.9	31.5±19.4	71.2±51.8	102.7±44.7
最大肿瘤直径(mm) ^a	67.5±23.3	67.8±19.2	73.0±21.7	64.9±25.8
肿瘤数量(例)				
单发	17	4	3	10
多发	12	5	3	4
手术方式(例)				
左半肝切除	11	6	2	3
右半肝切除	7	3	1	3
不规则肝切除	11	0	3	8

注:^a表示数据形式为 $\bar{x}\pm s$ 。

2 结果

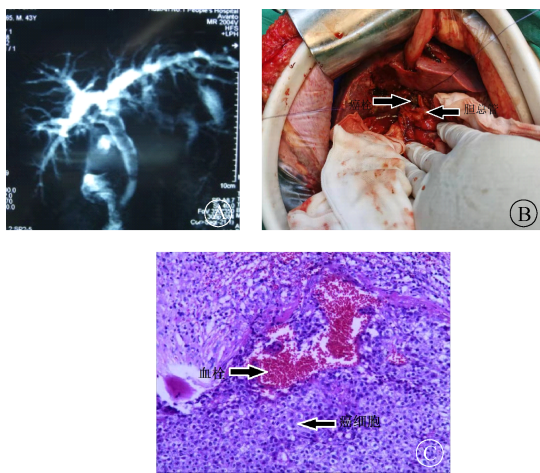
2.1 总体及 Satoh 各分型生存情况 1 例 Satoh III 型患者术后 3 d 因肝功能衰竭死亡,围术期死亡率为 3.4%。1 例 Satoh II 型患者于术后 9 个月失访。其余 27 例均获得随访,随访时间截至 2019 年 10 月。术后 1、3 年患者总体生存率为 60.7%、53.6%。术后 1、3 年总体无瘤生存率为 53.6%、35.7%。I 型术后 1、3 年无瘤生存率 6/9、5/9;II 型术后 1、3 年无瘤生存率为 3/5、2/5(1 例失访);III 型术后 1、3 年无瘤生存率为 6/14、3/14。

2.2 术后并发症发生情况 腹腔活动性出血再手术 1 例,胆瘘 1 例,肺部感染及胸腔积液(>500 mL)3 例,腹腔积液 3 例。

2.3 随访期间肿瘤复发情况 肝内复发转移 14 例(其中 I 型 3 例,II 型 3 例,III 型 8 例),肺部转移 1 例(III 型),腹腔转移 2 例(其中 I 型 1 例,III 型 1 例)。14 例肿瘤肝内复发转移患者中,有 3 例患者接受超声引导下微波消融治疗[1 例患者消融后 6 个月肿瘤复发再行经导管支脉化疗栓塞术(transcatheter arterial chemoembolization, TACE)治疗];4 例患者接受再次手术治疗;另外 7 例肝内复发者接受 1 次以上 TACE 治疗。3 例肝外转移患者,均采用口服索拉非

尼为主的靶向治疗。

2.4 典型病例 患者,男,63岁,既往有乙型病毒性肝炎病史20余年,长期服用恩替卡韦。因“发现皮肤巩膜黄染1周”入院。B超提示肝右叶低回声病灶,大小约3.3 cm×3.2 cm;另见胆总管内1.8 cm×1.0 cm絮状低回声。后行MRCP检查,提示肝右叶占位性病变,伴胆总管扩张,胆总管内可见颗粒状充盈缺损(图1A)。肝功能:总胆红素86.7 μmol/L,直接胆红素68 μmol/L。术前诊断:HCC合并胆管癌栓,Satoh III型。行手术治疗,术中先将肝右叶病变不规则切除,再纵行切开胆总管前壁约1 cm,见胆总管内有大量浑浊胆汁流出,并可见黑色癌栓样物质(图1B)。用吸引器及血管钳钝性分离癌栓与胆管壁,胆管壁与癌栓间无致密连接。血管钳取出癌栓后,用灭菌注射用水彻底冲洗胆道。胆道镜探查肝内外胆管无异物残留,胆道壁光滑,胆总管内放置T管引流。术后病理示:肝肿物为中分化HCC,癌栓为血凝块内伴少量肝细胞癌组织(图1C)。1个月后复查胆道造影无异常,予以拔除T管。术后18个月,患者出现肝左叶肿瘤复发,大小约4.0 cm×3.0 cm。再次行肿瘤切除术,术后病理证实HCC。继续随访至今,现无瘤生存。



注:A为MRCP,示右肝占位,伴胆总管扩张,见颗粒状充盈缺损;B为术中切开胆总管见脓性胆汁及黑色癌栓;C为癌栓术后病理,示血凝块内伴少量肝细胞癌组织(HE染色,×50)。

图1 典型病例MRCP、术中及病理所见

Fig. 1 MRCP, intraoperative and pathological findings of a typical case

3 讨论

HCC引起胆管癌栓临床上相对少见。以往认为胆管癌栓预示着肝脏原发肿瘤低分化以及肿瘤远处转移^[3-4]。因此,既往对HCC合并胆管癌栓患者,多采取以减黄为主的姑息治疗^[5]。随着对HCC生物学

行为研究的深入和外科治疗精准化的发展,原发灶根治性切除连同胆管癌栓取出等手术策略能改善此类患者的生存质量,延长预期寿命^[6]。

胆管癌栓的形成机制相对复杂,一般认为与肿瘤细胞的生物学特性、机体的免疫机能以及胆道解剖变异有关。胆管癌栓发生机制可能为肿瘤细胞直接侵犯胆管,肿瘤细胞通过淋巴管、神经鞘转移至胆道以及肿瘤坏死组织脱落后堵塞胆道^[7]。笔者认为肿瘤坏死组织脱落入胆道的可能性大。因为本研究中大部分患者未见肝门淋巴结肿大等肿瘤转移征象,且术中分离癌栓和胆管壁时,发现两者间无紧密粘连。

Satoh II、III型患者大多因癌栓堵塞胆道引起急性胆管炎而就诊,而I型患者临床表现大多类似于HCC。对于怀疑胆管癌栓患者,可优先选择B超检查。B超除发现肝脏原发肿瘤外,还可见胆管明显扩张,扩张的胆管内可见“絮状回声”或“乳头状回声”。MRCP能清晰显示出癌栓在扩张胆管内的位置、分布和形态。MRCP显示癌栓的直接征象为胆管内或沿胆管走行的柱状、结节状稍长T1、中等T2信号影,增强后动脉期癌栓明显强化或部分强化^[8]。ERCP能显示胆管的狭窄程度和梗阻部位,有时甚至能发现混杂胆汁的癌栓^[9]。

目前,对于HCC合并胆管癌栓采取积极手术治疗的争议在于累及的肝外胆管是否需要切除。Hu等^[10]报道同侧半肝切除联合尾状叶切除并行肝外胆管切除、胆肠内引流手术可以实现较高的R0切除率,改善患者无复发生存时间。但笔者认为该种方式类似于肝门部胆管癌根治术;而HCC和肝门部胆管癌有着不同的生物学行为。根据国内外相关文献,大多数学者认为胆管癌栓并不侵犯胆管壁,肝外胆管切除对患者预后及肿瘤复发的影响不大^[11-13]。根据笔者经验,绝大多数癌栓与胆管壁无紧密连接,癌栓容易取出。术中如发现癌栓与胆管粘连致密时,可行胆管活检。当肿瘤细胞累及胆管壁时,需行肝外胆管切除。对于Satoh II、III型患者,应尽量从癌栓的上极或下极纵行劈开胆管,利用吸引器或血管钳等采用类似“peeling off”的技术方法分离癌栓^[12]。动作应轻柔避免损伤胆管、碾碎癌栓或将癌栓推入胆管深部。待癌栓与胆管壁完全分离时,用血管钳夹取或吸引器吸出癌栓。取栓时要注意无瘤操作,减少腹腔内种植转移风险,取栓后要彻底冲洗胆道。术中可以将胆管尽可能地向肝门处切开,有利于冲洗尾状叶的胆管,以避免因癌栓残留导致的复发。对于癌栓位于一级分支以上胆管的I型患者,建议行规则性半肝联合癌

栓整体切除。有研究表明,对 Satoh 分型 I 型患者采用此方法,预后明显好于 II 型和 III 型患者^[14]。据报道,胆管切开取癌栓患者与肝外胆管切除患者没有肿瘤复发部位及肿瘤复发后续治疗上的差异^[15]。对于术后肿瘤肝内复发患者,应积极采用再手术、TACE、微波消融等治疗方式,改善预后。胆管切开取栓术保留了肝外胆管,避免了胆肠吻合;优点在于:如果肿瘤复发,可采用微波消融或 TACE 等方法进行进一步的治疗。如果切除肝外胆管,因为胆肠吻合口的存在,消融或 TACE 治疗会增加患者肝脓肿的风险,还会发生胆道逆行感染,不利于患者的远期预后^[12,16]。

综上所述,根治性手术可以改善 HCC 合并胆管癌栓患者的预后, Satoh 分型对手术方式选择及对患者预后的预测具有一定指导意义。对于 Satoh I 型患者可选择规则性半肝联合癌栓整体切除, Satoh II 型和 III 型患者可选择解剖性肝切除/不规则肝切除+胆管切开取栓术。

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