

· 论著 ·

腹腔镜肝门部胆管癌根治术的临床疗效

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【摘要】 目的 探讨腹腔镜肝门部胆管癌根治术的临床疗效。**方法** 采用回顾性描述性研究方法。收集 2017 年 1 月至 2019 年 7 月河南省人民医院收治的 25 例肝门部胆管癌患者的临床病理资料;男 16 例,女 9 例;中位年龄为 64 岁,年龄范围为 51~75 岁。25 例患者均行腹腔镜肝门部胆管癌根治术。观察指标:(1)手术情况。(2)术后情况。(3)随访情况。采用门诊和电话方式进行随访,了解患者肿瘤局部复发情况和远处转移情况。随访时间截至 2019 年 12 月。正态分布的计量资料以 $\bar{x} \pm s$ 表示,偏态分布的计量资料以 M (范围)表示。计数资料以绝对数表示。**结果** (1)手术情况:25 例患者中,15 例 Bismuth I 型患者行腹腔镜肝门部胆管切除+区域淋巴结清扫+胆肠吻合术。2 例 Bismuth II 型患者行腹腔镜肝门部胆管切除+围肝门切除+区域淋巴结清扫+胆肠吻合术。2 例 Bismuth III a 型患者行腹腔镜肝门部胆管切除+区域淋巴结清扫+右半肝切除+肝尾状叶切除+胆肠吻合术。3 例 Bismuth III b 型患者行腹腔镜肝门部胆管切除+区域淋巴结清扫+左半肝切除+肝尾状叶切除+胆肠吻合术。3 例 Bismuth IV 型患者行腹腔镜肝门部胆管切除+区域淋巴结清扫+肝尾状叶切除+胆肠吻合术。25 例患者手术时间为 (388 ± 118) min,术中出血量为 200 mL $(50 \sim 2\,000)$ mL,术中输血 6 例。25 例患者中,2 例 Bismuth III a 型患者手术时间,术中出血量分别为 375 min、465 min、200 mL、1 000 mL,术中输血 1 例;3 例 Bismuth III b 型患者手术时间,术中出血量分别为 410 min、465 min、501 min、300 mL、400 mL、450 mL,均未予输血;3 例 Bismuth IV 型患者手术时间,术中出血量分别为 415 min、560 min、600 min、300 mL、600 mL、800 mL,术中输血 1 例。(2)术后情况:25 例患者中,术后发生 I 级并发症 4 例,其中 2 例胆瘘(Bismuth I 型 1 例,Bismuth III a 型 1 例),1 例肺部感染(Bismuth IV 型)和 1 例术后肝功能不全(Bismuth III a 型),经保守治疗均好转。25 例患者术后病理学检查结果:胆管腺癌 23 例,高级上皮瘤变 2 例;神经侵犯 8 例,淋巴结转移 3 例,无脉管癌栓患者。25 例患者住院时间为 24 d $(10 \sim 45)$ d,住院费用为 9.4 万元 $(5.3 \sim 18.7)$ 万元。2 例 Bismuth III a 型患者住院时间,住院费用分别为 36 d、45 d、15.1 万元、18.7 万元;3 例 Bismuth III b 型患者住院时间,住院费用分别为 15 d、26 d、33 d、7.3 万元、11.5 万元、15.9 万元;3 例 Bismuth IV 型患者住院时间,住院费用分别为 24 d、39 d、41 d、12.1 万元、15.2 万元、16.7 万元。(3)随访情况:25 例患者均获得随访,随访时间为 2~36 个月,中位随访时间为 16 个月。25 例患者中,18 例无复发转移。2 例 Bismuth IV 型患者出现腹腔广泛转移,1 例 Bismuth III a 型患者出现 Trocar 孔转移。4 例患者死亡。**结论** 腹腔镜肝门部胆管癌根治术安全、可行,应严格把握手术适应证,根据 Bismuth 分型施行适宜手术。

【关键词】 肝门部胆管肿瘤; 根治; 开腹; Bismuth 分型; 住院费用; 并发症; 腹腔镜检查

基金项目:河南省重点研发与推广专项(科技攻关)项目(192102310119);河南省科技厅科研项目(132102310096);吴阶平医学基金(LDWJPMF-104-2017005);河南省人民医院博士启动基金(ZC20180077)

DOI:10.3760/cma.j.cn115610-20200307-00151

Clinical efficacy of laparoscopic radical resection of hilar cholangiocarcinoma

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【Abstract】 Objective To investigate the clinical efficacy of laparoscopic radical resection of hilar cholangiocarcinoma. **Methods** The retrospective and descriptive study was conducted. The clinicopathological data of 25 patients with hilar cholangiocarcinoma who were admitted to Henan Provincial People's Hospital from January 2017 to July 2019 were collected. There were 16 males and 9 females, aged from 51 to 75 years, with a

median age of 64 years. All the 25 patients underwent laparoscopic radical resection of hilar cholangiocarcinoma. Observation indicators: (1) surgical situations; (2) postoperative situations; (3) follow-up. Follow-up using out-patient examination and telephone interview was performed to detect local recurrence and distant metastasis of patients up to December 2019. Measurement data with normal distribution were represented as $Mean \pm SD$. Measurement data with skewed distribution were described as M (range). Count data were described as absolute numbers. **Results** (1) Surgical situations: of the 25 patients, 15 patients in Bismuth type I underwent laparoscopic radical resection of hilar cholangiocarcinoma+regional lymph node dissection+Roux-en-Y choledochojejunostomy, 2 patients in Bismuth type II underwent laparoscopic radical resection of hilar cholangiocarcinoma+perihilar resection+regional lymph node dissection+Roux-en-Y choledochojejunostomy, 2 patients in Bismuth type III a underwent laparoscopic radical resection of hilar cholangiocarcinoma+regional lymph node dissection+right hemihepatectomy+hepatic caudate lobectomy+Roux-en-Y choledochojejunostomy, 3 patients in Bismuth type III b underwent laparoscopic radical resection of hilar cholangiocarcinoma + regional lymph node dissection + left hemihepatectomy+hepatic caudate lobectomy+Roux-en-Y choledochojejunostomy, 3 patients in Bismuth type IV underwent laparoscopic radical resection of hilar cholangiocarcinoma + regional lymph node dissection + hepatic caudate lobectomy+Roux-en-Y choledochojejunostomy. The operation time was (388 ± 118) minutes, and volume of intraoperative blood loss was 200 mL (range, 50–2 000 mL). Six patients were treated with blood transfusion intraoperatively. The operation time of 2 patients in Bismuth type III a was 375 minutes and 465 minutes, and the volume of intraoperative blood loss was 200 mL and 1 000 mL, respectively; 1 case received blood transfusion. The operation time of 3 patients in Bismuth type III b was 410 minutes, 465 minutes, 501 minutes, and the volume of intraoperative blood loss was 300 mL, 400 mL, 450 mL, respectively; neither had intraoperative blood transfusion. The operation time of 3 patients in Bismuth type IV was 415 minutes, 560 minutes, 600 minutes, and the volume of intraoperative blood loss was 300 mL, 600 mL, 800 mL, respectively; 1 case had intraoperative blood transfusion. (2) Postoperative situations: of the 25 patients, 4 patients had grade I complications, including 2 cases of biliary fistula (1 case in Bismuth type I and 1 case in Bismuth type III a), 1 case of pulmonary infection (Bismuth type IV), and 1 case of postoperative liver insufficiency (Bismuth type III a), all of them were improved after conservative treatment. Results of postoperative pathological examination: bile duct adenocarcinoma and high-grade intraepithelial neoplasia were detected in 23 and 2 patients; there were 8 cases with nerve invasion, 3 cases with lymph node metastasis and no vascular thrombus. The duration of hospital stay and hospitalization expenses were 24 days (range, 10–45 days) and 9.4×10^4 yuan [range, $(5.3 - 18.7) \times 10^4$ yuan] for all the 25 patients; the above indicators were 36 days, 45 days, 15.1×10^4 yuan, 18.7×10^4 yuan for the 2 patients in Bismuth type III a, 15 days, 26 days, 33 days, 7.3×10^4 yuan, 11.5×10^4 yuan, 15.9×10^4 yuan for 3 patients in Bismuth type III b, 24 days, 39 days, 41 days, 12.1×10^4 yuan, 15.2×10^4 yuan, 16.7×10^4 yuan for the 3 patients in Bismuth type IV, respectively. (3) Follow-up: 25 patients were followed up for 2–36 months, with a median follow-up of 16 months. Of the 25 patients, 18 had no recurrence or metastasis, 2 patients in Bismuth type IV had extensive intraperitoneal metastasis, 1 patients in Bismuth type III a had trocar hole metastasis, and 4 patients died. **Conclusions** Laparoscopic radical resection of hilar cholangiocarcinoma is safe and feasible. Surgeries should be selected strictly based on surgical indications and the Bismuth type.

【Key words】 Hilar cholangiocarcinoma; Radical resection; Laparostomy; Bismuth type; Hospitalization expenses; Complications; Laparoscopy

Fund programs: Special Project of Henan Provincial Key Research, Development and Promotion in Science and Technology (192102310119); Scientific Research Project of Henan Provincial Science and Technology Department (132102310096); Wu Jieping Medical Foundation (LDWJPMF-104-2017005); Doctoral Venture Capital Fund of Henan Provincial People's Hospital (ZC20180077)

DOI:10.3760/cma.j.cn115610-20200307-00151

肝门部胆管癌是胆道系统最常见的恶性肿瘤,占胆管癌发病率的 60%~80%,根治性手术治疗是目前唯一可提高该病患者远期生存率的方法^[1-4]。受肝门部胆管癌解剖位置、变异以及生物学特性影响,外科手术治疗极具挑战性^[5-7]。腹腔镜技术最初仅用于评估肝门部胆管癌治疗的分期和评估可切除性^[8]。近年来,随着腹腔镜技术的成熟,手术经

验的积累,以及对肝门部胆管癌认识的提高,临床逐渐开展腹腔镜肝门部胆管癌根治术^[2,9-14]。初始阶段,腹腔镜技术主要用于 Bismuth I 型和 II 型肝门部胆管癌,近年来,逐渐开展至 III 型和 IV 型肝门部胆管癌^[2,9-17]。本研究回顾性分析 2017 年 1 月至 2019 年 7 月我科收治的 25 例肝门部胆管癌患者的临床病理资料,探讨腹腔镜肝门部胆管癌根治术的临床疗效。

1 资料与方法

1.1 一般资料

采用回顾性描述性研究方法。收集 25 例肝门部胆管癌患者的临床病理资料;男 16 例,女 9 例;中位年龄为 64 岁,年龄范围为 51~75 岁。25 例患者 Bismuth 分型:I 型 15 例,II 型 2 例,IIIa 型 2 例,IIIb 型 3 例,IV 型 3 例。本研究符合《赫尔辛基宣言》的要求。患者及家属均签署知情同意书。

1.2 纳入标准和排除标准

纳入标准:(1)术前影像学检查提示行肝门部胆管癌根治术后肝外胆道满足重建要求。(2)剩余肝脏体积>40%。(3)术前肝功能为 Child A 级,无腹腔积液、肝性脑病及其他肝脏基础疾病。

排除标准:(1)发生远处转移无法行根治性切除。(2)门静脉主干广泛浸润或包裹。(3)年龄>75 岁。(4)卡氏评分<60 分。(5)合并严重心肺疾病不能耐受手术。

1.3 治疗方法

25 例患者均行腹腔镜肝门部胆管癌根治术。

1.3.1 术前准备:术前准备参照文献[9,11,13-14,18]。根据患者术前 CT、MRCP 及三维重建成像检查结果进行 Bismuth 分型,评价肿瘤位置、直径及侵犯范围,充分了解血管受侵犯情况和淋巴结转移情况^[19](图 1)。部分患者行 PET-CT 检查,排除远处转移。需行肝脏切除患者,评估肝功能和剩余肝脏体积。控制基础疾病的同时改善肝功能。25 例患者中,11 例患者术前 TBil>150 $\mu\text{mol/L}$ (其中 7 例术前 TBil>200 $\mu\text{mol/L}$);8 例患者术前行 PTCD 治疗。

1.3.2 手术方法:腹腔镜肝门部胆管癌根治术参照参考文献[2,9,11,14-18]。患者全身麻醉,平卧呈“大”字体位。脐部下置入 10 mm Trocar,建立气腹并将气腹压维持在 10~14 mmHg(1 mmHg=0.133 kPa)。Trocar 布孔采用常规 5 孔法,左右锁骨中线平脐上

1.0 cm、左右腋前线分别置入 12 mm、5 mm Trocar,术中根据肝切除位置和范围作相应调整。首先,探查腹腔确认有无转移。游离肝门板,解剖肝十二指肠韧带,骨骼化肝动脉、门静脉,探查肿瘤与入肝血管的关系及肝内胆管受侵犯情况,验证与术前评估情况是否相符,清扫第 8、9、12、13 组淋巴结。距肿瘤约 0.5 cm 左、右肝管处切断,近端胆管行冷冻组织病理学检查,确认切缘阴性,注意保护预留侧肝动脉及门静脉。于十二指肠上缘切断胆总管,远端胆管残端行冷冻组织病理学检查,确保切缘阴性。然后游离肝周韧带及第二、三肝门。应用超声刀及双极电凝,沿预定切除线切除肝叶。确保胆囊与胆管癌变组织一并切除。术中切除标本解剖后,确认肿瘤切除边缘安全距离,并行病理学检查(图 2)。创面彻底止血后,距十二指肠悬韧带 30.0 cm 处离断空肠,将肠襻提至肝门行胆肠吻合。后距胆肠吻合口约 55.0 cm 应用切割闭合器行肠肠吻合。冲洗腹腔,彻底止血,于胆肠吻合口处放置腹腔引流管,逐层关腹。

1.4 观察指标和评价标准

观察指标:(1)手术情况包括手术方式、手术时间、术中出血量、术中输血例数。(2)术后情况:术后并发症、住院时间、住院费用。(3)随访情况:获得随访例数、患者肿瘤复发和转移情况。

评价标准:并发症评估根据 Clavien-Dindo 并发症分级系统^[20]。

1.5 随访

采用门诊和电话方式进行随访,了解患者肿瘤局部复发情况和远处转移情况。随访时间截至 2019 年 12 月。

1.6 统计学分析

应用 SPSS23.0 统计软件进行分析。正态分布的计量资料以 $\bar{x} \pm s$ 表示,偏态分布的计量资料以 M (范围)表示。计数资料以绝对数表示。

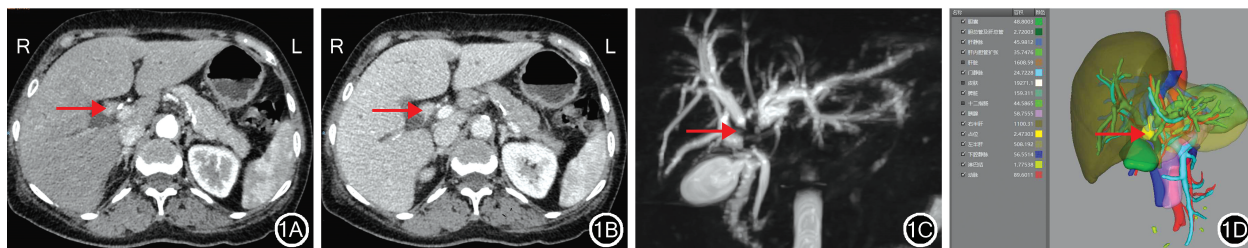


图 1 IIIa 型肝门部胆管癌影像学检查及三维重建结果 1A:CT 检查动脉期示 IIIa 型肝门部胆管癌(→);1B:CT 检查静脉期示 IIIa 型肝门部胆管癌(→);1C:MRI 检查冠状位示 IIIa 型肝门部胆管癌(→);1D:IIIa 型肝门部胆管癌(→)三维重建示意图

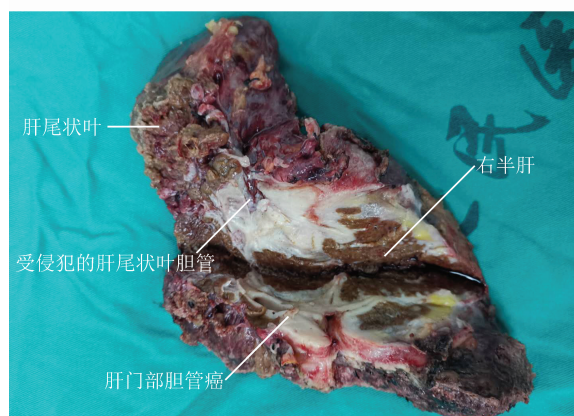


图2 IIIa型肝门部胆管癌术后病理学检查标本

2 结果

2.1 手术情况

25 例患者中,15 例 Bismuth I 型患者行腹腔镜肝门部胆管切除+区域淋巴结清扫+胆肠吻合术。2 例 Bismuth II 型患者行腹腔镜肝门部胆管切除+围肝门切除+区域淋巴结清扫+胆肠吻合术。2 例 Bismuth IIIa 型患者行腹腔镜肝门部胆管切除+区域淋巴结清扫+右半肝切除+肝尾状叶切除+胆肠吻合术。3 例 Bismuth IIIb 型患者行腹腔镜肝门部胆管切除+区域淋巴结清扫+左半肝切除+肝尾状叶切除+胆肠吻合术。3 例 Bismuth IV 型患者行腹腔镜肝门部胆管切除+区域淋巴结清扫+肝尾状叶切除+胆肠吻合术。25 例患者手术时间为 (388 ± 118) min, 术中出血量为 200 mL $(50 \sim 2\,000\text{ mL})$, 术中输血 6 例。25 例患者中,2 例 Bismuth IIIa 型患者手术时间,术中出血量分别为 375 min、465 min、200 mL、1 000 mL, 术中输血 1 例;3 例 Bismuth IIIb 型患者手术时间,术中出血量分别为 410 min、465 min、501 min、300 mL、400 mL、450 mL, 均未予输血;3 例 Bismuth IV 型患者手术时间,术中出血量分别为 415 min、560 min、600 min、300 mL、600 mL、800 mL, 术中输血 1 例。

2.2 术后情况

25 例患者中,术后发生 I 级并发症 4 例,其中 2 例胆瘘(Bismuth I 型 1 例,Bismuth IIIa 型 1 例),1 例肺部感染(Bismuth IV 型)和 1 例术后肝功能不全(Bismuth IIIa 型),经保守治疗均好转。25 例患者术后病理学检查结果:胆管腺癌 23 例,高级上皮瘤变 2 例;神经侵犯 8 例,淋巴结转移 3 例,无脉管癌栓患者。25 例患者住院时间为 24 d $(10 \sim 45\text{ d})$, 住院费用为 9.4 万元 $(5.3 \sim 18.7\text{ 万元})$ 。2 例 Bismuth IIIa 型患者住院时间,住院费用分别为 36 d、45 d, 15.1 万元、18.7 万元;3 例 Bismuth IIIb 型患者住院

时间,住院费用分别为 15 d、26 d、33 d,7.3 万元、11.5 万元、15.9 万元;3 例 Bismuth IV 型患者住院时间,住院费用分别为 24 d、39 d、41 d,12.1 万元、15.2 万元、16.7 万元。

2.3 随访情况

25 例患者均获得随访,随访时间为 2~36 个月,中位随访时间为 16 个月。25 例患者中,18 例无复发转移。2 例 Bismuth IV 型患者出现腹腔广泛转移,1 例 Bismuth IIIa 型患者出现 Trocar 孔转移。4 例患者死亡。

3 讨论

肝门部胆管癌是一种预后较差的恶性肿瘤,非手术治疗效果有限^[1,21]。手术是唯一可延长患者生存时间的治疗措施^[2-3,17,22-23]。胆管周围解剖复杂,变异情况较多,术中需行淋巴结清扫,且常需联合周围脏器切除及术后胆道系统重建,手术难度较大。因此,肝门部胆管癌一直是微创外科攻克的难点^[13]。随着腹腔镜微创技术的进步,国内外腹腔镜肝门部胆管癌治疗的手术方式逐渐被报道^[10,14]。

首先,术前准备是保证围术期安全的重要措施,本研究所有患者术前肝功能为 Child A 级,无腹腔积液、肝性脑病及其他肝脏基础疾病。其中约 1/3 患者经保肝、PTCD 等治疗后,肝功能由 Child B 级改善至 Child A 级^[18,24-25]。部分患者术前经治疗后 $\text{Alb} > 30\text{ g/L}$, Hb 恢复至正常水平。黄疸严重者可并发肝衰竭,对于术前 $\text{TBil} > 200\text{ }\mu\text{mol/L}$ 患者,予以术前减轻黄疸 2~3 周再行手术治疗^[24-26]。引流方式以 PTCD 为主。本研究中, $\text{TBil} > 200\text{ }\mu\text{mol/L}$ 或 $\text{TBil} > 150\text{ }\mu\text{mol/L}$ 且伴有 $\text{AST} > 100\text{ U/L}$ 或 $\text{ALT} > 100\text{ U/L}$ 均行术前减轻黄疸,对于需行半肝切除术患者,术前需 $\text{TBil} < 100\text{ }\mu\text{mol/L}$ 。充分减轻黄疸治疗利于保护肝功能,促进患者术后恢复。术前考虑可能行联合大范围肝切除术患者,剩余肝脏体积应 $> 40\%$ 全肝体积^[27]。

其次, R_0 切除对于肝门部胆管癌预后至关重要^[28-29]。目前普遍观点为扩大性切除,即肿块肝外胆道切除+肝叶切除,肝门部血管骨骼化,广泛切除肝十二指肠韧带上脂肪组织、神经,扩大淋巴结清扫^[2,18,30]。根据肝门部胆管癌及其周围组织、区域淋巴结及神经浸润的特点,术前详细评估腹腔镜可切除性及手术方式选择^[31]。因此,术前常规行上腹部增强 CT 薄层扫描检查,对于 Glisson 系统显示不清者还需行上腹部平扫及强化 MRI 及 MRCP 检查

判断瘤灶累及胆管周围范围,胆管狭窄程度及血管有无侵犯情况。其中三维重建对肿瘤和血管的关系以及淋巴结转移判断更为直观^[28,32-33]。本研究结果显示:Bismuth III a 型患者手术常规切除肝尾状叶。部分患者术前难以判断手术范围,需结合术中探查,包括 I 型切缘难以判断的需行围肝门切除,II 型、III a 型、III b 型多需联合肝切除术(包括肝尾状叶)。为达到根治目的,有文献报道建议行扩大右半肝切除术,甚至联合肝尾状叶切除^[8-9,12-14,16,31]。肿瘤组织 R₀ 切除不仅高度依赖医院病理学检查水平,还对术者在术中胆管残端的切取提出更高要求,尽量保证切缘距肿瘤上缘>10 mm,下缘>5 mm,保证冰冻残余切缘阴性^[31,34]。对于无法在腹腔镜下完成 R₀ 切除患者,果断中转开腹,力求达到 R₀ 根治。

有研究报道:术中出血量、输血及手术时间均是肝门部胆管癌的预后影响因素^[35-36]。本研究结果显示:腹腔镜肝门部胆管癌根治术手术中转率较高,临床实践中 Bismuth III a 型和 Bismuth IV 型腹腔镜手术多中转开腹手术。腹腔镜中转开腹的原因主要是腹腔镜下无法确定能达到 R₀ 切除和不能控制的术中出血。(1)切缘判断困难的原因之一是 PTCO 术后,患者肝门上移,并发局部炎症,局部组织变硬,对术中切缘判断产生干扰。由于肝门部胆管癌易发生淋巴结转移,血管神经易受侵犯,也使 R₀ 切除难以判断,导致腹腔镜手术中转率高。(2)对于不能控制的大出血,及时中转开腹是保证患者安全的关键措施。此外,对于术中发现血管侵犯需重建由于技术难度和水平限制也是中转开腹的原因之一^[18,37]。对于淋巴结清扫,常规清扫第 8、9、12、13 组淋巴结,而第 14 组和 16 组淋巴结非常规清扫。如术前影像学检查提示有第 14、16 组淋巴结转移,则患者已超出手术适应症范围^[10,12,24,38]。笔者建议:肝门部胆管癌根治术通常建议保留胃十二指肠动脉,这样更有利于保护肝脏和消化道功能,减少并发症,但无法清扫第 14 组和 16 组淋巴结。保留胃十二指肠动脉的肝门部胆管癌根治术具有简化手术流程,提高手术安全,容易开展腹腔镜下手术等优点。

腹腔镜技术的学习曲线较长,医师前期学习阶段,患者并发症较多。这可能是患者住院时间长的主要原因。本研究中,2 例患者出现腹腔广泛转移,1 例患者出现 Trocar 孔转移。这可能与腹腔镜手术时间较长,术中情况复杂有关。但此情况在开腹手术中极少见,开腹手术可常规采用湿纱布垫在肿瘤周围,保护周围组织,仅暴露手术视野,并且在完成

肿瘤切除和淋巴结清扫之后常规用加热蒸馏水浸泡 10 min,以上措施可预防肿瘤腹腔转移,其作用已在多种消化道肿瘤手术中被证实^[39-40]。而腹腔镜手术无法应用以上措施,且 Trocar 孔转移考虑烟囱效应,这种现象最早在胆囊癌腹腔镜手术中被报道^[5]。

综上,目前施行腹腔镜肝门部胆管癌根治术仍处于探索阶段,对于手术切缘不能判断,术前影像学检查提示淋巴结转移和解剖复杂的患者,应谨慎选择腹腔镜手术。对于术中发现根治性切除困难和其他不宜行腹腔镜手术的情况,应果断中转开腹手术。本研究结果显示:腹腔镜肝门部胆管癌根治术安全、可行,但应严格把握手术适应证,根据 Bismuth 分型施行适宜手术。

利益冲突 所有作者均声明不存在利益冲突

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(收稿日期: 2020-03-07)

本文引用格式

李德宇,陶连元,潘玉进,等.腹腔镜肝门部胆管癌根治术的临床疗效[J].中华消化外科杂志, 2020, 19(5):519-524. DOI:10.3760/cma.j.cn115610-20200307-00151.

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