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· 专题研究 ·

联合血管切除重建的胰腺癌根治术：附 12 例报告

匡天佐, 袁荣发, 胡昌昌, 张福杨, 朱鸿超, 黄明文

(南昌大学第二附属医院 肝胆外科, 江西 南昌 330006)

摘要

目的: 探讨侵犯血管的胰腺癌根治术中联合血管切除重建的可行性、手术适应证和术中注意事项。

方法: 回顾性分析 2014 年 3 月—2015 年 12 月收治的 12 例行根治手术的胰腺癌并侵犯门静脉 (PV) / 肠系膜上静脉 (SMV) 患者资料, 其中胰十二指肠切除术 10 例, 联合 PV 切除者 3 例、SMV 节段切除者 1 例、PV/SMV 同时切除 6 例, 脾静脉均予结扎未重建, 5 例保留脾脏, 1 例因脾脏淤血严重行联合脾脏切除; 胰体尾部切除术 2 例, 均联合 PV/SMV 切除, 同时行脾脏切除。门静脉阻断时间为 16~30 min; 血管对端吻合 10 例, 人造血管移植 2 例。

结果: 12 例患者术后均恢复顺利, 无围手术期死亡, 无胆瘘、胰瘘、出血、血栓、人工血管感染、肝功能衰竭等并发症发生, 无近期区域性门静脉高压表现。

结论: 在有条件的医院选择合适的病例施行联合血管切除的胰十二指肠切除术或胰体尾切除术是可行的, 可提高切除率, 改善患者生存质量, 并不增加手术死亡率和并发症发生率。但要求术中仔细解剖、细致操作, 且达到肉眼根治性切除, 以提高手术安全性和远期生存率。

关键词

胰腺肿瘤 / 外科学; 胰腺切除术 / 方法; 血管移植术

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Radical pancreatic resection combined with vascular resection and reconstruction: a report of 12 cases

KUANG Tianzuo, YUAN Rongfa, HU Changchang, ZHANG Fuyang, ZHU Hongchao, HUANG Mingwen

(Department of Hepatobiliary Surgery, the Second Affiliated Hospital of Nanchang University, Nanchang 330006, China)

Abstract

Objective: To investigate the feasibility, indications and intraoperative precautions of radical surgery with vascular resection and reconstruction for pancreatic cancer with vascular invasion.

Methods: The clinical data of 12 patients with pancreatic cancer invading the portal vein (PV)/superior mesenteric vein (SMV) undergoing radical surgery from March 2014 to December 2015 were retrospectively analyzed. Ten patients underwent pancreaticoduodenectomy, and of them synchronously, 3 cases had PV resection, one case had SMV resection, and 6 cases had PV plus SMV resection with splenic vein ligation without reconstruction, of whom, 5 cases had spleen preservation and one case had splenectomy due to severe splenic congestion; two patients underwent resection of the body and tail of the pancreas, and both cases had synchronous PV plus SMV resection and splenectomy. Portal vein occlusion time ranged from 16 to 30 min; end to end vascular anastomosis was performed in 10 cases and vascular prosthesis was used in 2 cases.

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作者简介: 匡天佐, 南昌大学第二附属医院住院医师, 主要从事肝胆胰外科方面的研究。

通信作者: 黄明文, Email: 249818183@qq.com

Results: All 12 patients recovered uneventfully, and no perioperative death or complications such as biliary fistula, pancreatic fistula, bleeding, thrombosis, prosthetic graft infection and liver function failure occurred, and no manifestations of regional portal hypertension were found in the short-term after operation.

Conclusion: Pancreaticoduodenectomy or resection of the body and tail of the pancreas in combination with vascular resection is feasible for selected cases in qualified hospital, and can increase the resectability rate, improve patients' quality of life, with no increase in operative mortality and incidence of complications. However, it requires careful intraoperative anatomic dissection and meticulous operation as well as achievement of radical resection visible to the naked eye, for improving the safety of the operation and long-term survival rates.

Key words Pancreatic Neoplasms/surg; Pancreatectomy/methods; Vascular Grafting

CLC number: R735.9

胰腺癌是恶性程度极高的肿瘤,其发病率呈逐年上升趋势,其治疗方式首选手术治疗^[1-3]。但因胰腺癌易侵犯周围神经和门静脉(PV)、肠系膜上静脉(SMV)、肠系膜上动脉(SMA)、肝动脉(HA)等血管,直接限制了胰腺癌的切除率,采用经典手术难以达到根治目的^[4]。随着多年不断的探索改进,联合血管切除重建的胰腺癌根治术在技术层面已不再是难题,并借助先进的影像学检查技术,对胰腺癌的可切除性和手术难度做出更为准确的术前评估,临床上越来越多地开展了联合肠系膜上静脉和门静脉切除重建的胰十二指肠切除术,极大提高了胰头癌的手术切除率,延长了患者的生存时间^[5-6]。在手术中,术者对胰周血管侵犯的正确评估意味着患者将获得一次治愈机会。笔者就胰腺癌根治术联合血管切除

重建的术前、术中评估和操作体会探讨如下。

1 资料与方法

1.1 一般资料

收集本组2014年3月—2015年12月收治的12例侵犯门静脉/肠系膜上静脉的并经术后病理确诊胰腺癌患者的临床资料,其中男9例,女3例;年龄25~63岁,平均58岁。术前B超、CT和MRI检查均发现肿瘤侵犯PV或(和)SMV但未见癌栓,其中1例术前行内镜下经鼻胆管引流术(ENBD)减黄(图1A),1例侵犯肝左外叶且合并胰管多发结石(图1B-D),均无HA、腹腔动脉(CA)和SMA的广泛浸润。

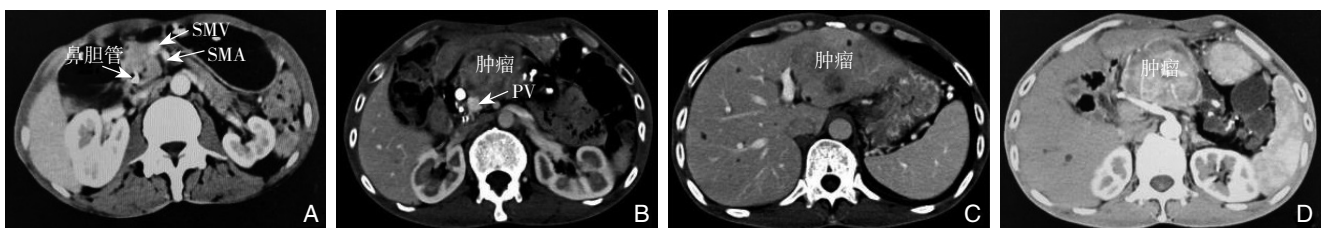


图1 患者影像学资料 A: 胰头肿瘤侵犯SMV,术前行ENBD减黄; B: 胰体尾肿瘤侵犯PV; C、D: 胰体尾肿瘤侵犯肝左外叶

Figure 1 Imaging data of patients A: Patient with carcinoma in the pancreatic head with SMV invasion, undergoing preoperative jaundice reduction by ENBD; B: Patient with carcinoma in the pancreatic tail with PV invasion; C, D: Patient with carcinoma in the body and tail of the pancreas with left lateral hepatic lobe invasion

1.2 方法

1.2.1 术中探查 未见癌肿侵犯各邻近脏器及腹腔和远处转移, Kocher切口游离十二指肠或切开胃结肠韧带进入网膜囊,探查胰头或胰体尾肿瘤,

分离胰颈部背侧与肠系膜血管间隙,见肿瘤侵及PV/SMV的右侧壁和后壁,两者无法分离,受侵犯范围均超出其周径1/3,其中长度不足5cm者10例,长度>5cm以上者2例,PV/SMV未触及癌栓,肿

瘤未侵及腹腔干、肠系膜上动脉、腹主动脉和下腔静脉。

1.2.2 淋巴结清扫 首先肝十二指肠韧带骨骼化,清除其内淋巴结组织,清扫肝总动脉(CHA)、腹腔动脉(CA)周围软组织和淋巴,清除腹主动脉及下腔静脉前软组织及淋巴结。向下游离结肠肝曲,显露十二指肠水平部及胰头,解剖出SMV主干侧下方,再于胰腺下缘游离SMV上段,清除SMV周围的软组织。在胰颈部上缘游离PV及脾静脉(SV)的上缘,距肿块左侧2 cm以上切断胰腺。掀起右侧胰切缘,清除胰后软组织并游离PV/SMV及SV周围软组织,清除SMA周围淋巴神经组织,使其骨骼化,清除腹主动脉及下腔静脉之间的淋巴神经组织。胰头肿瘤行胰头、十二指肠、胃、胆管以及受累血管整体切除,消化道重建按Child法行胰肠、胆肠、胃肠吻合;胰体尾肿瘤中1例侵犯肝左外叶、PV、SMV及脾静脉(SV),切除胰腺体尾部、肝左外叶、脾脏及受累血管,因其合并胰管多发结石,取尽胰头部胰管结石,行胰管空肠吻合,另1例切除胰腺体尾部、脾脏及受累血管。

1.2.3 血管重建 血管重建方式有3种:(1)管壁部分切除。若受侵犯血管长度<血管周长的1/3,则充分暴露该段血管后楔形切除受侵犯血管壁再用Prolene缝线对缺损血管壁修补。(2)节段性切除。若受侵犯血管长度>血管周长的1/3但<5 cm,则于受侵犯血管远近端分别阻断血流,切除受侵犯的血管后行静脉端端吻合。(3)血管置换。若受侵犯血管长度>5 cm,则用自体血管移植或人工血管置换,前者有大隐静脉、股静脉及颈内静脉供选择^[7]。此12例患者均行节段性切除,行血管对端吻合10例,切除长度为2~4 cm;人造血管移植2例,其中1例切除长度为10 cm,另1例为8 cm,均采用内径10 mm的膨体聚四氟乙烯(PTFE)人造血管。吻合方法采用5-0或6-0 Prolene线连续外翻缝合。

2 结 果

2.1 手术结果

手术时间为4~5 h,出血量300~500 mL,门静脉阻断时间为16~30 min。本组患者术后均恢复顺利,无围手术期死亡,无胆瘘、胰瘘、出血、血

栓、人工血管感染、肝功能衰竭等并发症发生,行脾静脉结扎者无近期区域性门静脉高压表现。

2.2 病理检查

除1例为腺鳞癌外其余均为腺癌,切除的血管11例为肿瘤侵犯,1例为炎性粘连。

2.3 随访

术后均随访6个月,患者均存活;复查腹部CT均提示术后改变,无肿瘤复发转移。

3 讨 论

胰腺癌患者从手术中获益程度取决于是否能达到R₀切除,而因胰腺癌的解剖位置及侵袭的生物学特征,胰腺癌很容易侵蚀周围血管及神经组织,使得切缘阳性仍占很大比例,此时,胰腺癌患者的术前评估至关重要,目前,判断胰腺癌侵犯周围血管较有价值的影像学检查主要包括超声、CT、CT血管造影(CTA)、MRI和MRI血管成像(MRA)、超声内镜(EUS)及血管造影等,其中多排螺旋CT及其血管造影、重建是临床外科医师提高对胰腺疾病的诊断水平和对胰腺形态定位的重要方法,通过三维重建显示胰腺肿瘤和胰周血管之间的关系,术前进行可切除性评估以及评估切除范围,是精确施行外科手术,减少手术中意外损伤的有效措施^[8]。多数学者^[9]认为肿瘤与血管接触面积为血管周径的1/2可作为肿瘤是否侵犯血管的分界点。影像学检查可显示HA、SMA及SMV/PV有无被肿瘤包绕,SMA有肿瘤阻塞是胰头肿瘤不能被切除的明显标志,而肿瘤侵蚀SMV/PV仍能被切除而达到切缘阴性^[10],但当CTA或MRA提示门静脉区血管迂曲扩张呈海绵样改变时,往往提示PV/SMV阻塞、闭塞,则提示肿瘤晚期不可切除^[11]。因术前CT/MRI不能完全分辨肿瘤与毗邻血管的关系是肿瘤侵蚀还是炎症粘连,而且网膜上的微小转移灶在影像学不能被发现,此时需术中探查确认,若侵犯血管有癌栓形成或发现有远处转移,则放弃根治性切除。

如果术中仅发现肿瘤包埋SMV/PV血管,但是远、近端可勉强分离,而且管壁僵硬、颜色接近白色,没有出现明显管腔狭窄及闭塞,肿瘤与血管粘连紧密,强行分离易导致大出血的情况下,应果断行联合SMV/PV切除手术^[12]。在上述血管重

建的三种方式中,因肿瘤侵犯血管范围术中往往难以把握,而且术中可通过充分游离肝脏和肠系膜根部^[13],使静脉两断端尽量靠拢,可明显减小吻合口张力,1995年Nakao等^[14]就有切除血管长度8 cm后行端端吻合的报道,同时若行血管置换,则增加了手术时间或人工血管感染并发症,故血管节段性切除最为常用,其又可分为单纯PV或SMV切除和联合PV/SMV切除。关于血管重建,本组采用5-0或6-0 Prolene线连续外翻缝合,缝合过程中注意确保管壁外翻和腔内光整,打结前松开阻断钳,先开放近端,待吻合口充分膨胀,血凝块和空气随血液涌出后开放远端,再缓缓打结,为求尽可能预防血栓形成,可用肝素水冲洗吻合口。脾静脉离断之后有两种处理方法:其一为直接结扎,脾脏回血可通过胃短血管回流,此方法操作简单,但可能引起脾胃区的静脉高压;其二为离断后重建,即将SV与SMV端侧吻合,也可与下腔静脉或左肾静脉端侧吻合,可避免胃回流障碍。本组均予直接结扎,均无区域性门静脉高压表现,可能与随访时间较短有关。因门静脉血流阻断时间过长会增加肠道淤血和毒素吸收,并可增加术后近期区域性门静脉高压并发症,故门静脉一次性阻断最好在60 min内,本组门静脉阻断时间为16~30 min。

胰腺癌的手术适应证应严格把握,其手术适应证应为:(1)患者全身情况许可;(2)无腹膜种植、无肝脏和其他远处转移;(3)无肝动脉、腹腔干和肠系膜上动脉浸润,肿块包绕肠系膜上动脉右侧不超过180°;(4)肿块侵犯门静脉-肠系膜上静脉,血管腔无癌栓;(5)肿瘤和后腹壁未固定,下腔静脉、腹主动脉无浸润,或下腔静脉仅局限性浸润;(6)患者对手术切除要求迫切,并充分理解可能发生各种手术并发症和难以预料的后果;(7)专业组医生技术娴熟,具备血管吻合技术。尽管有文献^[15]报道肿瘤侵犯动脉时也可行扩大根治术,但NCCN中大量研究表明其会增加围手术期的并发症及病死率,故当肿瘤侵犯动脉时不建议行根治性切除。

目前认为胰腺癌侵犯PV/SMV的可能原因是肿瘤所处的特殊位置,靠近钩部大血管的肿瘤容易浸润或挤压PV/SMV,这是肿瘤局部生长蔓延的表现,不一定是癌灶侵袭性行为的标志,不能作为

预后不良的指标^[16-17]。通过阅读多篇对该手术的评价文献^[18-20],笔者认为在有条件的医院选择合适的病例施行联合血管切除的胰腺癌根治术是安全可行的。但要求术中解剖仔细、操作细致,且有良好的团队合作,以提高手术安全性和远期生存率。

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