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· 临床研究 ·

## 腹腔镜胰十二指肠切除术术前PTCD减黄的临床效果观察 (附视频)

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### 摘要

**背景与目的:** 多数研究证明, 行经皮肝穿刺胆管引流术 (PTCD) 减黄可改善黄疸患者术后免疫力和消化功能, 但开放胰十二指肠切除术 (OPD) 中行 PTCD 减黄与否对术后并发症发生率的影响不明显。然而, PTCD 在腹腔镜胰十二指肠切除术 (LPD) 中应用效果目前仍有待研究。因此, 本研究旨在探讨术前 PTCD 在 LPD 患者中应用的有效性和安全性。

**方法:** 回顾性分析陕西省宝鸡市人民医院 2019 年 1 月—2021 年 12 月 42 例行 LPD 患者的临床资料。42 例患者中, 25 例患者在手术前行 PTCD 减黄 (PTCD 组), 其余 17 例 LPD 患者术前未行 PTCD (非 PTCD 组), 比较两组患者基线特征及围术期相关指标。

**结果:** PTCD 组平均退黄时间 ( $6.81 \pm 1.52$ ) d。PTCD 组术中出血量明显少于非 PTCD 组 ( $322.21 \text{ mL vs. } 435.17 \text{ mL}$ ,  $P=0.000$ ), 胆汁漏发生率 ( $0.00 \text{ vs. } 23.53\%$ ,  $P=0.012$ ) 及总体并发症发生率 ( $16.00\% \text{ vs. } 47.06\%$ ,  $P=0.029$ ) 明显降低。PTCD 组与非 PTCD 组的 LPD 手术时间 ( $366.26 \text{ min vs. } 381.21 \text{ min}$ )、首次排气时间 ( $2.36 \text{ d vs. } 2.51 \text{ d}$ )、腹腔引流拔管时间 ( $4.46 \text{ d vs. } 4.25 \text{ d}$ )、总住院时间 ( $15.27 \text{ d vs. } 13.58 \text{ d}$ )、30 d 内再入院率 ( $16.00\% \text{ vs. } 17.65\%$ ) 及其他各类并发症发生率差异均无统计学意义 (均  $P>0.05$ )。

**结论:** 对于拟行 LPD 患者术前常规行 PTCD 减黄, 可减少术中出血量, 降低总体并发症及胆汁漏发生率, 推荐临床使用, 但仍需进一步开展大样本研究深入探讨其适应证及验证其安全性。

### 关键词

胰十二指肠切除术; 腹腔镜; 黄疸; 引流术

中图分类号: R657.5

## Observation of clinical efficacy of PTCD to decrease bilirubin before laparoscopic pancreaticoduodenectomy (with video)

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### Abstract

**Background and Aims:** A number of studies have proved that percutaneous transhepatic cholangial drainage (PTCD) for jaundice reduction can improve the immunity and digestive function of patients

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with jaundice after surgery, but the effect of using PTCD during open pancreaticoduodenectomy (OPD) on the incidence of postoperative complications is not significant. However, the application efficacy of PTCD in laparoscopic pancreaticoduodenectomy (LPD) still needs to be studied. Therefore, this study was performed to investigate the effectiveness and safety of preoperative PTCD in patients undergoing LPD.

**Methods:** The clinical data of 42 patients undergoing LPD in Baoji People's Hospital from January 2019 to December 2021 were retrospectively analyzed. Of the 42 patients, 25 patients underwent PTCD to decrease bilirubin before surgery (PTCD group), and the remaining 17 patients did not undergo preoperative PTCD (non-PTCD group). The baseline characteristics and perioperative variables of the two groups were compared.

**Results:** The mean time of preoperative biliary drainage in PTCD group was (6.81±1.52) d. The intraoperative blood loss was significantly less (322.21 mL vs. 435.17 mL,  $P=0.000$ ), and the incidence rates of bile leakage (0.00 vs. 23.53%,  $P=0.012$ ) and the overall complications (16.00% vs. 47.06%,  $P=0.029$ ) were significantly lower in PTCD group than those in non-PTCD group. There were no significant differences between PTCD group and non-PTCD group in terms of operative time for LPD (366.26 min vs. 381.21 min), time to first postoperative bowel movement (2.36 d vs. 2.51 d), time to drainage tube removal (4.46 d vs. 4.25 d), length of total hospital stay (15.27 d vs. 13.58 d), readmission rate within 30 d (16.00% vs. 17.65%) and incidence rates of other specific complications (all  $P>0.05$ ).

**Conclusion:** Routine performance of preoperative PTCD to decrease bilirubin in patients scheduled to undergo LPD can reduce the amount of intraoperative blood loss, reduce the incidence rates of overall complications and bile leakage, and it is recommended to be used in clinical practice. However, its indications and safety still need to be further investigated and verified by studies with large sample size.

#### Key words

Pancreatoduodenectomy; Laparoscopes; Jaundice; Drainage

CLC number: R657.5

腹腔镜胰十二指肠切除术 (laparoscopic pancreaticoduodenectomy, LPD) 适用于涉及胰头或壶腹周围区域的各种疾病, 是普通外科最具挑战性的手术之一<sup>[1-2]</sup>。尽管外科技术和围手术期管理的进步已显著降低了LPD相关的术后病死率和并发症发生率, 但其并发症发生率仍在32%~52%<sup>[3-4]</sup>。术后梗阻性黄疸可导致胆道感染、肝功能损害甚至肝功能衰竭, 是患者住院时间延长和30 d内再次入院的主要原因<sup>[5]</sup>。虽然有研究<sup>[6]</sup>认为, 开放胰十二指肠切除术 (open pancreatico-duodenectomy, OPD) 术前是否减黄对胰十二指肠切除的并发症发生率影响差异并不明显, 但有学者<sup>[7]</sup>认为术前减黄应用于LPD患者中, 可降低胆汁漏的发生率。并且恶性胆道梗阻还会导致胆红素的升高, 进而使患者凝血功能出现异常, 导致术中出血量增加及术后出血风险增大。一项Meta分析<sup>[8]</sup>结果显示, 与OPD相比, LPD术中出血量少、输血概率低、住院

时间短、总体术后并发症发生率低、肿瘤边缘阴性率高, 差异有统计学意义。但梗阻性黄疸仍是LPD手术不能忽视的一种危险并发症。LPD术前是否需要常规减黄, 目前仍存在争议。对本科42例LPD患者进行回顾性研究, 现报告如下。

## 1 资料与方法

### 1.1 一般资料

回顾性分析了陕西省宝鸡市人民医院2019年1月—2021年12月42例行LPD患者临床资料, 纳入标准参考Palanivelu标准<sup>[9]</sup>: (1) 年龄85岁以下壶腹部癌、胆总管下段癌I~II级; (2) 胰头部肿瘤直径<3 cm; (3) 术前影像学检查评估肿瘤可根治性切除; (4) 美国麻醉师协会 (American Society of Anesthesiologists, ASA) 评分<IV级; (5) 总胆红素<200  $\mu\text{mol/L}$ 。排除标准: (1) 术前白蛋白低于30 g/L; (2) 影像学检



通过5~11 d腹腔引流充后自行停止;2例B级胆汁漏患者接受了PTCD后治愈;3例胰痿患者通过13~42 d腹腔引流自行停止。两组患者30 d内再入院率差异无统计学意义( $P>0.05$ ) (表2)。

表1 两组患者术前、术后相关情况比较

Table 1 Comparison of the preoperative and postoperative variables of two groups

变量	PTCD组 (n=25)	非PTCD组 (n=17)	$t\chi^2$	P
年龄(岁, $\bar{x} \pm s$ )	59.12±15.34	63.09±21.52	0.699	0.489
性别[n(%)]				
男	17(68.00)	10(58.82)	0.371	0.542
女	8(32.00)	7(41.18)		
BMI(kg/m <sup>2</sup> , $\bar{x} \pm s$ )	22.81±3.53	23.17±4.06	0.305	0.762
ASA分级[n(%)]				
I	10(40.00)	8(47.06)	0.725	0.696
II	12(48.00)	6(35.69)		
III	3(12.00)	3(17.65)		
肿瘤大小(mm, $\bar{x} \pm s$ )	21.25±3.13	22.14±3.27	1.246	0.215
总胆红素( $\mu\text{mol/L}$ , $\bar{x} \pm s$ )	146.37±32.09	151.85±26.49	0.582	0.564
R <sub>0</sub> 切除率[n(%)]	25(100.00)	17(100.00)	0.028	0.925
清扫淋巴结数(n, $\bar{x} \pm s$ )	17.24±3.15	16.44±4.27	0.699	0.488
阳性淋巴结数(n, $\bar{x} \pm s$ )	2.13±0.32	2.05±0.44	0.784	0.422
阳性淋巴结占比 (%, $\bar{x} \pm s$ )	12.32±1.44	13.17±2.06	0.937	0.582
肿瘤类型[n(%)]				
胰腺癌	3(12.00)	2(11.76)	0.383	0.826
胆管癌	8(32.00)	4(23.53)		
壶腹癌	14(56.00)	11(64.71)		
手术时间(min, $\bar{x} \pm s$ )	366.26±66.15	381.21±58.47	1.137	0.258
术中出血量(mL, $\bar{x} \pm s$ )	322.21±76.47	435.17±92.48	4.317	0.000
排气时间(d, $\bar{x} \pm s$ )	2.36±0.46	2.51±0.87	0.728	0.471
拔管时间(d, $\bar{x} \pm s$ )	4.46±0.73	4.25±0.56	1.001	0.323
住院时间(d, $\bar{x} \pm s$ )	15.27±3.32	13.58±2.55	1.953	0.058

表2 两组患者术后并发症和30 d内再入院率的比较 [n(%)]

Table 2 Comparison of postoperative complications and 30 d readmission rate between the two groups [n(%)]

变量	PTCD组	非PTCD组	$\chi^2$	P
胆汁漏	0(0.00)	4(23.53)	—	0.012 <sup>1)</sup>
胰痿	3(10.53)	3(17.65)	0.004	0.949 <sup>2)</sup>
肺部感染	1(4.00)	0(0.00)	—	0.724 <sup>1)</sup>
腹腔内出血	0(0.00)	1(5.89)	—	0.182 <sup>1)</sup>
胃瘫	1(4.00)	1(5.56)	—	0.241 <sup>1)</sup>
总并发症	4(16.00)	8(47.06)	4.783	0.029
30 d再入院	4(16.00)	3(17.65)	0.079	0.779 <sup>2)</sup>

注:1) Fisher检验;2) $\chi^2$ 校正检验

Notes: 1) Using Fisher test; 2) Using adjusted  $\chi^2$  test

### 3 讨论

近年来,胰腺癌发病率已从最早的1.5‰提高近1倍,5年生存率仍维持在5%<sup>[14-16]</sup>。OPD、LPD和机器人胰十二指肠切除术(robotic pancreaticoduodenectomy, RPD)是目前治疗胰腺癌和壶腹周围腺癌最有效的方法<sup>[17]</sup>。微创手术的优势不仅是切口小,还可以减少围手术期并发症发生,加速术后恢复<sup>[18]</sup>。各种文献已经证明了LPD的可行性和安全性,也显示了与传统开放手术类似的肿瘤学根治结果<sup>[19]</sup>,在需要行LPD的人群中,部分患者术前存在严重的黄疸,但部分患者术前黄疸并不严重,目前对于行LPD患者是否需要术前减黄治疗,仍存在争议。多项研究<sup>[20-22]</sup>结果显示,未行术前减黄治疗的LPD患者,与接受术前减黄治疗的LPD患者相比,并发症发生率无显著差异。但也有研究<sup>[23]</sup>认为,梗阻性黄疸不仅会影响LPD患者的免疫力和术后消化功能,导致患者术后营养状况变差,还可能导致术后胆道感染、胆汁漏、出血及其他器官发生功能障碍的风险增高。由于术前黄疸患者普遍存在一般情况差,应激反应中器官功能的下降等情况,他们被认为是发生术后并发症的高危人群,术前常规放置PTCD行退黄治疗,可能会减少术后并发症的发生。

#### 3.1 术前行PTCD可减少LPD术中出血量

本研究结果显示,与术前未行PTCD患者相比,接受PTCD的LPD患者术中出血量更少。黄疸患者的组织结构通常强度弱、松散<sup>[24]</sup>,且因凝血功能受到影响,肝功能损害严重,术中更易出血,这种与黄疸相关的器官和组织结构的变化,似乎无法通过目前先进的腹腔镜手术器械以及能量平台得到补偿,而术前行PTCD有助于改善患者凝血功能、肝功能,从而减少术中出血量。虽然国外共识倾向于内镜放置支架退黄,但大多数国内专家仍认为PTCD对手术区域影响较小,并不会额外增加术区的炎症粘连,而内镜下放置支架则更有可能增加术区炎症反应,增加手术难度,进而增加术中出血量<sup>[25]</sup>。

#### 3.2 两组患者淋巴结清扫数量和阳性比例无差异

有研究<sup>[26]</sup>认为LPD患者淋巴结清扫可以达到和OPD相似的效果,也有研究<sup>[27]</sup>认为,淋巴结清扫要在10枚以上,才有临床意义。本研究中两组在LPD患者的淋巴结清扫均达到了上述要求,且

均是对疑有No.16淋巴结转移的患者切除前先行冷冻病理学检查,如为阳性,综合原发灶大小、部位、周围血管浸润、患者一般状况等综合判断是否还进行手术切除。理论上术前PTCD改善了凝血功能,避免了超声刀清扫淋巴结可能导致血管损伤及术后出血,腹腔镜下无法做到完整的淋巴结清扫,但本研究中两组患者的淋巴结清扫数量及阳性比例无差异,可能与腹腔镜视野放大,操作更为精细有关。

### 3.3 术前行PTCD可降低LPD术后并发症发生率

本研究中,PTCD组患者术后胆汁漏和总并发症发生率明显低于非PTCD组。有研究<sup>[28]</sup>发现,术前常规行退黄治疗的患者,手术短期结果优于未行退黄治疗的患者。由于LPD需要复杂的解剖和吻合术,且3个吻合口均改变了患者自然的解剖结构,将不同组织进行吻合,因此LPD患者术前应处于相对良好的状态,以适应较长的手术时间,以及因各种并发症而可能延长的恢复时间<sup>[29]</sup>。术前PTCD改善了患者的营养状况、肝功能及凝血功能,使患者处于一种更为良好的状态,有助于减少术后并发症的发生。

有研究<sup>[30]</sup>认为,术前PTCD减黄的LPD患者,术后30d内再住院发生率较低。但本研究中两组患者术后30d内再住院率无明显差异,可能是由于本研究样本量较少,仍需进行进一步扩大样本量,以证实本研究结论。本研究的另一个局限是手术入路选择的非随机化,会导致结果存在偏倚,未来应通过随机对照研究进行进一步评估。最后,本研究未对术前应将黄疸降到何种程度再行LPD进行研究,下一步将会进行前瞻性、系列性研究明确这一结果。

综上所述,行LPD的患者术前黄疸是普遍存在的。然而,与直接行LPD的患者相比,术前PTCD退黄有一些好处,如减少术中失血和术后并发症的发生。因此对于需要行LPD的患者,术前PTCD可能比直接行LPD有一些优势。

利益冲突:所有作者均声明不存在利益冲突。

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