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· 专题研究 ·

逆行鼻胆管引流术在腹腔镜胆道探查胆总管一期缝合术中的应用

万健, 贺明连, 金少纯, 付卫东, 唐才喜

(湖南省株洲市中心医院 / 中南大学湘雅医学院附属株洲医院 胰胆外科, 湖南 株洲 412007)

摘要

背景与目的: 选择合适的手术方式对胆囊结石、胆总管结石患者良性预后具有重要作用, 以往在腹腔镜胆道探查术基础上, 实施T管引流术增加患者痛苦程度, 不利于术后恢复, 逆行鼻胆管引流术因更具微创理念受到临床关注。故本研究探讨逆行鼻胆管应用在腹腔镜胆道探查胆总管一期缝合术中的可行性及安全性。

方法: 选取2017年1月—2018年6月本院收治60例胆囊结石合并胆总管结石接受腹腔镜胆道探查术患者, 随机分为对照组及观察组, 每组各30例。观察组患者给予逆行鼻胆管引流、胆总管一期缝合术; 对照组则留置T管引流。比较两组患者手术与恢复情况、患者术后胆汁引流量、术后1周营养指标、术前、术后1年评价患者肝功能指标, 以及随访1年期间并发症发生情况。

结果: 两组手术耗时、术后第1天胆汁引流量差异无统计学意义(均 $P>0.05$), 观察组引流管留置时间、肛门首次排气时间、恢复正常生活时间、术后住院时间及住院费用均少于对照组, 术后第2、3天的胆汁引流量低于对照组(均 $P<0.05$); 观察组术后1周白蛋白、前白蛋白水平均高于对照组(均 $P<0.05$); 两组术前各项肝功能指标均无明显差异(均 $P>0.05$), 术后1年, 各项肝功能指标均较术前明显改善($P<0.05$), 但组间均无明显差异(均 $P>0.05$); 随访1年期间, 观察组的总并发症发生率明显低于对照组(3.33% vs. 26.67%, $P<0.05$)。

结论: 逆行鼻胆管引流术、腹腔镜胆道探查术、胆总管一期缝合术联合应用, 可缩短胆囊结石合并胆总管结石患者住院时间, 促进患者术后快速康复, 在一定程度上可减少并发症的发生率, 具有一定可行性及安全性。

关键词

胆囊结石病; 胆总管结石病; 胆道探查术; 鼻胆管引流术

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Application of antegrade nasobiliary drainage in laparoscopic biliary tract exploration with primary closure of common bile duct

WAN Jian, HE Minglian, JIN Shaochun, FU Weidong, TANG Caixi

(Department of Pancreatobiliary Surgery, Zhuzhou Central Hospital/Zhuzhou Hospital Affiliated to Xiangya School of Medicine, Central South University), Zhuzhou, Hunan 412007, China)

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作者简介: 万健, 湖南省株洲市中心医院(中南大学湘雅医学院附属株洲医院)副主任医师, 主要从事肝脏及胆道方面的研究。

通信作者: 唐才喜, Email: tex0826@163.com

Abstract

Background and Aims: The selection of an appropriate operation method is of great importance for the benign prognosis of patients with cholecystolithiasis and choledocholithiasis. In the past, the implementation of T-tube drainage on the basis of laparoscopic biliary exploration increases the degree of pain in patients, which is not conducive to postoperative recovery. Antegrade nasobiliary drainage has attracted more attention because of its minimally invasive concept. Therefore, this study was conducted to investigate the feasibility and safety of application of antegrade nasal bile duct in laparoscopic biliary tract exploration with primary closure of the common bile duct.

Methods: Sixty patients with cholecystolithiasis and concomitant choledocholithiasis underwent laparoscopic biliary tract exploration from January 2017 to June 2018 were selected and randomly assigned to control group and observation group, with 30 cases in each group. Patients in observation group were given nasal biliary drainage and primary closure of the common bile duct, and those in control group underwent T-tube placement and bile drainage. The surgical variables, postoperative recovery conditions, the volume of postoperative bile drainage, the nutritional indicators at 1 week after operation, and the liver function parameters before and 1 year after operation as well as the incidence of complications during 1-year followed-up period between the two groups were compared.

Results: The operative time and the volume of bile drainage on the first day after operation showed no significant difference between the two groups (all $P>0.05$). The drainage tube retention time, the time to first anal gas passage, the time to return to normal life, length of postoperative hospital stay and hospitalization costs as well as the volume of bile drainage on postoperative day 2 and 3 were all significantly reduced in observation group compared with control group (all $P<0.05$). The serum levels of albumin and prealbumin in observation group were significantly higher than those in control group at 1 week after operation (both $P<0.05$). There were no significant differences in each liver function parameter between the two groups before operation (all $P>0.05$), which were all significantly improved in both groups one year after operation (all $P<0.05$), but all showed no significant differences between the two groups (all $P>0.05$). The incidence of complications was significantly lower in observation group than that in control group during the 1-year follow-up period (3.33% vs. 26.67%, $P<0.05$).

Conclusion: The combined use of antegrade nasobiliary drainage, laparoscopic biliary tract exploration, and primary closure of the common bile duct can shorten the hospitalization time and accelerate postoperative recovery of patients with gallstones and common bile duct stones, and also reduces the incidence of complications to a certain extent. So, it has certain feasibility and safety.

Key words

Cholecystolithiasis; Choledocholithiasis; Bile Duct Exploration; Nasobiliary Drainage

CLC number: R657.4

胆囊结石、胆总管结石主要治疗手段仍是通过手术取石，可有效解除梗阻、去除病灶、通畅引流，效果备受认可与肯定。但不同的取石手术方式达到的治疗效果不尽相同，各有利弊，选择合适的手术方式对胆囊结石、胆总管结石患者良性预后起到至关重要的作用^[1-2]。开腹手术虽取石疗效良好，但对患者具有较大创伤、术中出血量多，易引起恶心呕吐、感染等严重并发症，不利于术后恢复^[3-4]。随着微创技术不断发展，腹腔镜胆道探查术因具有微创、术后恢复快等优点，被

临床广泛应用，有效弥补了传统手术不足^[5-6]。在腹腔镜胆道探查术基础上，实施T管引流术是常用治疗胆囊结石、胆总管结石患者的传统方式，可有效防止胆汁外渗，避免术后感染、腹膜炎等并发症的发生^[7]。但T管引流术的应用也存在一定局限，如长期留置T管，可使患者出现恶心、呕吐等症状，此外，也增加患者痛苦，不利于恢复^[8]。随着外科技术不断发展，在腹腔镜胆道探查术基础上，行顺行鼻胆管引流术、胆总管一期缝合术因更具微创理念受到临床关注，研究表明，该种

术式并发症少,利于患者术后恢复,但其可行性及安全性仍待探究^[9-10]。目前临床关于顺行鼻胆管引流术的可行性及安全性研究较少,且结论尚未统一,基于此,本研究观察顺行鼻胆管应用在腹腔镜胆道探查胆总管一期缝合术中的效果,报告如下。

1 资料与方法

1.1 一般资料

选取2017年1月—2018年6月本院收治的60例行腹腔镜胆道探查术的胆囊结石合并胆总管结石患者为研究对象,通过随机数字表法分为对照组及观察组,每组各30例。本研究经株洲市中心医院伦理委员会批准[批准号:2017年审(101)号]。其中对照组男17例,女13例;年龄41~74岁,平均年龄(58.96±5.33)岁;体质量指数(BMI)17.8~25.1 kg/m²,平均(23.25±1.01) kg/m²;胆结石数目1~5枚,平均(2.70±1.24)枚;结石直径2.8~6.5 cm,平均(3.44±0.52) cm;术前血清白蛋白(albumin, ALB)水平38.3~47.5 g/L,平均(42.32±3.02) g/L;术前前白蛋白(prealbumin, PA)水平289.2~332.5 mg/L,平均(310.53±20.01) mg/L;胆总管末端通畅程度:0~1b级:17例,2a~2b级:13例。观察组男16例,女14例;年龄40~75岁,平均年龄(58.90±5.39)岁;BMI 17.6~25.4 kg/m²,平均(23.29±1.03) kg/m²;胆结石数目1~5枚,平均(2.77±1.25)枚;结石直径2.5~6.2 cm,平均(3.42±0.50) cm;术前ALB水平37.2~48.9 g/L,平均(42.45±3.00) g/L;术前PA水平285.2~336.6 mg/L,平均(310.20±20.06) mg/L;胆总管末端通畅程度:0~1b级:18例,2a~2b级:12例。统计学分析两组相关资料,差异无统计学意义(均P>0.05),有可比性。

1.2 纳入与排除标准

纳入标准:(1)所有患者均经B超、CT等影像学检查确诊为胆囊结石合并胆总管结石;(2)所有患者胆总管结石直径均>1.0 cm;(3)患者、家属知情同意本次研究;(4)精神正常,可正常沟通交流;(5)依从性较好,可配合完成研究的患者。排除标准:(1)合并心、肝、肾等脏器病变的患者;(2)心肺等功能无法耐受手术的患者;(3)无法耐受手术的患者;(4)既往做过胃切除者;(5)血液系统、免疫系统疾病;(6)因原发性疾病需长期留置胆管外引流的患者。

1.3 方法

腹腔镜胆道探查术。患者取仰卧位,全身麻醉后,于脐上边缘开10 mm左右切口,放入气腹针,采用4孔法确定操作位置,缓慢置入腹腔镜,将粘连组织分离,采用电凝将胆囊管、胆囊动脉分出,在距离胆总管5 mm处进行夹闭,将胆总管前壁浆膜分离,沿着穿刺孔切开胆总管前壁2 cm,进入胆总管,探查胆总管见到结石后,用胆道镜取石网篮取出,确定结石取净后,进行检查,确保无残留结石。对照组:留置T管引流。在腹腔镜胆道探查术检查无结石残留后,用20~40号T管,剪掉1/3左右横臂,置于胆总管内,用可吸收线缝合;多次反复冲洗腹腔,将胆汁清除。术后行常规抗感染治疗,同时纠正或维持患者水电解质平衡。观察组:顺行鼻胆管引流、胆总管一期缝合术。以腹腔镜胆道探查术为基础,确认无残留结石后,判断胆管壁情况;将顺行鼻胆管插入胆总管远端,进入十二指肠;利用胃镜寻找引流管,并将其经鼻引出体外,留置引流管末端并固定,完成引流;在腹腔镜下,进行一期缝合术,检查是否有残留结石。患者术后4~7 d复查,确认无残留结石/无造影剂外渗后,拔除引流管;若经检查发现存在残留结石,经内镜逆行性胰胆管造影术(ERCP),引出残留结石,适当延长拔除引流管时间。术后行常规抗感染治疗。本次研究60例患者中,无中转开腹。

1.4 随访

通过门诊或者电话的方式对所有入选患者进行随访1年,每3个月随访1次,观察患者恢复情况。60例胆囊结石合并胆总管结石患者均获得随访1年结果,随访率为100%。

1.5 评价指标

(1)记录并比较两组患者手术及恢复相关指标情况,主要包括手术时间、引流管留置时间、恢复正常生活时间、住院时间、肛门首次排气时间、住院费用;(2)胆汁引流量比较:于术后第1、2、3天,记录并比较两组患者胆汁引流量;(3)肝功能比较:均随访1年,于术前、术后1年,采集所有患者清晨空腹静脉血3~4 mL,以3 000 r/min转速离心,离心时间为10 min,取血清后,采用全自动生化分析仪检测患者天门冬氨酸氨基转移酶(AST)、丙氨酸氨基转移酶(ALT)、总胆红素(TBIL)水平;(4)营养状况:收集患者术前、术后1周清晨空腹静脉血3~5 mL,以1 800 r/min速度离心,离心时间为10 min,取血

清,通过全自动血液生化分析仪检测血清ALB、PA指标;(5)并发症发生率比较:随访期间,记录并比较两组患者胆汁漏(根据术后连续3 d胆汁或含胆汁的液体持续从胆道破损处流入腹腔、腹膜后,或经引流管流到体外)、腹腔感染(根据患者临床表现、腹腔镜检查及实验室等检查判定)、肠痿(根据腹部平片、CT、造影等检查判断)、残留结石(根据T管造影或纤维胆道镜检查判断)、胆道狭窄(根据经皮经肝胆管造影、超声等检查判断)、肠道出血(根据患者临床症状、体征及肛肠镜检查等方式判断)等并发症发生情况。

1.5 统计学处理

采用SPSS 23.0统计学软件,计数资料以例数(百分数)[$n(\%)$]表示,组间比较采用 χ^2 检验;若期望值 <5 ,采用连续校正 χ^2 检验;计量资

料均经正态性检验,符合正态分布以均数 \pm 标准差($\bar{x}\pm s$)表示,组间比较采用独立样本 t 检验,组内比较采用配对样本 t 检验, $P<0.05$ 为差异有统计学意义。

2 结果

2.1 手术、恢复指标比较

两组手术时间比较,差异无统计学意义($P>0.05$);观察组引流管留置时间、肛门首次排气时间、恢复正常生活时间、术后住院时间均短于对照组,住院费用少于对照组(均 $P<0.05$)(表1)。

2.2 术后胆汁引流量比较

两组术后第1天胆汁引流量比,差异无统计学意义($P>0.05$),但术后第2、3天,观察组胆汁引流量明显低于对照组(均 $P<0.05$)(表2)。

表1 两组手术、恢复指标比较($n=30, \bar{x}\pm s$)

Table 1 Comparison of the surgical and recovery variables between the two groups ($n=30, \bar{x}\pm s$)

组别	手术时间 (min)	引流管留置时间 (d)	肛门首次排气时间 (d)	恢复正常生活时间 (d)	术后住院时间 (d)	住院费用 (万元)
观察组	70.21 \pm 28.56	6.02 \pm 1.50	2.38 \pm 0.56	12.33 \pm 2.25	7.65 \pm 1.22	1.82 \pm 0.68
对照组	67.74 \pm 30.22	35.25 \pm 4.63	1.54 \pm 0.43	20.02 \pm 3.85	14.23 \pm 3.01	3.08 \pm 1.10
t	0.325	32.895	6.516	9.446	11.097	5.337
P	0.746	<0.001	<0.001	<0.001	<0.001	<0.001

表2 两组术后胆汁引流量比较($n=30, \bar{x}\pm s, \text{mL}$)

Table 2 Comparison of the volume of drainage between the two groups ($n=30, \bar{x}\pm s, \text{mL}$)

组别	术后第1天	术后第2天	术后第3天
观察组	300.23 \pm 52.03	255.65 \pm 60.33	250.23 \pm 55.66
对照组	298.56 \pm 50.36	290.11 \pm 60.33	285.23 \pm 60.33
t	0.126	2.212	2.336
P	0.900	0.031	0.023

2.3 肝功能指标比较

术前两组各项肝功能指标比较,差异均无统计学意义(均 $P>0.05$);术后1年,两组AST、ALT、TBIL水平较术前均有所下降(均 $P<0.05$),但两组间比较,差异均无统计学意义($P>0.05$)(表3)。

2.4 术后1周营养指标比较

观察组术后1周的ALB、PA水平均高于对照组(均 $P<0.05$)(表4)。

2.5 并发症发生率比较

观察组并发症发生率为3.33%(1/30),低于对照组的26.67%(8/30)($P<0.05$)(表5)。

表3 两组肝功能指标比较($n=30, \bar{x}\pm s$)

Table 3 Comparison of the liver function parameters between the two groups ($n=30, \bar{x}\pm s$)

指标	观察组	对照组	t	P
AST (U/L)				
术前	40.40 \pm 6.70	40.46 \pm 6.65	0.035	0.972
术后1年	35.51 \pm 3.11 ¹⁾	36.01 \pm 3.14 ¹⁾	0.620	0.538
ALT (U/L)				
术前	48.69 \pm 4.56	48.88 \pm 3.66	0.178	0.859
术后1年	42.69 \pm 4.56 ¹⁾	41.85 \pm 4.66 ¹⁾	0.706	0.483
TBIL ($\mu\text{mol/L}$)				
术前	28.12 \pm 4.30	28.81 \pm 4.42	0.613	0.542
术后1年	22.12 \pm 4.30 ¹⁾	21.85 \pm 4.25 ¹⁾	0.245	0.808

注:1)与同组术前比较, $P<0.05$

Note: 1) $P<0.05$ vs. preoperative value

表4 两组术后1周营养指标比较($n=30, \bar{x}\pm s$)

Table 4 Comparison of the nutritional indexes between the two groups ($n=30, \bar{x}\pm s$)

组别	ALB (g/L)	PA (mg/L)
观察组	37.85 \pm 3.02	289.75 \pm 18.66
对照组	34.25 \pm 2.96	265.42 \pm 18.33
t	4.663	5.095
P	<0.001	<0.001

表5 两组并发症发生率比较 [n=30, n(%)]

Table 5 Comparison of the incidence rates of complications between the two groups [n=30, n(%)]

组别	胆汁漏	肠瘘	腹腔感染	残留结石	胆道狭窄	肠道出血	总并发症 ¹⁾
观察组	1 (3.33)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (3.33)
对照组	2 (6.67)	0 (0.00)	2 (6.67)	1 (3.33)	1 (3.33)	2 (6.67)	8 (26.67)
χ^2	—	—	—	—	—	—	4.706
P	—	—	—	—	—	—	0.011

注: 1) 采用连续校正 χ^2 检验Note: 1) Using continuity-adjusted χ^2 test

3 讨论

随着微创技术不断发展,腹腔镜胆道探查术不断被临床应用,与开腹手术比较,具有微创、恢复快等优点,得到临床广泛认可^[11-12]。但目前对于放置T管引流或进行一期缝合术的安全性,仍存在较大争议。放置T管目的主要是引流胆汁,防止胆道狭窄或者胆汁漏等并发症,也利于术后处理残余结石^[13-14]。但放置T管时间长不仅延长患者住院时间、导致电解质紊乱,也可能会增加腹膜炎发生风险,不利于患者预后^[15]。研究表明,在把握好适应证前提下,行腹腔镜胆道探查术联合胆总管一期缝合术可取得较好的手术效果,但该术式仍存在胆汁漏风险^[16-17]。故有研究提出,在腹腔镜胆道探查术、胆总管一期缝合术基础上,预行逆行鼻胆管引流术,可避免因压力过高导致的胆汁漏发生,同时也可避免T管引流造成的不良后果,利于改善患者生活质量^[18-19]。但目前关于该种术式的安全性及有效性研究还不多见,仍待进一步证实。

研究显示,较T管引流术,一期缝合术效果更佳,可保证胆道生理通道完整性,避免术后胆管狭窄并发症,但术后水肿常引起胆道高压^[15, 20]。此外,直接缝合胆总管,不放置任何引流的适应范围相对局限,且易发生胆汁漏,不利于预后。为解决上述问题,近年多项研究通过术中逆行鼻胆管引流术进行治疗,取得一定进展^[21]。鼻胆管具不仅可弥补胆总管一期缝合术的不足,还可保留患者括约肌功能,且材料易获取,技术要求不高^[22-23]。

本研究对逆行鼻胆管应用在腹腔镜胆道探查胆总管一期缝合术中的可行性及安全性进行研究,发现,观察组引流管留置时间、肛门首次排气时间、恢复正常生活时间、住院时间均短于对照组,且住院费用少,提示,逆行鼻胆管引流术联合腹腔镜胆道探查一期缝合术可解除患者长期携带T管的困扰,缩短引流管拔除时间及术后患者住院时间,促进肠道功能恢复,减少住院费用,促进患者的快速康复,分析其原因可能与鼻

胆管引流无需进行胃镜拔除,可根据患者病情拔除鼻胆管,痛苦小、住院时间短等有关。在括约肌支撑作用下,逆行放置鼻胆管可使部分胆汁进入十二指肠,具有一定内引流作用,可降低电解质紊乱发生率,故而更利于促进患者术后恢复^[24]。与逆行鼻胆管引流比较,逆行鼻胆管引流术更好地保护Oddi括约肌功能,能够降低胆汁漏发生风险^[25]。此外,逆行鼻胆管引流术便于术后行胆管造影,以判断是否存在残留结石,该种方式不需进胃镜拔除,可在一定程度上减轻患者痛苦,降低住院时间^[26-27]。

AST、ALT、TBIL均是评估肝功能的重要指标,胆囊结石、胆总管结石患者肝功能均有一定程度的损伤,血清AST、ALT、TBIL水平较正常人群升高^[28-30]。本研究结果显示,术后1年,两组AST、ALT、TBIL水平较术前均有所下降,但组间比较并无明显差异,提示逆行鼻胆管引流术的引流效果与T管引流相似,具有相同效果。本研究观察组术后1周ALB、PA水平均高于对照组,提示逆行鼻胆管引流术可降低对患者营养状况的影响,这可能与鼻胆管引流术胆汁外流少,利于改善患者进食及脂肪吸收,促进恢复有关。此外,本研究还发现,与对照组比,观察组术后引流量较少,提示T管引流对胆汁的引流效果更佳,可能与鼻胆管内径小,通畅性不佳有关,但正因T管内径相对较大,易导致丢失更多的胆汁,影响患者消化道功能,不利于术后恢复。本研究结果还发现,观察组并发症少于对照组,可见,逆行鼻胆管应用在腹腔镜胆道探查一期缝合术中的安全性较高,可减少并发症发生率,预计具有更好的应用价值。但本研究纳入样本量少,加之只是与单纯腹腔镜胆道探查术患者比较,结论存在一定的偏倚,研究仍有局限,还需要在未来展开大量大样本、前瞻性、多中心的研究加以验证。

综上所述,逆行鼻胆管应用在腹腔镜胆道探查胆总管一期缝合术中效果较好,不仅可缩短患者住院时间,减少住院费用,且并发症少,预计临床应用前景广阔。

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