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·论著·

腹腔镜经胆囊管胆总管探查术治疗继发性胆总管结石 32 例报告

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【摘要】 目的: 总结腹腔镜经胆囊管胆总管探查术(LTCBDE)治疗继发性胆总管结石的临床经验。方法: 回顾分析2018年1月至2023年10月为32例继发性胆总管结石患者行LTCBDE+腹腔镜胆囊切除术(LC)的临床资料, 分析手术成功率、手术时间、术中出血量、腹腔引流时间、总住院时间、总住院费用、手术并发症发生率等。结果: 3例患者因术中经胆囊管置入腹腔镜困难改行腹腔镜经胆囊管汇入部微切开取石术+LC; 1例患者因胆囊管低位汇合, 1例因胆囊三角区纤维化明显、解剖游离胆囊管困难改行腹腔镜胆总管探查一期缝合+LC, 27例患者顺利完成LTCBDE+LC, 无中转开腹。手术时间65~140 min, 中位时间114.50(91.25, 129.50) min; 术中出血量10~50 mL, 中位出血量25.00(20.00, 30.00) mL; 腹腔引流时间1~6 d, 中位时间3.00(3.00, 4.00) d; 总住院3~11 d, 平均(6.53±2.29) d; 总住院费用1.24~2.23万元, 平均(1.74±0.27)万元。术后发生胆漏2例、残余结石2例、发热4例, 无胆管狭窄发生。结论: LTCBDE+LC治疗继发性胆总管结石临床效果良好, 应严格把握手术适应证、选择性开展。

【关键词】 胆囊结石病; 胆总管结石病; 经胆囊管胆总管探查术; 胆囊切除术, 腹腔镜

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Secondary choledocholithiasis treated with laparoscopic transcystic common bile duct exploration: a report of 32 cases

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【Abstract】 Objective: To summarize the therapeutic experience of laparoscopic transcystic common bile duct exploration (LTCBDE) in the treatment of secondary choledocholithiasis. **Methods:** A retrospective analysis was conducted on clinical data of 32 patients who underwent LTCBDE combined with laparoscopic cholecystectomy (LC) for secondary common bile duct stones from Jan. 2018 to Oct. 2023. Surgical success rate, operative time, intraoperative blood loss, abdominal drainage time, total hospital stay, total hospitalization costs, and incidence of surgical complications were analyzed. **Results:** Three patients were converted to LC combined with microincision calculi extraction through the cystic duct due to difficulties in cystic duct exploration during surgery. One patient was changed to laparoscopic common bile duct exploration with primary suturing combined with LC due to a low cystic duct junction, and another patient underwent the same procedure due to significant fibrosis in the cystic triangle, which made it difficult to free the cystic duct. The remaining 27 patients successfully completed LTCBDE combined with LC, with no conversions to open surgery. The operative time was 65.00-140.00 min [median: 114.50(91.25, 129.50) min], intraoperative blood loss was 10.00-50.00 mL [median: 25.00(20.00, 30.00) mL], abdominal drainage time was 1.00-6.00 d [median: 3.00(3.00, 4.00) d], total hospital stay was 3.00-11.00 d, with a mean of (6.53±2.29) d. The total hospitalization cost ranged from 1.24 to 2.23 ten thousand yuan, with a mean of (1.74±0.27) ten thousand yuan. Postoperative complications included 2 cases of bile leakage, 2 cases of residual stones, and 4 cases of fever, with no instances of bile duct stenosis. **Conclusions:** LTCBDE combined with LC is effective for the clinical treatment of secondary choledocholithiasis. Strict adherence to surgical indications and careful patient selection are essential.

【Key words】 Cholecystolithiasis; Choledocholithiasis; Transcystic common bile duct exploration; Cholecystectomy, laparoscopic

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继发性胆总管结石是肝胆胰外科常见病、多发病,占胆囊结石的10%~20%^[1-2],可发生急性梗阻性化脓性胆管炎、急性重症胰腺炎等严重并发症,严重威胁患者的健康及生命安全,需积极进行外科处理^[3-4]。临床最常用的治疗手段为同步腹腔镜胆总管探查术(laparoscopic common bile duct exploration, LCBDE)+腹腔镜胆囊切除术(laparoscopic cholecystectomy, LC)^[5],LCBDE又可细分为经胆总管途径与经胆囊管途径,腹腔镜经胆囊管胆总管探查术(laparoscopic transcystic common bile duct exploration, LTCBDE)因操作简单、术后康复快、并发症发生率低被认为是继发性胆总管结石的理想术式^[6]。本研究通过回顾分析2018年1月至2023年10月昆明医科大学第二附属医院肝胆胰外科收治的32例采用LTCBDE+LC治疗的继发性胆总管结石患者的临床资料,总结相关治疗经验,现将体会报道如下。

1 资料与方法

1.1 临床资料

本研究纳入32例患者,其中男15例,女17例;12~85岁,平均(52.19±18.55)岁;合并高血压6例、糖尿病4例、冠心病1例。术前经腹部超声及磁共振胰胆管造影(magnetic resonance cholangiopancreatography, MRCP)明确胆囊结石伴继发性胆总管结石,胆总管直径0.9~1.3 cm,中位数1.1(1.0,1.2) cm;结石最大径0.3~0.8 cm,中位数

0.6(0.5,0.7) cm;结石数量1~4,中位2.0(2.0,3.0)枚。纳入标准:(1)胆总管扩张(直径≥8 mm)伴有胆囊管扩张(直径≥5 mm);(2)胆囊管内径≥胆总管结石直径。排除标准:(1)胆囊管汇入异常(如低位汇入、后壁汇入、一二级胆管汇入等);(2)伴有肝内胆管结石;(3)伴有胆管炎;(4)伴有Mirizzi综合征或疑似胆管癌;(5)既往上腹部手术史;(6)存在腹腔镜手术禁忌证,如严重心肺功能失代偿等。本研究经昆明医科大学第二附属医院伦理委员会审核。

1.2 手术方法

麻醉成功后患者取头高脚低左侧倾斜15°~30°仰卧位,手术区域消毒、铺巾,脐上缘建立气腹,四孔法施术。高频电钩解剖胆囊三角,分离显露胆囊管、胆囊动脉,结扎离断胆囊动脉,结扎胆囊管远端后自胆囊底部顺逆结合合法将胆囊自胆囊床完整剥离,充分解剖游离胆囊管至汇入部(图1A)后暂不离断,以对胆总管进行适当的牵拉暴露。距胆囊管汇合部1~2 cm处与胆囊管长轴约45°角斜形剪开胆囊管径约2/3(图1B),通过胆囊管牵拉调整角度后经胆囊管置入胆道镜探查取石(图1C),取石完毕再次检查确认无残余结石,距胆囊管汇入部约0.5 cm处用结扎夹夹闭胆囊管近端,离断胆囊管,取出的结石及切除的胆囊装入标本袋,经脐上切口取出。再次检查手术创面无胆漏、出血后自右侧腹壁外侧戳孔于温氏孔留置引流管,并固定妥当。

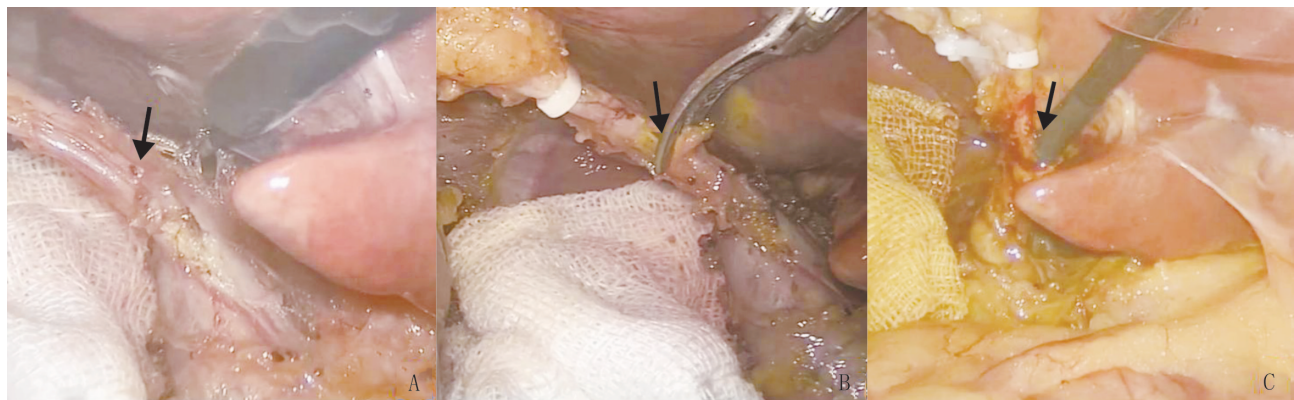


图1 LTCBDE手术操作(A:充分游离、骨酪化胆囊管;B:斜行剪开胆囊管壁;C:经胆囊管探查取石)

1.3 术后管理及随访

术后第2天开始进食流质饮食并下床活动,术后48 h内预防性使用头孢一代抗生素及保肝药,术后第3天复查血常规、肝功能、肾功能、胰腺功能、电解质及凝血功能,无胆漏及出血^[7]且腹腔引流量≤10 mL,复查腹部B超明确腹腔内无积液后拔除引流管。电话或门诊进行随访,观察腹痛、发热及黄疸

情况,术后1个月、3个月复查腹部B超,术后6个月复查MRCP。术后6个月后再发结石,认为结石复发;6个月内发现结石,则认为结石残留^[8]。

1.4 统计学处理

应用SPSS 29.0软件进行数据分析。计量资料经正态性检验,满足正态分布时以均数±标准差($\bar{x} \pm s$)表示,非正态分布则以中位数 $M(P_{25}, P_{75})$ 表示。

2 结果

3例患者因术前评估胆囊管扩张程度不准确,术中经胆囊管置入胆道镜困难改行腹腔镜经胆囊管汇入部微切开取石+LC;1例患者因胆囊管低位汇合,1例因胆囊三角区纤维化明显、解剖游离胆囊管困难,改行腹腔镜胆总管探查一期缝合+LC,余27例均顺利完成手术,无中转开腹。手术时间65.00~140.00 min,中位时间114.50(91.25,129.50)min;术中出血量10.00~50.00 mL,中位出血量25.00(20.00,30.00)mL;腹腔引流时间1.00~6.00 d,中位时间3.00(3.00,4.00)d;总住院3.00~11.00 d,平均(6.53±2.29)d;总住院费用1.24~2.23万元,平均(1.74±0.27)万元。术后发生胆漏2例,1例为腹腔镜经胆囊管汇入部微切开取石患者,1例为腹腔镜胆总管探查一期缝合患者,均为A级胆漏^[9],予以加强营养、通畅引流后胆漏愈合,分别引流5 d、6 d后腹腔引流管无引流液引出,复查B超确认腹腔内无积液后拔除引流管;术后发热4例,予以抗炎治疗3~4 d后体温正常、感染指标正常。术后1个月复查,残余结石2例,行MRCP再次确认后予以内镜下取出,无胆管狭窄发生。

3 讨论

LCBDE+T管引流术在继发性胆总管结石的临床治疗中应用较广泛,被认为是安全、有效的治疗方式^[10],可有效防止术后胆漏、胆管狭窄等多种并发症的发生,同时T管留置也便于术后残余结石的处理及肝功能的恢复,但存在电解质及消化液丢失、带管生活质量降低等弊端,相关报道其总并发症发生率约为15%^[11]。随着内镜技术的发展,内镜下十二指肠乳头括约肌切开取石术+LC治疗无胆总管扩张患者的疗效较好^[12-13],但存在诱发胰腺炎、十二指肠乳头穿孔及不可逆性Oddi括约肌损伤等问题^[14]。

随着人们认知的不断深入,LTCBDE+LC被认为是符合生理特征的手术方式,通过自然通道胆囊管取出胆总管内结石后结扎胆囊管残端,避免了胆总管切开,保护了胆管壁与胆管血供的完整性^[15],但技术难度较高,要求严格,符合手术指征的患者较少^[16]。难点在于:(1)正常胆囊管内径0.2~0.4 cm,普通纤维胆道镜的内径为0.5 cm,此外,胆囊管内存在螺旋瓣,胆囊管内径及螺旋瓣的存在制约了胆道镜能否顺利进入胆总管及通过胆囊管取出结石的最大直径^[17],本研究使用的胆道镜均为普通纤维胆道镜。(2)胆囊管一般向下与肝总管呈

30°~70°的锐角汇合,若不能充分游离并通过牵拉调整胆囊管与肝总管之间的角度,很难向上探查肝总管及肝内一二级胆管分支;存在多发小结石或结石质地疏松时,容易发生残余结石。(3)胆囊管汇入存在较高的变异率。吴丹等^[18]报道218例患者中胆囊管汇入变异率高达57.65%;沈为光等^[19]报道573例患者胆囊管汇入变异率高达59.20%;存在胆囊管汇合变异时,难以通过胆囊管途径探查取石。(4)常规行胆总管探查取石时切开胆总管前壁1.5~2.0 cm,探查口直径远大于胆囊管内径,经胆总管切口探查无胆囊螺旋瓣及汇合角度的影响,探查取石难度明显降低。有学者提出,经胆囊管探查取石可作为无胆管扩张的继发性胆管结石行内镜下十二指肠乳头括约肌切开取石术失败后的补救措施^[20],但此时往往需要使用超细胆道镜^[21],超细胆道镜的使用可进一步拓展其适应证^[22];但超细胆道镜为一次性使用耗材,一定程度上增加了患者的经济负担。此外,胆囊管汇入部微切开取石进一步拓展了该术式的适用范围及手术成功率^[23],但汇入部微切开后仍需缝合,并非真正意义上的经胆囊管探查取石。张志等^[24]通过切开胆囊管与肝总管汇合部“隔膜”,一定程度上降低了肝总管上端的探查难度,提高了LTCBDE的适用范围与成功率,其治疗效果值得进一步探索应用与评价。

上述原因严重制约了该术式的临床应用,满足以下条件时可选择性开展:(1)胆总管扩张(直径≥8 mm)伴有胆囊管扩张(直径≥5 mm)^[25];(2)胆囊管内径≥胆总管内结石直径^[26];(3)胆囊管汇入部位无解剖学变异^[27];(4)胆总管内结石数量≤5枚^[25]。

胆漏、胆管狭窄及残余或复发结石是评价胆道手术有效性、安全性的关键指标^[28]。该术式因向上探查肝总管及肝内一二级肝内胆管存在一定难度,因此一定程度上增加了残余结石的发生。残余结石与术者探查的仔细程度、结石数量、结石直径及结石质地等因素相关,术中仔细探查,向上探查困难时果断行经胆囊管汇入部微切开取石术或LCBDE,可有效降低残余结石的发生率。Guo等^[11]报道了280例经胆囊管探查取石患者,残余结石率为0.7%。一项纳入4073例患者的Meta分析结果显示^[29],LTCBDE与LCBDE的残余结石率、中转开腹率差异无统计学意义,LTCBDE的总并发症发生率更低,手术时间、住院时间更短,术中出血量更少。

该术式以下并发症发生率明显低于经胆总管探

查术:(1)胆漏。胆漏的发生与手术操作、缝合方式及材料的选择、胆管血供及胆道压力等相关,经胆囊管探查途径因无需缝合,直接夹闭胆囊管断端即可,可有效降低术后胆漏的发生率。Bekheit等^[30]的Meta分析表明,与LCBDE组相比,LTCBDE组胆漏发生率更低。(2)胆管狭窄。胆管狭窄的发生与胆管直径、缝合材料的选择、缝合技术、胆管血供及胆漏刺激等因素相关,胆总管切开破坏了胆总管壁及胆管血供的完整性,因此存在一定比例的胆管狭窄。(3)结石复发。结石的复发除与患者本身胆管解剖因素、结石性质、胆道感染、妊娠、代谢状态相关外^[31],还与胆管狭窄、胆管壁光滑程度相关,经胆囊管探查途径因胆管狭窄、胆漏发生率更低,因此结石复发率更低。

笔者体会:(1)术前MRCP检查是必要的,通过该检查可准确评估结石大小与数量、胆总管直径、胆囊管直径、胆囊管汇入变异情况等,严格筛选符合手术指征的患者。(2)术中剥离胆囊后暂不离断胆囊管、胆囊管与肝总管汇入处,充分游离暴露Calot前后三角、骨骼化胆囊管,以便于通过牵拉调整胆囊管与肝总管之间的角度,提高手术成功率。(3)斜行剪开胆囊管后用分离钳适度扩张胆囊管,以便于胆道镜的置入与取石。(4)若胆囊管部分撕裂、胆囊管壁菲薄、结扎距离较短或胆囊管较粗结扎夹夹闭

不全时,可用丝线进行可靠结扎或采用4-0以下可吸收线进行缝扎。(5)经胆囊管置入胆道镜困难或向上探查肝总管及肝内一二级胆管困难时,应果断改行经胆囊管汇入部微切开探查术或LCBDE。(6)探查时注意胆道内低压、低速冲水,避免胆道内压力过高导致胆道逆行感染或结石漂移至肝内二级胆管以上取石困难。(7)胆道探查及取石过程中应轻柔操作,避免盲目刺激胆管壁及十二指肠乳头导致胆道内出血、术后胆道高压的发生。(8)先结扎胆囊管远端再剥离胆囊,以免胆囊内结石继续进入胆总管,从而增加取石的工作量及部分打开胆囊管后胆囊内大量胆汁污染腹腔。(9)取出结石后核对结石大小、数量与术前读片结果是否一致,再次通过胆道镜彻底检查2~3次,以减少残余结石的发生。(10)合并胆管炎的患者必须留置T管,术后充分胆汁引流、胆道减压,以快速控制胆道感染,降低胆漏、胆管狭窄的发生率。

综上所述,LTCBDE具有创伤小、康复快、并发症发生率低、符合生理特征等优势,但手术适应证严格,需严格把握手术指征,在具备丰富经验的医学中心选择性开展,术中不可心存侥幸,存在不确定性时应果断改变手术方式,以确保手术安全、降低相关并发症发生率。

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