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# ERCP 术与腹腔镜手术治疗胆总管结石的疗效对比及对血清 AST、ALT、ALP 的影响 *

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**摘要 目的:**探讨内镜逆行胰胆管造影术(ERCP)与腹腔镜手术治疗胆总管结石的疗效对比及对血清门冬氨酸氨基转移酶(AST)、丙氨酸氨基转移酶(ALT)、碱性磷酸酶(ALP)的影响。**方法:**选择 2017 年 4 月到 2018 年 4 月我院接诊的胆总管结石患者 50 例作为研究对象,以随机数表法分为观察组(n=26)和对照组(n=24),对照组使用腹腔镜手术治疗,观察组采用 ERCP 取石术治疗。比较两组手术时间、术中出血量、术后下床时间、住院时间、血清 AST、ALT、ALP 水平变化情况、术后胃肠道恢复时间及术后不良反应发生情况。**结果:**观察组患者手术时间高于对照组,(*P<0.05*),术中出血量、术后下床时间及住院时间均显著低于对照组(*P<0.05*);手术前,两组患者血清 AST、ALT、ALP 水平无明显差异;治疗后,两组患者血清 AST、ALT、ALP 水平均明显上升(*P<0.05*),且观察组患者血清 AST、ALT、ALP 水平显著低于对照组(*P<0.05*);观察组患者肠鸣音恢复时间、排气时间、排便时间均明显低于对照组(*P<0.05*);治疗期间,观察组患者不良反应总发生率为 7.69%,显著低于对照组的 29.17%(*P<0.05*)。**结论:**在胆总管结石患者中应用 ERCP 取石术效果显著,对患者血清血清 AST、ALT、ALP 影响较小,值得推广与运用。

**关键词:**内镜逆行胰胆管造影术;腹腔镜;胆总管结石;门冬氨酸氨基转移酶;丙氨酸氨基转移酶;碱性磷酸酶

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# Comparison of ERCP and Laparoscopy in the Treatment of Common Bile Duct Stones and Their Effects on Serum AST, ALT and ALP*

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**ABSTRACT Objective:** To study Comparison of ERCP and laparoscopy in the treatment of common bile duct stones and their effects on serum Aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP). **Methods:** 50 cases of choledocholithiasis in our hospital from April 2017 to April 2018 were selected as the study subjects, the patients were divided into observation group (n=26) and control group (n=24) by random number table. The control group was treated by laparoscopic surgery, while the observation group was treated by ERCP lithotripsy. The operation time, intraoperative bleeding volume, time to get out of bed after operation, hospital stay, changes of serum AST, ALT and ALP levels, recovery time of gastrointestinal tract and occurrence of adverse reactions after operation were compared between the two groups. **Results:** The operation time of the observation group was higher than that of the control group (*P < 0.05*), the amount of bleeding during operation, the time of getting out of bed after operation and the time of hospitalization were significantly lower than that of the control group (*P < 0.05*); before operation, the levels of AST, ALT and ALP in the serum of the two groups had no significant difference; after treatment, the levels of AST, ALT and ALP in the serum of the two groups increased significantly (*P < 0.05*), and the levels of AST, ALT and ALP in the observation group were significantly higher. The recovery time of bowel sounds, exhaust time and defecation time in the observation group were significantly lower than those in the control group (*P < 0.05*); the total incidence of adverse reactions in the observation group was 7.69%, significantly lower than 29.17% in the control group (*P < 0.05*). **Conclusion:** The application of ERCP in choledocholithiasis is effective, and has little effect on serum AST, ALT and ALP. It is worth popularizing and applying.

**Key words:** Endoscopic retrograde cholangiopancreatography; Laparoscopy; Choledocholithiasis; Aspartate aminotransferase; Alanine aminotransferase; Alkaline phosphatase

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## 前言

胆总管结石是外科常见病,是位于胆总管内的结石,分发性胆总管结石和后发性胆总管结石,临床表现呈多样化,主要

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表现为上腹绞痛和对穿性背痛，寒战、高热等症状，严重者可出现感染性休克、胆源性胰腺炎等，严重影响患者的生命安全[1,2]。据统计，胆总管结石在西方国家的发病率为 10%～40%，其以胆囊结石为主；而在东方国家其发病率则为 2%～6%，以胆总管结石为主 [3]。临床治疗通常以腹腔镜手术治疗胆总管结石，腹腔镜手术通过切开胆总管直接取石，治疗效果好，但创伤大，恢复慢，住院时间长，术后并发症发生率高，高危患者难以忍受[4,5]。且有学者发现，在腹腔镜手术治疗胆总管结石时可发生小结石掉入胆总管而遗留的情况，且术后可出现胆石症复发[6]。随着内镜技术的快速发展，逆行胰胆管造影术（ERCP）诊治胆总管结石逐渐应用于临床[7]。ERCP 术是从活检管插入塑料导管至乳头开口，注射造影剂，进行造影[8-10]。本研究旨在探讨 ERCP 术与腹腔镜手术治疗胆总管结石的疗效对比，并观察其对血清 AST、ALT、ALP 的影响，现报告如下。

## 1 资料与方法

### 1.1 一般资料

选择 2017 年 4 月到 2018 年 4 月我院接诊的胆总管结石患者 50 例进行研究。将患者通过随机数表法分为 2 组，观察组男 15 例，女 11 例，年龄 35~59 岁，平均（45.68± 7.16）岁。对照组男 14 例，女 10 例，年龄 36~61 岁，平均（45.82± 7.32）岁。两组患者性别、年龄等一般资料无显著差异（*P* >*0.05*），存在可比性。

纳入标准：（1）经 CT、B 超影像检查确诊；（2）患者意思清楚；（3）有发热、腹痛、寒颤等症状。排除标准：（1）严重心肝肾功能不全患者；（2）凝血功能障碍；（3）手术禁忌症。

### 1.2 方法

对照组对照组患者全麻后，建立气腹，为避免损伤周围其他软组织，腹腔镜下对需要切除的组织剥离，充分暴露出胆总管，放入胆道镜中，用水冲洗或机械方式清除结石，取出后全层缝合。观察组患者全身麻醉后。进行 ERCP 取石术，十二指肠乳头开口，30% 碘海醇胆总管造影，确认结石位置、数量和大小后，切开乳头，根据结石大小、形态定切口长度，不宜超过乳头侧隆起根部。网篮直接取出结石。

### 1.3 观察指标

采集空腹静脉血 5 mL，以 3000 r·min$^{-1}$ 的速度进行离心，时间 10 min，提取上层血清后，置于零下 20℃的冷冻箱内存储以备检测，血清 AST、ALT、ALP 的测定采用双抗体夹心酶联免疫吸附法（ELISA）；观察记录手术情况、胃肠功能恢复情况及不良反应发生情况。

### 1.4 统计学分析

本研究数据选择 spss22.0 进行统计，计量资料用均数± 标准差（$\bar{x}\pm s$）表示，组间两两比较使用独立样本 t 检验；计数资料用[(n,%)]表示，采用 $x^2$ 检验，*P* 小于 0.05 表示差异具有统计学意义。

## 2 结果

### 2.1 两组患者手术情况比较

观察组患者手术时间高于对照组（*P<0.05*），术中出血量、术后下床时间及住院时间均显著低于对照组（*P<0.05*），见表 1。

表 1 两组患者手术情况比较（$\bar{x}\pm s$）

Table 1 Comparisons of surgical conditions between two groups（$\bar{x}\pm s$）

| Groups | n | Operative time (min) | Intraoperative bleeding volume (mL) | Time of getting out of bed after operation (d) | Length of stay (d) |
|---|---|---|---|---|---|
| Observation group | | 129.14± 23.81 | 38.34± 6.35 | 1.41± 0.62 | 7.42± 2.71 |
| Observation group | | | | | |
| The control group | The control group | 113.35± 25.21 | 74.62± 6.53 | 2.54± 0.81 | 12.65± 2.43 |
| t value | | 2.278 | 19.911 | 5.565 | 7.162 |
| *P* value | | 0.027 | 0.000 | 0.000 | 0.000 |

### 2.2 两组患者治疗前后血清 AST、ALT、ALP 水平比较

治疗后，两组患者血清 AST、ALT、ALP 水平均明显上升（*P<0.05*），且观察组患者血清 AST、ALT、ALP 水平显著低于对照组（*P<0.05*）见表 2。

表 2 两组患者治疗前后血清 AST、ALT、ALP 水平比较（$\bar{x}\pm s$，U/L）

Table 2 Comparison of serum AST, ALT and ALP levels between two groups before and after treatment（$\bar{x}\pm s$，U/L）

| Groups | n | AST | | ALT | | ALP | |
|---|---|---|---|---|---|---|---|
| | | Before the treatment | After treatment | Before the treatment | After treatment | Before the treatment | After treatment |
| Observation group | 26 | 148.36± 19.21 | 198.41± 11.71 | 167.92± 17.56 | 219.14± 18.53 | 97.82± 8.29 | 131.29± 13.64 |
| The control group | 24 | 145.94± 20.23 | 239.08± 15.63 | 170.08± 19.67 | 267.35± 21.68 | 95.69± 9.76 | 167.83± 18.19 |
| t value | | 0.434 | 10.465 | 0.410 | 8.473 | 0.834 | 8.077 |
| *P* value | | 0.666 | 0.000 | 0.683 | 0.000 | 0.409 | 0.000 |

### 2.3 两组患者胃肠功能恢复时间比较

观察组患者肠鸣音恢复时间、排气时间及排便时间均明显低于对照组（*P<0.05*）见表 3。

治疗期间，两组患者不良反应总发生率为 7.69%、29.17%，

差异显著($P<0.05$)见表 4。

表 3 两组患者胃肠功能恢复时间比较($\bar{x}\pm s$)

Table 3 Comparison of recovery time of gastrointestinal function between two groups($\bar{x}\pm s$)

| Groups | n | Recovery time of bowel sounds(h) | Anal exhaust time(h) | Anal defecation time(h) |
|---|---|---|---|---|
| Observation group | 26 | 13.56± 5.73 | 20.49± 6.75 | 37.13± 8.05 |
| The control group | 24 | 17.93± 6.17 | 24.65± 7.26 | 42.19± 8.59 |
| t value | | 2.597 | 2.099 | 2.150 |
| *P* value | | 0.012 | 0.041 | 0.037 |

表 4 两组患者不良反应发生情况比较[n(%)]

Table 4 Comparison of adverse reactions between two groups[n(%)]

| Groups | n | Incisional infection | Bile leakage | Biliary tract infection | Total incidence rate |
|---|---|---|---|---|---|
| Observation group | 26 | 0 | 1 | 1 | 2(7.69) |
| The control group | 24 | 2 | 2 | 3 | 7(29.17) |
| $x^2$ value | | | | | 3.899 |
| *P* value | | | | | 0.048 |

## 3 讨论

胆总管结石多发生在胆总管下端。它们指的是位于胆总管的结石。多数为胆色素结石或混合结石,随着生活水平的提高和饮食习惯的改变,胆总管结石的发病率不断增加[11,12]。胆总管结石会导致胆道不完全性梗阻,随着体位的改变,结石在胆道系统内发生移位,因此临床呈间歇性发作,若得不到及时治疗则会导致全身毒血症,形成严重并发症,危及病人生命[13,14]。

手术治疗是胆总管结石的首选,目前临床上多使用腹腔镜手术治疗该病,腹腔镜手术的效果较好,但是手术创伤大,切口在术后会形成瘢痕愈合和管径狭窄, 若再次发生胆总管结石,较大可能性发生完全性梗阻,使患者再次接受切开取石的手术治疗[15,16]。近年来,较多学者探寻治疗胆总管结石的方法,避免手术切开所造成的创伤[17]。ERCP 术具有创伤小,手术便捷快速、取石成功率高、临床症状缓解快等特点,迅速被运用于临床[18-20]。有研究显示,ERCP 术治疗胆总管结石有较好的疗效,患者术后机体功能恢复快[21]。

本研究结果显示, 使用 ERCP 术治疗的患者的术中出血量、术后下床时间、住院时间均明显低于腹腔镜手术,切口感染、胆漏发生率也明显低于腹腔镜手术,提示,ERCP 术治疗胆总管结石可有效改善患者手术情况,降低不良反应的发生。与 Chhoda A[22]等研究结果相似。Hoversten P[23]等研究发现,ERCP 术治疗胆总管结石对患者胃肠道刺激小,有益于肠蠕动功能的恢复,有益于改善患者胃肠道功能恢复时间。本研究结果也显示,使用 ERCP 术治疗的患者肠鸣音恢复时间、肛门排气时间、肛门排便时间明显低于使用腹腔镜手术治疗者,与上述观点一致。分析其原因是因为 ERCP 术创伤小,对患者胃肠道产生的刺激小,可有效缩短肠管排气时间;术后恢复快,若无胰腺炎等并发症的发生,在术后第 1d 就能给予流食,从而缩短胃肠功能恢复时间。AST 主要分布在心肌、肝脏和肾脏等组织中,正常情况下血清 AST 含量较低, 当相应细胞受损时, 胞浆内的 AST 释放入血,其浓度升高[24]。ALT 存在于各种细胞中,当这些组织发生病变时,该酶活力增多,可作为急性肝细胞损害的敏感标志[25,26]。ALP 是指碱性磷酸酶,是一种能够将对应底物去磷酸化的酶,主要用于各种肝炎疾病的检查中[27,28]。有研究显示,ERCP 术治疗胆总管结石对患者的肝功能个指标影响较小[29]。本研究结果显示,使用 ERCP 术治疗的患者血清 AST、ALT、ALP 水平显著低于使用腹腔镜手术治疗者,与 Wang X[30]等研究结果相似。分析是因为 ERCP 术可有效解除患者胆道压力,改善肝脏血流,增强肝脏代谢,从而促使 AST、ALT 等指标浓度降低,最终改善患者肝脏功能。

综上所述,在胆总管结石患者中应用 ERCP 取石术效果显著,对患者血清血清 AST、ALT、ALP 影响较小,值得推广与运用。

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