

doi: 10.13241/j.cnki.pmb.2019.23.024

经胰管预切开与双导丝技术在困难胆管插管中的插管效果及安全性对比 *

孙仁虎 金海林 肖 君 张其德 韩树堂^Δ

(南京中医药大学附属医院 江苏 南京 210029)

摘要 目的:比较经胰管预切开与双导丝技术在困难胆管插管中的插管效果及安全性。**方法:**收集我院 2017 年 1 月~2018 年 12 月收治的 60 例经内镜逆行性胰胆管造影术、反复进入胰管的困难胆管插管患者,将患者按照入院先后顺序分为观察组和对照组,每组 30 例。两组患者分别经胰管预切开及双导丝技术辅助插管,对两组患者插管时间、插管成功率以及并发症的发生情况进行综合评价。**结果:**观察组患者插管时间短于对照组($P<0.05$),插管成功率为 96.7%,显著高于对照组(73.3%, $P<0.05$)。观察组和对照组患者并发症的发生率分别为 10.0%、13.3%,组间差异无统计学意义($P>0.05$)。**结论:**对困难胆管插管患者,采用经胰管预切开的方式辅助插管操作简单,插管时间短,成功率高,且不增加并发症发生率。

关键词:经胰管预切开;双导丝技术;困难胆管插管;插管成功率;并发症

中图分类号:R657.4 文献标识码:A 文章编号:1673-6273(2019)23-4504-04

Comparison of the Effect and Safety of Transpancreatic Duct pre-incision and Double-wire Technique on the Difficult Biliary Intubation*

SUN Ren-hu, JIN Hai-lin, XIAO Jun, ZHANG Qi-de, HAN Shu-tang^Δ

(Center of Digestive Endoscopy, Affiliated Hospital of Nanjing University of Chinese Medicine, Nanjing, Jiangsu, 210029, China)

ABSTRACT Objective: To compare the effect and safety of transpancreatic duct pre-incision and double-wire technique for the difficult biliary intubation. **Methods:** From January 2017 to December 2018, 60 patients with endoscopic retrograde cholangiopancreatography and repeated biliary intubation of difficult pancreatic duct were collected. The patients were divided into the observation group and the control group according to the admission order, with 30 patients in each group. Both groups were treated with pancreatic duct pre-incision and double-wire technique-assisted intubation respectively. The intubation time, intubation success rate and incidence of complications were compared between two groups. **Results:** The intubation time of observation group was shorter than that of the control group ($P<0.05$). The success rate of intubation in the observation group was 96.7%, which was significantly higher than that in the control group (73.3%, $P<0.05$). The incidence of complications in the two groups was 10.0% VS 13.3%. ($P>0.05$), there was no significant difference between two groups. **Conclusion:** Pre-incision of pancreatic duct could be used to assist intubation in patients with difficult biliary duct intubation, which was simple to operate, had short intubation time, high success rate and no increase of complications.

Key words: Transpancreatic duct pre-incision; Double-wire technique; Difficult biliary duct intubation; Success rate of intubation; Complications

Chinese Library Classification(CLC): R657.4 **Document code:** A

Article ID: 1673-6273(2019)23-4504-04

前言

作为胆道系统疾病诊治的关键技术,选择性胆管插管是经内镜逆行性胰胆管造影术(Endoscopic retrograde cholangiopancreatography, ERCP)的首要步骤,这需要高水平的胆管插管技术^[1]。流行病学数据显示即使是有丰富经验的内镜镜操作者^[2],插管失败率仍在 5%-10%。近年来,国内外专家提出了困难胆管插管的定义标准,建议及时应用辅助胆管插管技术,提高插管成功率^[3],并减少反复插管及操作时间过长所致并发症的

风险。

目前,临床多采用导丝引导技术辅助插管,其成功率高达 90%以上^[4,5],然而部分反复进入胰管的困难胆管插管具有较高失败率,约为 10%~15%,增加术后胰腺炎等并发症的发生风险^[6,7]。随着 ERCP 技术的不断发展,双导丝技术、经胰管预切开技术等辅助性插管技术在临床上得以应用。本研究纳入我院接受 ERCP 治疗的困难胆管插管患者 60 例,比较了两种辅助插管技术应用的有效性及其安全性,结果如下。

* 基金项目:江苏省卫生和计划生育委员会基金项目(BRA2017551)

作者简介:孙仁虎(1980-),男,博士,主治医师,主要研究方向:消化道疾病的内镜下诊治, E-mail: Sunrenhu1980@163.com

^Δ 通讯作者:韩树堂(1963-),男,博士,主任医师,主要研究方向:消化道疾病的内镜下诊治,

E-mail: shutanghanhust@163.com, 电话: 13505169008

(收稿日期:2019-06-05 接受日期:2019-06-30)

1 资料与方法

1.1 一般资料

收集 2017 年 1 月~2018 年 12 月 60 例在我院行 ERCP 治疗困难胆管插管患者的病例资料,遵循随机原则分为观察组与对照组,每组各 30 例。观察组中,男 17 例,女 13 例,年龄 37~74 岁,平均年龄为 (58.53 ± 6.61) 岁,包括胆管恶性狭窄 13 例,胆管结石 12 例,胆管良性狭窄 5 例;对照组中,男 16 例,女 14 例,年龄为 35~76 岁,平均年龄为 (59.13 ± 6.54) 岁,包括胆管恶性狭窄 14 例,胆管结石 12 例,胆管良性狭窄 4 例。两组间一般临床特征比较差异均无统计学意义($P>0.05$),具有可比性。

1.2 纳入标准和排除标准

纳入标准:(1)接受经内镜逆行胰胆管造影术;(2)术前检查十二指肠乳头完整;(3)导丝进入胰管 5 次或插管时间 >10 min 以上但未能进入胆管^[9];(4)本研究符合医学伦理学,并得到医学伦理委员会的认可和批准,所有受试者均为自愿参与研究,签订知情同意书。排除标准:(1)有严重肝肾功能障碍或重要脏器疾病者;(2)认知障碍或精神疾病者;(3)有手术禁忌症者;(4)既往接受胆道支架置入或乳头括约肌切开者。

1.3 研究方法

研究所用仪器为 TJF-260V 电子十二指肠镜(奥林巴斯贸易(上海)有限公司),Olympus 聪明刀(奥林巴斯贸易(上海)有限公司),EZY-35450A 0.035 黄斑马导丝(波科国际医疗贸易(上海)有限公司),碘酊注射液(江苏恒瑞医药股份公司)。术前 12 h 禁食禁水,术前 30 min 患者口服达克罗宁胶浆,缓慢咽下,术前 10 min 给予哌替啶、地西洋肌内注射。术中指导患者保持俯卧位,进镜达到十二指肠降部,明确十二指肠乳头位置,观察乳

头开口情况。导丝进入胰管反复 5 次且时间 >10 min,给予辅助插管。对照组:行双导丝技术插管,在患者主胰管体尾部留置 1 根导丝,适当力度将导丝下压,直至乳头黏膜皱襞撑开。选择第一根导丝上方位置,顺 11:00 钟方向采用切开刀、导丝实施选择性胆管插管。当呈现 Y 字形表示进入胆道。观察组:于患者主胰管内留置导丝,顺导丝进入乳头口位置对切开刀弓进行拉伸,结合患者实际情况对角度进行相应调整,确保切开刀钢丝靠近胆管方向。选择混合电流模式,逐步将黏膜切开,切开乳头后,将导丝及切开刀插入,使胆管开口暴露在胰管上方,将胰管导丝撤出,顺 11:00 方向实施选择性胆管插管,进入导丝。插管成功后,结合患者病情给予相应治疗。术后给予常规抗生素、抑制胰酶等药物治疗,防治术后感染以及术后并发症的发生。

1.4 观察指标

记录两组患者插管时间,插管成功率以及并发症发生情况。

1.5 统计学分析

采用 SPSS 22.0 对数据进行分析,计数资料采用 χ^2 检验,计量资料以 $(\bar{x} \pm s)$ 表示,组间比较用 t 检验,以 $P<0.05$ 表示组间差异具有统计学意义。

2 结果

2.1 观察组与对照组患者插管时间的比较

观察组患者插管时间为 (4.83 ± 1.24) min,较对照组的 (8.95 ± 2.52) min 明显缩短($P<0.05$)。

2.2 观察组与对照组患者插管成功率的比较

观察组患者共有 29 例插管成功,成功率为 96.7%,较对照组(73.3%)显著升高($P<0.05$),见表 1。

表 1 观察组与对照组患者插管成功率的比较

Table 1 Comparison of the success rate of between the observation group and control group

Groups	Cases	Successful intubation	Intubation failed	Intubation success rate
Observation group	30	29	1	96.7%
Control group	30	22	8	73.3%
<i>P</i>	/	/	/	<0.05

2.3 观察组与对照组患者并发症发生情况的比较

观察组患者发生胰腺炎、胆管炎分别为 1 例、2 例,对照组有 2 例发生胰腺炎,1 例出血,1 例胆管炎,两组患者并发症发

生率分别为 10.0%、13.3%,组间差异无统计学意义($P>0.05$),见表 2。

表 2 观察组与对照组患者并发症发生情况的比较[例(%)]

Table 2 Comparison of the incidence of complications between the observation group and control group[n(%)]

Groups	Cases	Pancreatitis	Bleeding	Cholangitis	Complication rate
Observation group	30	1(3.3)	0(25.0)	2(6.7)	3(10.0)
Control group	30	2(6.7)	1(3.3)	1(3.3)	4(13.3)
<i>P</i>	/	/	/	/	>0.05

3 讨论

研究表明 ERCP 选择性胆管插管成功与否直接影响到胆

道疾病的治疗效果^[8],然而基于十二指肠主乳头形态、结构及位置的特殊性,即便经验丰富的内镜医师在实施常规胆管插管时也存在 8%~10%失败率^[9,10]。根据 2016 年国际指南,困难胆管

插管的定义^[9]为在标准的 ERCP 操作中,10 min 内或 5 次选择性胆管插管不成功或不能进入主乳头,而欧洲胃肠内镜学会官方声明是将胆管插管时间限制在 5 min, 导丝进入胰管及胰管意外显影为评价指标^[11,12]。影响胆管插管成功率的因素主要有以下几个方面,首先是十二指肠乳头形态和位置异常、壶腹部恶性肿瘤、胆总管末端狭窄、上消化道术后解剖结构异常等患者自身因素;其次是内镜医师的技术熟练程度、设备、操作方法等其它因素^[13,14]。术前影像学检查如磁共振成像技术,在一定程度上可以预测 ERCP 胆管插管困难程度,选择最佳、最合理的胆管插管方案可避免 ERCP 失败及不良事件的发生^[15,16]。

双导丝辅助插管技术是在患者胰管内留置导丝,该导丝占据胰管通道,能够有效避免另一根导丝进入胰管,解决轴线固定性差等问题^[17],同时便于对 X 线下胆胰管解剖关系的观察。需要注意的是在操作时要掌握好第 2 根导丝插入的角度及方向,如操作不当也会出现反复进入胰管的情况^[18,19]。文献报道双导丝技术应用于困难胆管插管成功率为 75 %~90 %,患者发生胰腺炎约为 5 %~20 %^[20,21]。与双导丝技术不同,经胰管预切开辅助插管则是先对乳头实施预切开,以实现缩短胰管通道、将胆胰隔膜切开,进而确保胆管插管成功。在该操作中要精准控制切开方向及程度^[22,23]。研究显示采用经胰管预切开辅助技术能够将困难胆管插管成功率提高至 78 %~96 %^[24]。以往学者在研究中比较了经胰管预切开与双导丝技术辅助困难导管插管的效果,发现两种方法插管成功率差异无统计学意义 (91.5 % vs. 93.2 %)^[25]。本次研究结果显示经胰管预切开技术插管成功率更高,达 96.7 %,与以往研究有所不同,考虑可能与患者疾病类型不同有关。在成功插管时间方面,观察组患者成功插管用时长于对照组,体现了经胰管预切开技术的优越性。针对乳头开口紧患者,采用双导丝技术插管容易出现其中 1 根导丝插入乳头开口困难的情况,反复插管不仅延长了插管时间,增加了患者的身心痛苦,而且增加了插管操作风险^[26]。而采用经胰管预切开技术,胆管开口能够充分暴露,共同通道缩短,插管难度低^[27,28]。有学者在研究中提出预切开会一定程度上增加胰腺炎、出血等风险^[29,30]。本研究中,两组患者并发症发生情况看差异无统计学意义,说明经胰管预切开并未增加患者并发症率,考虑与预防性应用胰管支架有关。

综上所述,对困难胆管插管患者给予经胰管预切开辅助插管,能够提升插管成功率,缩短插管时间,且不会增加 ERCP 并发症,可作为困难胆管插管辅助插管首选方式。

参考文献(References)

- [1] Gómez-Ríos, Manuel Ángel, Silva-Carballal I, et al. Use of the Total-Track VLM for endotracheal intubation in a patient with a giant thyroglossal duct cyst and airway compression [J]. *Anaesthesia Critical Care & Pain Medicine*, 2018, 37(6): 615-616
- [2] Zimmer, Vincent. Novel biopsy forceps anchoring technique for completion of direct cholangioscopy after freehand intubation [J]. *Digestive Endoscopy*, 2017, 29(5): 638-639
- [3] Tsapaki V, Paraskeva K, Papastergiou V, et al. Single operator cholangioscopy reduces patient radiation exposure in the management of difficult bile duct stones and indeterminate bile duct structures: A single center comparison study [J]. *Physica Medica*, 2018, 52 (20): 110-111
- [4] Anderloni A A , Fugazza A , Maselli R, et al. Tu1487 Direct Peroral Cholangioscopy in the Evaluation of Common Bile Duct Clearance After Endoscopic Management of Difficult Biliary Stones: Preliminary Results of a Pilot Study[J]. *Gastrointestinal Endoscopy*, 2017, 85 (5): AB647
- [5] Laleman W, Verraes K, Van Steenberghe W, et al. Usefulness of the single-operator cholangioscopy system SpyGlass in biliary disease: a single-center prospective cohort study and aggregated review[J]. *Surgical Endoscopy*, 2017, 31(5): 2223-2232
- [6] Zimmer V, Lammert F. Positioning cholangioscopy in bile duct stone management: Mind the technology gap[J]. 2018, 9(4): 315-316
- [7] Itoi T, Baron T H. East meets West: historical investigation of non-operative biliary interventions [J]. *Journal of Hepato-Biliary-Pancreatic Sciences*, 2018, 25(2): 162-163
- [8] Zhang Z F, Duan Z J, Wang L X, et al. Aggressive Hydration With Lactated Ringer Solution in Prevention of Postendoscopic Retrograde Cholangiopancreatography Pancreatitis: A Meta-analysis of Randomized Controlled Trials[J]. *Journal of Clinical Gastroenterology*, 2017, 51(3): e17
- [9] Deng H Y, Wang T, Huang X K, et al. Comparative Study of Recessive Spherical Headed Silicone Intubation and Endonasal Dacryocystorhinostomy under Nasal Endoscopy for Nasolacrimal Duct Obstruction[J]. *Scientific Reports*, 2017, 7(1): 7734
- [10] Kim J, Kang S M. The Clinical Outcomes of Early Silicone Tube Displacement in Congenital Nasolacrimal Duct Obstruction[J]. *Journal of the Korean Ophthalmological Society*, 2018, 59(5): 393-396
- [11] Eshraghi B, Jamshidian-Tehrani M, Mirmohammadsadeghi A. Comparison of the success rate between monocanalicular and bicanalicular intubations in incomplete complex congenital nasolacrimal duct obstruction[J]. *Orbit*, 2017, 36(4): 215-217
- [12] Kato K, Shiba M, Kakiya Y, et al. Celecoxib Oral Administration for Prevention of Post-Endoscopic Retrograde Cholangiopancreatography Pancreatitis: A Randomized Prospective Trial [J]. *Pancreas*, 2017, 46 (7): 880
- [13] Peeraphatdit T, Chedid V, Halawi H, et al. Incomplete Procedure Reports on Endoscopic Retrograde Cholangiopancreatography May Delay Exchange/Removal of Plastic Biliary Stents[J]. *Gastroenterology*, 2018, 155(1): e46-e47
- [14] Khan T T, Ahmad N. Pancreaticobiliary Maljunctions in European Patients with Bile Duct Cysts [J]. *World Journal of Surgery*, 2018, 42 (11): 3817-3818
- [15] Buscemi S, Damiano G, Fazzotta S, et al. Electrospun Polyhydroxyethyl-Aspartamide-Polylactic Acid Scaffold for Biliary Duct Repair: A Preliminary In Vivo Evaluation [J]. *Transplantation Proceedings*, 2017, 49(4): 711-715
- [16] Guleken Z, Ozbeyli D, Acikel-Elmas M, et al. The effect of estrogen receptor agonists on pancreaticobiliary duct ligation induced experimental acute pancreatitis[J]. *Journal of physiology and pharmacology: an official journal of the Polish Physiological Society*, 2017, 68(6): 847-858
- [17] Zimmer V. Knock-knock-knockin' on bile duct's door: the "tip of the biopsy forceps technique" probing the route during freehand-intubation

- ed direct cholangioscopy[J]. *Endoscopy*, 2017, 49(06): E153-E154
- [18] Kamiyama R, Ogura T, Okuda A, et al. Electrohydraulic Lithotripsy for Difficult Bile Duct Stones under Endoscopic Retrograde Cholangiopancreatography and Peroral Transluminal Cholangioscopy Guidance[J]. *Gut and Liver*, 2018, 12(4): 457-462
- [19] Nakai Y, Isayama H, Koike K. Two-step EUS-guided antegrade treatment of a difficult bile duct stone in a surgically altered anatomy patient[J]. *Digestive Endoscopy*, 2018, 30(1): 125-127
- [20] N. Spröber, Fegert J M. Transpancreatic precut papillotomy versus double-guidewire technique in difficult biliary cannulation: prospective randomized study[J]. *Endoscopy*, 2018, 50(01): 33-39
- [21] Santiago Sánchez Cabús, Pittau G, Mylène Sebah. Primary non-functioning neuroendocrine tumor of the extrahepatic bile duct [J]. *Revista Espanola De Enfermedades Digestivas*, 2017, 109 (3): 228-229
- [22] Puri R, Bhatia S, Bansal R, et al. Endoscopic management of difficult benign biliary and pancreatic strictures using a wire-guided cystoscope: experience with 25 cases [J]. *Endoscopy International Open*, 2018, 06(07): E797-E800
- [23] Hideki I, Hisamichi Y, Daiki Y, et al. Internal biliary drainage for isolated posterior segmental biliary obstruction: a case report[J]. *Journal of Medical Case Reports*, 2018, 12(1): 156-158
- [24] Zimmer V. Gastrointestinal: Spontaneous air versus dye cholangiogram in bile duct stone disease[J]. *Journal of Gastroenterology and Hepatology*, 2018, 33(2): 337
- [25] Öztürk MB, Barutca S A, Keskin E S, et al. Parotid Duct Repair with Intubation Tube: Technical Note[J]. *Annals of Maxillofacial Surgery*, 2017, 7(1): 129
- [26] Feng M, Wan P, Qiu B, et al. Improved portal vein venoplasty with autogenous patch in pediatric living donor liver transplantation [J]. *Liver Transplantation*, 2018, 24(8): 1084-1090
- [27] Goel R, Nagpal S, Kumar S, et al. Transcanalicular Laser-Assisted Dacryocystorhinostomy With Endonasal Augmentation in Primary Nasolacrimal Duct Obstruction: Our Experience[J]. *Ophthalmic Plastic & Reconstructive Surgery*, 2017, 33(6): 1
- [28] Kashkouli M B, Abtahi M B, Sianati H, et al. A Novel One-Stage Obstruction-Based Endoscopic Approach to Congenital Nasolacrimal Duct Obstruction [J]. *Ophthal Plast Reconstr Surg*, 2017, 33 (5): 350-354
- [29] Kim S H, Park C Y, Hwang S W, et al. Clinical Significance of Biofilm on Silicone Tubes Removed From Patients With Nasolacrimal Duct Stenosis [J]. *Journal of Craniofacial Surgery*, 2018, 29 (2): 462-465
- [30] Eshraghi B, Khalilipour E, Ameli K, et al. Pushed monocanalicular intubation versus probing for the treatment of simple and incomplete complex types of congenital nasolacrimal duct obstruction in children older than 18 months-old[J]. *Orbit*, 2017, 36(4): 218-222

(上接第 4473 页)

- [16] Eden C, Esses G, Katz D, et al. Effects of anesthetic interventions on breast cancer behavior, cancer-related patient outcomes, and postoperative recovery[J]. *Surg Oncol*, 2018, 27(2): 266-274
- [17] Hannam JA, Mitchell SJ, Cumin D, et al. Haemodynamic profiles of etomidate vs propofol for induction of anaesthesia: a randomised controlled trial in patients undergoing cardiac surgery [J]. *Br J Anaesth*, 2019, 122(2): 198-205
- [18] Choi GJ, Kang H, Baek CW, et al. Etomidate versus propofol sedation for electrical external cardioversion: a meta-analysis [J]. *Curr Med Res Opin*, 2018, 34(11): 2023-2029
- [19] Gupta M, Gupta P. Nalbuphine pretreatment for prevention of etomidate induced myoclonus: A prospective, randomized and double-blind study[J]. *J Anaesthesiol Clin Pharmacol*, 2018, 34(2): 200-204
- [20] Mullick P, Talwar V, Aggarwal S, et al. Comparison of priming versus slow injection for reducing etomidate-induced myoclonus: a randomized controlled study [J]. *Korean J Anesthesiol*, 2018, 71 (4): 305-310
- [21] Besnier E, Clavier T, Tonon MC, et al. Ketamine and Etomidate Down-regulate the Hypothalamic-Pituitary-Adrenal Axis in an Endotoxemic Mouse Model[J]. *Anesthesiology*, 2017, 127(2): 347-354
- [22] LaRochelle JM, Desselle B, Rossi JL. Continuous-Infusion Etomidate in a Patient Receiving Extracorporeal Membrane Oxygenation [J]. *J Pediatr Pharmacol Ther*, 2017, 22(1): 65-68
- [23] Hammond DA, Vines CE, McPhee AL, et al. Effect of Etomidate on Pneumonia Development in Critically Ill, Nontrauma Patients[J]. *J Intensive Care Med*, 2019, 34(1): 34-39
- [24] Upchurch CP, Grijalva CG, Russ S, et al. Comparison of Etomidate and Ketamine for Induction During Rapid Sequence Intubation of Adult Trauma Patients[J]. *Ann Emerg Med*, 2017, 69(1): 24-33.e2
- [25] Das D, Sen C, Goswami A. Effect of Vitamin C on adrenal suppression by etomidate induction in patients undergoing cardiac surgery: A randomized controlled trial [J]. *Ann Card Anaesth*, 2016, 19 (3): 410-417
- [26] Kim MG, Park SW, Kim JH, et al. Etomidate versus propofol sedation for complex upper endoscopic procedures: a prospective double-blinded randomized controlled trial[J]. *Gastrointest Endosc*, 2017, 86(3): 452-461
- [27] Możański M, Tomaszewski D, Rybicki Z, et al. Etomidate, but not thiopental, decreases serum cortisol concentration in morbidly obese patients. A randomized controlled trial [J]. *Anaesthesiol Intensive Ther*, 2016, 48(1): 7-12
- [28] Rożyński M, Demska-Zakęś K, Sikora A, et al. Impact of inducing general anesthesia with Propofol (etomidate) on the physiology and health of European perch (*Perca fluviatilis* L.) [J]. *Fish Physiol Biochem*, 2018, 44(3): 927-937
- [29] Komatsu R, Makarova N, You J, et al. Etomidate and the Risk of Complications After Cardiac Surgery: A Retrospective Cohort Analysis[J]. *J Cardiothorac Vasc Anesth*, 2016, 30(6): 1516-1522
- [30] Basciani RM, Rindlisbacher A, Begert E, et al. Anaesthetic induction with etomidate in cardiac surgery: A randomised controlled trial[J]. *Eur J Anaesthesiol*, 2016, 33(6): 417-424