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• 专题报道 •

胆道支架引流联合腔内射频消融治疗胆道恶性梗阻

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[摘要] **目的** 探讨胆道支架引流联合腔内射频消融治疗胆道恶性梗阻的安全性及临床疗效。**方法** 前瞻性纳入 18 例因胆道恶性梗阻接受内镜逆行胆胰管造影(ERCP)治疗的患者,在胆管插管成功后,循导丝插入双极射频电极,于肿瘤部位进行射频消融,并留置胆道支架进行引流,观察治疗的安全性及临床疗效。**结果** 所有患者均成功接受射频消融治疗;胆道引流成功率为 100%(18/18),12 例患者留置塑料支架,6 例患者留置金属支架,其中 3 例患者同期留置胰管支架;术后患者出现胆管炎 2 例,胰腺炎 2 例,均经短期对症治疗后控制;黄疸明显缓解率为 61%(11/18);中位随访期 10.9(2.0~15.4)个月,3 个月内支架通畅率为 87%(13/15),6 个月内支架通畅率为 64%(9/14),12 个月内支架通畅率为 25%(2/8);6 个月生存率为 67%(8/12),12 个月生存率为 50%(4/8)。**结论** 对于胆道恶性梗阻,胆道支架引流联合腔内射频消融治疗是安全可行的。

[关键词] 胆道恶性梗阻;内镜逆行胆胰管造影术;支架;射频消融术

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Biliary drainage combined with intraductal radiofrequency ablation for treatment of malignant biliary obstruction

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[Abstract] **Objective** To evaluate the safety and clinical effectiveness of biliary drainage combined with endoscopic intraductal radiofrequency ablation (RFA) for treatment of malignant biliary obstruction. **Methods** Eighteen patients with malignant biliary obstruction, who were unsuitable for surgical resection, were prospectively selected for this study. During endoscopic retrograde cholangiopancreatography (ERCP), when biliary cannulation was successfully done, a bipolar radiofrequency probe was introduced into the bile duct via a guide wire. RFA was done under fluoroscopy, which was followed by stent placement. The patients were closely observed and followed up after procedure. **Results** All patients received successful RFA and biliary drainage. Twelve patients were implanted with plastic stents and 6 with metal stents; 3 patients were also implanted with pancreatic stents. Four patients developed mild complications (2 cholangitis and 2 pancreatitis), which were controlled by conservative therapy. Jaundice was promptly controlled in 61% (11/18) patients. The patients were followed up for a median of 10.9 months (range 2.0-15.4 months). The stent patency rates of 3 months, 6 months and 12 months were 87%(13/15), 64% (9/14) and 25% (2/8), respectively. The 6 month- and 12 month-survival rates were 67% (8/12) and 50% (4/8), respectively. **Conclusion** Biliary drainage combined with endoscopic intraductal RFA is technically feasible and safe for treatment of malignant biliary obstruction.

[Key words] malignant biliary obstruction; endoscopic retrograde cholangiopancreatography; stents; radiofrequency ablation

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胆道恶性梗阻是临床常见病,病因包括原发于胆道系统的恶性肿瘤,以及转移性肿瘤如肝癌、胰腺癌、胃癌、结肠癌等侵犯胆管所致。绝大多数患者确诊时已属中晚期,丧失了最佳手术机会,只能进行姑息性治疗。通过内镜下放置胆道支架进行减压引流是临床常用的姑息性治疗方法^[1-2],但由于肿瘤组织增生等常导致胆道支架发生堵塞,降低了支架通畅期,因此患者需要反复更换或再次置入支架,这严重

影响了患者的生活质量并增加了医疗费用^[3-4]。对于无法手术治疗的胆道恶性梗阻患者,若能通过破坏肿瘤组织结构延缓病程进展,对降低支架堵塞的风险,延长通畅期,提高患者生活质量及节约医疗资源等具有重要意义。

近年来,射频消融技术在实体性肿瘤(如肝癌)中得到了广泛的应用^[5-6],其通过热效应使肿瘤组织凝固坏死,对控制肿瘤进展有明确的作用。关于胆

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道肿瘤的射频消融治疗,临床罕有相关研究报道,本研究探讨了在胆道支架引流的基础上,联合腔内射频消融治疗胆道恶性梗阻的安全性及临床疗效。

1 资料和方法

1.1 一般资料 2011年9月至2012年11月,经本院医学伦理委员会批准,前瞻性纳入18例因胆道恶性梗阻接受内镜逆行胆胰管造影(ERCP)治疗的患者,男性12例、女性6例,平均 (63 ± 11) 岁;术前总胆红素 $17.4 \sim 593.1 \mu\text{mol/L}$,平均 $(211.6 \pm 182.1) \mu\text{mol/L}$;根据梗阻部位分为肝门部胆管肿瘤11例,胆总管下端肿瘤3例,壶腹部胆管肿瘤2例,肝外胆管癌栓2例;胆管狭窄段长度 $1 \sim 8 \text{ cm}$,平均 $(3.0 \pm 1.7) \text{ cm}$;4例患者既往接受过ERCP治疗。所有患者术前均签署射频消融知情同意书。

1.2 器械与方法 采用治疗性的十二指肠镜及常规治疗附件(切开刀、导丝、扩张管)。射频发生器为美国AngioDynamics公司生产的RITA 1500X型射频发生器。射频电极由英国Emcision公司生产,该电极为双极探头,直径8F(2.6 mm),内部可通0.035 inch(1 inch=2.5 cm)导丝,最大输出功率10 W,局部消融温度达到 60°C 。

ERCP操作采取全身静脉麻醉方式,采用丙泊酚缓慢持续泵入;切开刀及导丝插管进入胆管后,造影明确肿瘤部位、病变程度及长度,留置导丝,8.5F扩张管扩张胆管狭窄部位,在导丝引导下,射频消融电极至肿瘤所在部位进行射频烧灼,单次消融时间为 $1.5 \sim 2.0 \text{ min}$;若狭窄段超过2.5 cm,则从上而下,分次逐步进行射频烧灼,射频消融后留置胆道支架进行引流。

1.3 疗效评价及随访 患者术后定期(术后第3日,术后1个月,以后每3个月1次)复查肝功能,明确患者黄疸控制情况,黄疸缓解定义为术后第3日总胆红素下降至术前的50%;观察ERCP术后早期及晚期的并发症;通过电话方式随访,明确患者支架堵塞情况及存活情况,若支架出现堵塞,要求患者及时入院更换内支架。

2 结果

2.1 操作相关情况 总治疗操作时间为 $35 \sim 74 \text{ min}$,平均 $(42 \pm 15) \text{ min}$;所有患者均成功接受射频消融治疗(技术成功率100%),由于胆管狭窄长度不一,需分段烧灼,射频烧灼次数为 $1 \sim 4$ 次/例,平

均 (2.0 ± 1.2) 次/例;所有患者均成功放置胆道支架(塑料支架12例,金属支架6例),其中3例患者(胆总管下端肿瘤2例,壶腹部肿瘤1例)在射频消融治疗后,为防止热力引起局部水肿导致胰腺炎,予以预防性放置胰管支架(图1)。ERCP术后住院时间为 $5 \sim 12 \text{ d}$,平均 $(6.0 \pm 1.8) \text{ d}$ 。

16例患者行单次射频治疗;2例患者行多次射频治疗,其中1例为肝门部胆管癌患者,行2次射频烧灼治疗后造影显示狭窄明显缓解,未再次留置支架(图2),随访至今无黄疸复发等症状,现生存期已达1.2年,另1例患者为壶腹部肿瘤,已行3次射频烧灼治疗及更换支架,支架通畅期最长为9.5个月,现患者生存期已超过1年。

成功利用射频消融治疗胆道肿瘤出血1例,该患者为肝癌合并胆道癌栓出血,予以尝试性射频烧灼治疗并留置胆道支架,胆道出血顺利停止,后未再次发生出血(图3)。

2.2 临床随访疗效 根据预先设定的标准,术后患者黄疸明显缓解率为61%(11/18);术后随访 $2.0 \sim 15.4$ 个月,中位随访期为10.9个月。随访期内6例患者先后出现支架堵塞,1例为肝癌侵犯肝门部胆管,原先支架为塑料支架,后更换为双金属支架引流;4例患者支架堵塞后未接受治疗(肝门部胆管癌3例,胰腺癌1例);1例为壶腹部肿瘤,原支架为不覆膜金属支架,后置入覆膜金属支架。随访期内,3个月内支架通畅率为87%(13/15),6个月内支架通畅率为64%(9/14),12个月内支架通畅率为25%(2/8);6例患者死亡,1例死于脑血管意外,5例死于肿瘤进展,6个月生存率为67%(8/12),12个月生存率为50%(4/8)。

2.3 操作相关并发症 本组共有4例发生并发症,2例为早期胆管炎,2例为轻度胰腺炎,在对症保守治疗后治愈,未出现出血、胆漏、穿孔等并发症。

3 讨论

双极射频电极是新近研发的射频器械,可通过内镜进行腔内射频消融治疗。Khorsandi等^[7]率先开展了胆道内射频消融的实验研究,采用猪进行实验观察,发现胆道内进行射频消融的合适能量为 $5 \sim 10 \text{ W}$,最长时间为2 min。Steel等^[8]首次报道了射频消融技术在人类胆道肿瘤中的应用,对22例晚期胆道肿瘤患者实施了内镜介导的胆管内射频消融治疗,研究显示该方法安全可行,患者并发症发生率低,早期(30 d)及晚期(90 d)的胆道支架堵塞率均较低。



图 1 胆道支架引流联合腔内射频消融治疗胰腺癌侵犯胆管

Fig 1 Biliary drainage combined with endoscopic intraductal radiofrequency ablation for treatment of biliary obstruction caused by pancreatic cancer invasion

A: Cholangiography showed biliary stricture at pancreas segment of the common bile duct, and a plastic stent was deployed in the pancreatic duct in advance; B: Radiofrequency ablation for treatment of biliary stricture; C: A metal stent was deployed in the bile duct, and the bile was successfully drained

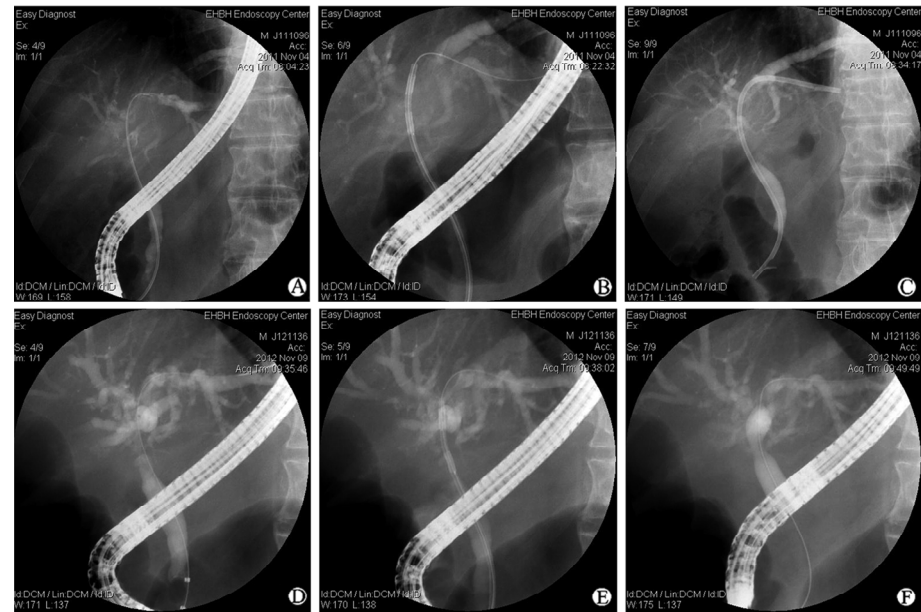


图 2 胆道支架引流联合腔内射频消融治疗肝门部胆管癌

Fig 2 Biliary drainage combined with endoscopic intraductal radiofrequency ablation for treatment of hilar cholangiocarcinoma

A: Cholangiography showed hilar bile duct stricture; B: Radiofrequency ablation for treatment of biliary stricture; C: A plastic stent was deployed in left hepatic bile duct; D: The stent was removed after 12 months, and cholangiography showed that the biliary stricture was relieved; E: Radiofrequency ablation for treatment of biliary stricture again; F: Cholangiography showed that the biliary stricture was relieved significantly, and no stent was deployed

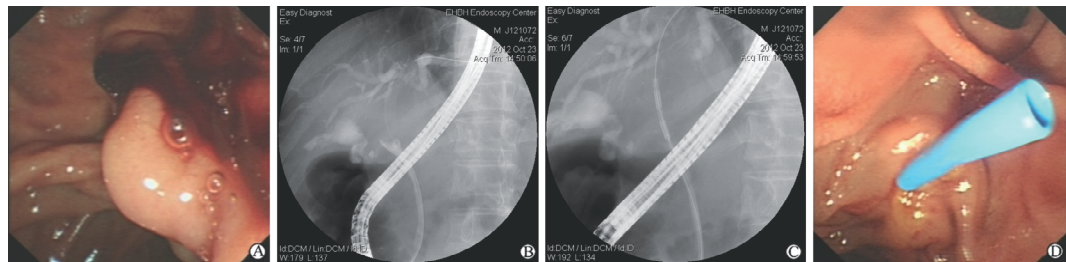


图 3 胆道支架引流联合腔内射频消融治疗肝癌合并胆道癌栓出血

Fig 3 Biliary drainage combined with endoscopic intraductal radiofrequency ablation for treatment of biliary tumor thrombus bleeding in primary liver cancer

A: Blood flowed from the main papilla orifice; B: Cholangiography showed expandable filling defects in hilar bile duct; C: Radiofrequency ablation for treatment of tumor thrombus from the proximal to distal; D: A plastic stent was placed in the bile duct, and active bleeding was stopped

本研究中,采用射频电极在肿瘤部位进行射频消融,由于狭窄段长度从1~8 cm不等,往往需要采取单次或分段多次射频烧灼,射频烧灼次数每例从1~4次不等;分段烧灼需要注意电极的准确定位,避免病灶未被完全烧灼。在支架通畅率方面,3个月内支架通畅率为87%(13/15),6个月内支架通畅率为64%(9/14),12个月内支架通畅率为25%(2/8);在生存率方面,患者6个月生存率为67%(8/12),12个月生存率为50%(4/8),结果均令人满意,但是否优于单纯支架引流患者的生存情况尚需大样本研究加以证实。

本研究中,1例肝门部胆管癌患者接受了2次射频治疗,原有狭窄较治疗前明显缓解,现患者一般情况可,生存期已达1.2年。另1例患者为壶腹部肿瘤,已行3次射频治疗及更换支架,支架通畅期最长为9.5个月,现患者生存期已超过1年。由此可见,多次射频治疗在控制局部肿瘤进展、延长患者生存期方面具有一定优势。但由于目前临床资料较少,关于射频消融治疗对于生存期的影响及如何选择治疗频次(单次治疗或多次治疗),仍需更多的研究来解决。

射频消融治疗最可能的并发症是胆道穿孔、胆管炎、出血、胰腺炎等,在Steel等^[8]研究中,仅1例出现高淀粉酶血症,2例胆囊炎需要经皮胆囊穿刺引流,无操作相关的死亡等严重并发症。在本组研究中,仅有4例发生并发症,2例为早期胆管炎,发生的原因可能为射频烧灼后,肿瘤组织坏死脱落造成支架引流不畅,因此患者术后均需要加强抗炎治疗。2例为轻度胰腺炎,对症治疗后均好转;考虑到胆总管下段梗阻进行射频烧灼时,局部的热力可能会影响胰腺组织而导致严重胰腺炎,因此对于此类患者,在射频治疗前予以预防性留置胰管支架具有重要意义。

总之,在常规胆道引流基础上进行射频消融治疗是一种新兴的微创治疗方法,对于胆道恶性梗阻患者,内镜下射频消融治疗是安全可行的,临床疗效

可能优于单纯胆道引流,由于患者例数较少,仍需大样本的研究来进一步明确。

4 利益冲突

所有作者声明本文不涉及任何利益冲突。

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