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临床研究

超声引导下输尿管软镜钬激光肾盂旁囊肿切开 内引流术的临床分析*

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摘要: 目的 探讨超声引导下经尿道输尿管软镜钬激光切开内引流术治疗肾盂旁囊肿的安全性和有效性。

方法 收集2014年11月—2019年3月民航总医院收治的肾盂旁囊肿患者的临床资料。该组共23例, 男12例, 女11例, 年龄33~75岁, 平均58.3岁。腰痛6例, 余为体检发现。合并同侧肾结石5例, 合并同侧肾盂肾盏积水16例, 合并患侧肾功能受损者1例。术前超声、泌尿系CT增强提示肾盂旁囊肿, 直径4.0~8.5 cm, 平均5.9 cm。23例全麻下行输尿管软镜钬激光肾盂旁囊肿切开内引流术。术中电子输尿管软镜观察集合系统与囊肿的解剖关系, 在超声引导下用200 μm钬激光光纤向凸起的囊壁“十字”切开1.5~2.0 cm, 囊腔内留置双J管内引流。记录手术成功例数以及术后症状缓解、囊肿变化和并发症情况。**结果** 23例手术均成功。手术时间17~50 min, 平均28.0 min。腰痛者症状缓解, 合并结石者术后复查无残留, 肾功能减退者术后肾小球滤过率(GFR)有所改善。1例术中出现肾被膜下积液, 保留双J管引流24 h后消失。随访12~64个月, 平均28.0个月。15例囊肿消失, 8例直径较术前缩小>1/2。23例均未出现囊肿感染、血肿、复发和癌变等。**结论** 超声引导下经尿道输尿管软镜钬激光切开内引流术治疗肾盂旁囊肿是安全、有效的, 且微创、并发症少, 值得临床推广。

关键词: 囊肿; 肾盂旁; 输尿管软镜; 钬激光

中图分类号: R692.7

Clinical analysis of ultrasound-guided transurethral flexible ureteroscopic holmium laser incision and internal drainage for parapelvic cysts*

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Abstract: Objective To explore the safety and effectiveness of ultrasound-guided transurethral flexible ureteroscopic holmium laser incision and internal drainage for parapelvic cysts. **Methods** Clinical data of patients with parapelvic cysts from November 2014 to March 2019 were collected. There were 23 cases including 12 male

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and 11 female patients. The age ranged from 33 to 75 years, with an average of 58.3 years. There were 6 cases of flank pain, and the others were found on physical examination. There were 5 cases with ipsilateral kidney stones, 16 cases with ipsilateral hydronephrosis, and 1 case with impaired renal function. Preoperative ultrasound and contrast-enhanced CT of the urinary system suggest a parapelvic cyst, 4.0 to 8.5 cm in diameter, with an average of 5.9 cm. All the 23 patients underwent ureteroscopic holmium laser incision and internal drainage under general anesthesia. During the operation, the flexible ureteroscope was used to observe the anatomical relationship between the collection system and the cyst. Under the guidance of ultrasound, a 200-micrometer holmium laser fiber was used to make an incision of 1.5~2.0 cm on the cyst wall and double J stent was placed in the cyst cavity for drainage. The number of successful operations, postoperative symptom relief, cyst changes, and complications were analyzed.

Results All the 23 cases were successful received operations. The operative time was 17~50 minutes, with an average of 28.0 minutes. Symptoms of patients with flank pain were relieved, those with stones had no residue on postoperative examination, and those with renal impairment had improved GFR after surgery. 1 case had renal subcapsular effusion during operation and drained off by the double J stent after 24 hours. The follow-up time was 12 to 64 months (average 28.0 months). Results of follow-up showed that in 15 cases, cyst disappeared, and in 8 cases that the diameter of the cyst reduced by more than half. All the 23 cases had no cyst infection, hematoma, recurrence, and canceration.

Conclusion Ultrasound-guided transurethral flexible ureteroscopic holmium laser incision and internal drainage for parapelvic cysts is safe and effective, with minimal invasion and complications, and is worthy of clinical promotion.

Keywords: cysts; parapelvic; ureteroscope; holmium laser

肾盂旁囊肿是一种特殊类型的肾脏囊性病变, 临床表现多为因囊肿压迫集合系统或肾蒂血管而引起的症状, 包括疼痛、血尿、高血压和(或)合并结石等^[1]。其主要的治疗方法包括: 切开引流术(开放、腹腔镜或机器人腔镜平台)、经皮肾穿刺抽吸术和经自然腔道内引流术等。其中, 经自然腔道内引流术具有微创、有效和安全等优势, 但有一定的复发率, 其长期疗效需进一步观察^[2]。本研究于2014年11月—2019年3月采用超声实时引导下经尿道输尿管软镜钬激光切开内引流术治疗肾盂旁囊肿, 并分析患者的临床资料和长期随访结果。现报道如下:

1 资料与方法

1.1 一般资料

本组共23例。其中, 男12例, 女11例, 年龄33~75岁, 平均58.3岁; 病程1~120个月, 平均30.0个月; 腰痛6例, 余为体检发现, 合并同侧肾结石5例, 结石直径0.5~1.0 cm, 合并同侧肾盂肾盏积水16例, 合并镜下血尿者5例, 合并高血压者13例, 合并2型糖尿病患者3例, 合并患侧肾功能受损者1例, 肾动态显像示患侧肾小球滤过率(glomerular filtration rate, GFR) 19 mL/min; 双侧肾盂旁囊肿者2例, 单侧肾盂旁囊肿伴对侧单纯肾囊肿3例。23例术前均经

B超、泌尿系CT增强检查提示为压迫肾盂或肾盏的肾盂旁囊肿。见图1和2。囊肿直径4.0~8.5 cm, 平均5.9 cm, CT值1~20 HU, 平均12.0 HU, 增强扫描后无强化, 均为Bosniak分级^[3] I级。无经尿道输尿管镜手术禁忌证。

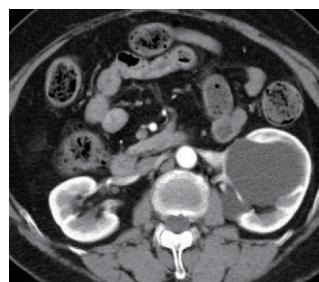


图1 肾脏增强CT(动脉期)

Fig.1 Renal contrast-enhanced CT (arterial phase)

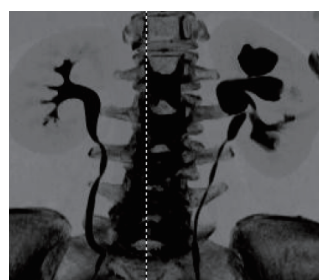


图2 肾脏增强CT(排泄期)

Fig.2 Renal contrast-enhanced CT (excretory phase)

1.2 手术方法

术前常规放置双J管1至2周。手术均采用全身麻醉，截石位，经尿道置入12Fr至14Fr输尿管扩张鞘，电子输尿管软镜进入肾脏集合系统观察肾盂肾盏及囊肿。找到镜下呈蓝色半透明凸起的菲薄囊肿壁(图3)，手术床旁超声实时观察电子镜前端触碰囊壁，同时观察囊壁血流。采用200 μm 钬激光光纤，用低能(0.6 J)高频(20 Hz)的功率，将囊壁“十字”切开1.5~2.0 cm引流(图4)，使囊腔与集合系统充分相通，床旁超声可观察到冲洗液呈“喷雾状”(图5)进入到囊腔内。输尿管软镜进入囊腔内进行镜检(图6)，观察内壁有无赘生物。术后留置导丝至囊腔内，沿导丝置入双J管，超声确认双J管近心端呈“双轨征”位于囊腔内引流(图7)。术后6~8周门诊膀胱镜拔除双J管。

1.3 观察指标

记录手术成功例数、手术时间、手术出血量、术后24 h疼痛视觉模拟评分(visual analogue scale, VAS)、临床症状缓解情况、术后囊肿变化情况(临床治愈标准为囊腔消失或囊腔缩小 $>1/3^{[4]}$)及并发症。术后每6个月复查彩超或CT评估临床疗效。



图3 内镜下肾盂旁囊肿

Fig.3 Parapelvic cyst in flexible ureteroscope

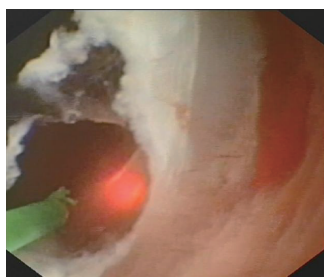


图4 激光切开囊肿壁

Fig.4 Laser dissection of cyst wall



图5 超声下“喷雾状”冲洗液(箭头所示)

Fig.5 "Spray-like" flushing fluid on ultrasound (Arrow)

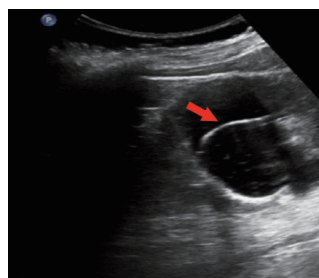


图6 超声下输尿管软镜(箭头所示)

Fig.6 Flexible ureteroscopy on ultrasound (Arrow)

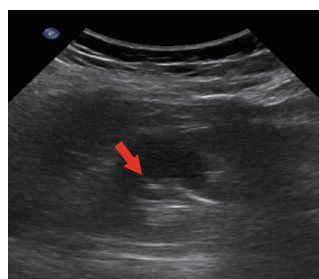


图7 超声下双J管(箭头所示)

Fig.7 Double J tube on ultrasound (Arrow)

2 结果

本组23例手术均成功。手术时间17~50 min, 平均28.0 min。术中无出血、集合系统穿孔、感染性休克等并发症。临床症状均有缓解, 6例腰痛者腰痛症状均消失。1例术前肾动态显像示患肾GFR 19 mL/min, 术后3个月复查GFR恢复至26 mL/min。术后24 h VAS评分2~7分, 平均3.1分。1例术中出现肾被膜下积液, 术后24 h复查彩超积液消失。5例合并结石者未见结石残留。

23例患者术后随访12~64个月, 平均为28.0个月。术后12个月复查B超、CT, 15例囊肿消失, 8例直径较术前缩小 $>1/2$, 均达到临床治愈标准。见图

8. 所有患者未出现囊肿感染、血肿、复发和癌变等。



图8 术后肾脏CT平扫

Fig.8 Postoperative renal CT scan

3 讨论

肾盂旁囊肿是按发生部位来命名的, 包括起源于淋巴、血管或脂肪的肾窦囊肿和起源于肾窦外、侵入肾窦的肾实质囊肿^[5]。肾盂旁囊肿是一种少见的良性病变, 约占肾囊性疾病^[5]的1%~3%, 为非遗传性, 病因为先天发育异常或后天性肾内梗阻^[6]。因临近肾盂或肾蒂, 肾盂旁囊肿压迫肾盂肾盏、血管、淋巴管, 从而产生疼痛、血尿等症状, 还可导致肾功能减退和肾血管性高血压^[2]。本组6例腰痛患者术后症状得到改善, 合并高血压者病史较长, 随访高血压病未见缓解; 本组仅有1例合并患肾功能减退, 随访3个月时复查患肾GFR有所改善, 这符合文献^[7]报道的肾囊肿引流术后GFR较术前会有所提高。

肾盂旁囊肿常需与多种疾病相鉴别, 如: 肾积水、单纯性肾囊肿、多囊肾、肾盂源性囊肿(即肾盂肾盏憩室)、肾淋巴管囊肿(即肾囊性淋巴管瘤)等。首选是超声检查, 表现为肾内低回声囊状液性暗区, 包膜完整, 内部可为单房或多房。肾脏增强CT检查是肾盂旁囊肿的确诊方法, 囊肿呈水样低密度影, CT值为0~20 HU, 增强扫描CT值变化不大^[8], 观察多房、分隔、血流等情况, 排泄期不仅可以排除肾积水、肾盂源性囊肿, 还可以辨别集合系统受囊肿压迫最薄弱的位置, 可作为内切开手术的部位。如患肾功能受损可选择逆行肾盂造影, 逆行肾盂造影还有助于鉴别淋巴管囊肿, 后者发生肾盂淋巴逆流时显示病变区淋巴管扩张。静脉肾盂造影(intravenous

pyelography, IVP)和磁共振成像(magnetic resonance imaging, MRI)对了解囊肿是否与集合系统相通、囊肿性质及囊液成分的鉴别诊断有重要意义。

2014版中国泌尿外科疾病诊断治疗指南推荐肾盂旁囊肿较大、局部压迫肾盂肾盏且出现临床症状者应积极手术治疗^[1]。笔者认为, 输尿管软镜切开内引流术的适应证包括: ①诊断明确、有临床症状或合并症者; ②Bosniak分级1至2级; ③无经尿道手术禁忌证。关于囊肿直径, 有学者^[7]认为, 肾盂旁囊肿对肾脏功能和机体影响较大, 直径较小时就可引起肾集合系统或血管的压迫症状, 手术适应证可放宽至囊肿直径>2 cm有临床症状或合并症者。手术治疗目的是充分引流, 防止囊液进一步聚集压迫肾脏、肾盂及肾门组织。手术方法包括: 切开外引流、经皮肾路径手术和经自然腔道内引流。其中, 切开外引流术有开放^[9]、腹腔镜下^[10]和机器人腹腔镜辅助下^[11]肾盂旁囊肿去顶减压术, 缺点为创伤大、易出血、寻找肾盂旁囊肿困难等。经皮肾路径手术有穿刺抽吸联合硬化剂注入术^[12]、经皮肾路径输尿管镜激光肾盂旁囊肿去顶术^[13], 缺点为创伤大、复发率高、易损伤集合系统。经自然腔道肾盂旁囊肿切开内引流术有硬性输尿管肾盂镜路径^[14]、末端可弯硬性输尿管肾镜路径^[15]、软性输尿管镜路径^[2]等, 缺点是创伤小、恢复快、可重复。

笔者总结输尿管软镜钦激光切开内引流术治疗肾盂旁囊肿的经验: ①经自然腔道内镜下肾脏手术成功与否与患者输尿管条件、术者经验等相关: TRAXER等^[16]回顾性分析应用输尿管扩张鞘的输尿管软镜手术359例, 发现术前未留置双J管输尿管严重损伤的概率是预先留置双J管的7倍, 本组均采用术前留置双J管进行输尿管软镜手术, 均获成功; ②选择切开部位是难点: 若囊肿较大, 直视下在集合系统蓝色凸起的菲薄囊壁上开窗引流, 有学者针对较小的囊肿, 术前采用经皮肾囊肿穿刺注入亚甲蓝液来帮助术中定位^[17], 本组术中均可观察到蓝色菲薄囊肿壁, 且经床旁超声证实, 于囊肿最低点呈“十字”切开1.5~2.0 cm, 需开窗充分避免复发, 开窗不足易形成肾盂源性囊肿, 继发感染、结石等; ③激光切开时, 彩色

多普勒超声实时监测, 避免损伤盏颈及周围血管; 激光选择低能高频模式, 采用不接触法, 可气化和凝固止血; 如损伤盏颈血管, 可通过放置输尿管扩张鞘芯并封堵; 肾蒂血管损伤可采用介入栓塞治疗或转开放手术; ④切开囊肿后常规镜检, 观察有无赘生物, 并确保双J管放入囊肿内能有效引流; 双J管可刺激囊肿壁组织炎性反应, 降低囊肿复发率。囊肿内壁与尿液长期接触后, 是否会发生感染、增生及恶变, 尚无正式报道。本组随访时间较长, 15例囊肿消失, 8例囊肿较前明显缩小, 符合临床治愈标准, 未出现囊肿感染、出血、复发和恶变等情况。

本组 1 例患者术中床旁超声证实出现肾被膜下积液, 呈现月牙形水样回声, 考虑为激光切开集合系统及囊肿壁时见到间隙内肾窦脂肪, 进入肾窦的冲洗液压力较高, 形成了肾被膜下积液。因此, 建议术中于囊肿最薄弱处切开及控制冲洗液压力。

综上所述, 超声引导下经尿道输尿管软镜钬激光切开内引流术治疗肾盂旁囊肿是安全、有效的, 且微创、并发症少, 值得临床进一步推广。

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