输尿管镜检联合钬激光在治疗医源性下段输尿管损伤中的应用(附 9 例报告)

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[摘要] **目的**:探讨经尿道输尿管镜检联合钬激光在治疗医源性下段输尿管损伤中的临床疗效。**方法**:回顾性分析 2009 年 10 月～2012 年 5 月期间采用经尿道输尿管镜检联合钬激光治疗 9 例医源性下段输尿管损伤患者临床资料:女 8 例,男 1 例,平均年龄 48.6 岁;左侧 7 例,右侧 2 例;子宫全切除致损伤 5 例,直肠癌根治术致伤 3 例,子宫复发性肿瘤根治术所致 1 例。经尿道输尿管导管(F_3/F_5)或斑马导丝引导下缓慢镜检,仔细辨认瘘口进入输尿管近端;若输尿管缝扎闭锁,予以钬激光击碎黏膜下缝线并取出,留置 F_7 或 F_8 双 J 管。2～3 个月后拔除,定期随访。**结果**:1 例患者经尿道输尿管镜下顺利置入双 J 管引流后治愈;6 例患者经尿道输尿管镜下联合钬激光治疗后置入双 J 管引流,漏尿分别于术后 1～7 天停止;2 例输尿管完全离断患者输尿管镜下置管失败改行输尿管膀胱再植术治愈。手术成功患者留置双 J 管于术后 2～3 个月拔除。术后随访 6～12 个月,静脉肾盂造影(IVU)检查证实患侧尿路连续性恢复,输尿管通畅,肾输尿管积水明显减轻或正常。**结论**:经尿道输尿管镜检联合钬激光治疗并置入双 J 管内引流是治疗医源性输尿管损伤(尤其是输尿管误扎后)的有效方法,具有疗效可靠、创伤小、患者易于接受等优点。与传统的行修补或输尿管膀胱再植术相比,术前行输尿管镜检没有增加患者痛苦及并发症,即使微创治疗失败,也为开放手术明确病变位置提供了帮助。

[关键词] 输尿管损伤;医源性疾病;输尿管镜;钬激光
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The efficacy of ureteroscopy and holmium laser in the treatment of iatrogenic lower ureteral injuries (Report of 9 cases)

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Abstract **Objective**: To investigate the clinical efficacy of ureteroscopy and holmium laser in the treatment of iatrogenic lower ureteral injuries. **Method**: A retrospective analysis was performed of 9 patients (8 women and one man, mean age 48.6 years) who had received ureteroscopy and holmium laser treatment from 2009 to 2012 for postoperatively detected iatrogenic lower ureteral injuries sustained during gynecologic or general surgery, including seven left side ureteral lesions, two right side ureteral lesions. Five cases of iatrogenic ureteral injury occurred in radical hysterectomy, three cases occurred in resection of rectal cancer, and one occurred in the radical resection of uterine recurrent tumor; mainly postoperative symptoms were abdominal and back pain, fever, urinary leakage, increasing urine leakage of drainage tube. Ureteroscopy were performed with the ureteral catheter (F_3/F_5) or zebra guide wire, carefully to identify the fistula into the proximal ureter by the guiding, submucosal suture were crushed and removed by the holmium laser when ureteral ligation atresia, indwelling the F_7 or F_8 double J tube for 2 to 3 months, regular follow-up. **Result**: All cases were lower ureteral lesions, 1 case was found because of anuria after the operation, seven cases were found leakage of urine a week later, and one case was found after 3 months. One patient was successfully placed double J tube directly, six cases were placed in a double-J tube after ureteroscopy and holmium laser treatment, the leakage of urine were cured after one to seven days, 2 cases were carried ureterocystostomy after failure of ureteroscopy. Double J stent were indwelled in all the cases for 2 to 3 months after extraction, and were followed up for 6 to 12 months. The continuity of the affected side restored urinary tract, ureteral patency, and renal hydroureter significantly reduced or normal, which were confirmed by intravenous urography. **Conclusion**: The ureteroscopy and holmium laser treatment was an effective technology to cure ureteral lower iatrogenic injury especially for ureteral mistakenly tie , with the advantages of effective and reliable , less

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invasive, and easily accpted by patients. Compared with traditional open surgery such as repairing or ureterocystostomy, the ureteroscopy did not increase patients' pain and complications, even if minimally invasive treatment failure, but also to help clear lesion location in open surgery.

Key words ureteral injury; iatrogenic disease; ureteroscopy; holmium laser

医源性输尿管损伤多发生于盆腔和腹膜后手术的患者，常发生妇产科或普外科复杂手术后。多数损伤发现于术后，此时开放手术处理输尿管损伤的创伤和难度很大。我科于 2009 年 10 月～2012 年 5 月共采用经尿道输尿管镜检联合钬激光治疗为主处理了 9 例医源性下段输尿管损伤患者，疗效满意，现报告如下。

1 资料与方法

1.1 临床资料

本组医源性输尿管损伤患者 9 例，女 8 例，男 1 例，平均年龄 48.6 岁；左侧 7 例，右侧 2 例；子宫全切除致损伤 5 例，直肠癌根治术致伤 3 例，附件复发性肿瘤根治术所致 1 例。临床主要表现为术后分别出现腰痛、腹痛、发热、切口渗尿、引流管引流物增多伴尿量减少、甚至少尿、无尿等症状。不能确定的患者通过化验渗出物尿素氮含量呈高水平而证实。全部患者经 B 超、IVU、CT 检查提示患侧均有不同程度的肾积水伴输尿管下段梗阻。

1.2 治疗方法

2 例患者采用连续硬脊膜外麻醉，5 例采用全麻，2 例女性患者由于身体欠佳采用局麻。麻醉满意后取膀胱截石位，经尿道将输尿管镜置入膀胱，在输尿管导管(F_3/F_5)或斑马导丝引导下缓慢进镜检查。进入输尿管后，控制灌注泵水流。进镜过程中根据输尿管走向及黏膜与管外组织的特点仔细辨认瘘口及输尿管近端，损伤部位往往表现为管腔狭窄伴黏膜水肿、血肿，反复以镜体向上扩张与退后窥视，寻及病变近端输尿管；有时可见输尿管闭锁，隐约可见黏膜下有黑色缝线，予以钬激光击碎缝线，镜体扩张后进入近端管腔，以异物钳钳夹出缝线，输尿管内留置 F_7 或 F_8 双 J 管。2～3 个月后拔除，定期随访。如果镜检失败，可以了解病变位置，并留置输尿管导管，为开放手术做好准备。

2 结果

所有患者均为输尿管下段损伤，1 例于术后无尿发现，7 例于术后 1 周漏尿伴腰痛发现，1 例于术后一直腰痛未检查，3 个月后体检发现。1 例患者经尿道输尿管镜下顺利置入双 J 管引流后治愈，6 例患者经尿道输尿管镜下联合钬激光治疗后置入双 J 管引流，漏尿分别于术后 1～7 天停止；2 例输尿管完全离断患者输尿管镜下置管失败改行输尿管膀胱再植术治愈。手术成功患者留置双 J 管于术后 2～3 个月拔除。术后随访 6～12 个月，静脉肾盂造影(IVU)检查证实患侧尿路连续性恢复，输尿管通畅，肾输尿管积水明显减轻或正常。

3 讨论

医源性输尿管损伤在腹部、盆腔手术中均可发生，以盆腔和腹膜后手术多见，最常见于妇产科手术，输尿管损伤的发生率为 0.5%～4.5%[1]。腹膜间位的结肠切除术中为 0.3%～5.7%。在输尿管损伤的文献报道中，子宫切除术中的损伤占 54%，其次是结肠、直肠手术，占 10%，盆腔手术如卵巢肿瘤切除和经腹尿道固定术占 8%，腹部血管手术占 6%[2,3]。其他尚有泌尿外科内镜检查、放射治疗等致输尿管损伤的报道。随着近年来腔内手术的发展，医源性输尿管损伤有增加的趋势[4,5]。

本组输尿管损伤 9 例，其中妇产科手术所致 6 例，普外科盆腔手术所致者 3 例。本组误伤输尿管的原因主要为：①盆段输尿管受盆腔肿瘤推移或因炎症粘连致解剖关系不清；②手术部位深，显露困难；③盆段输尿管周围血供丰富，局部出血量大，慌乱缝扎止血损伤；④手术者经验不足或手术操作粗暴误伤。损伤类型包括结扎、部分或完全缝扎、离断、部分损伤等。

输尿管损伤后可表现为术中漏尿、术后引流管引流出尿液、阴道漏尿、腰部疼痛、畏寒发热、少尿、无尿等，患者常伴有术后腰痛，但由于常被认为术后卧床及手术本身引起腰腹部不适，往往不能早期发现而延误一期治疗。B 超、IVU、腹部 CT、渗出液化验等检查可为输尿管损伤的延迟确诊提供线索。目前认为最佳的检查为泌尿系 CTU，可明确损伤部位及邻近情况，为输尿管镜检及开放手术治疗提供帮助。本组 1 例于术后无尿发现而立即手术，7 例于术后 1 周漏尿发现，1 例于术后 3 个月复查 B 超发现。所有患者均有术后腰痛病史，但未行相关检查而未能及早发现。

医源性输尿管损伤的治疗关键是保护肾功能及恢复尿路的连续性，减少尿瘘形成、局部狭窄及其他并发症。应根据损伤的性质、部位、肾功能等患者综合因素考虑治疗方法。通常认为，输尿管损伤发生后 48 h 以内或手术中发现输尿管损伤均可一期修复；对于延迟诊断的输尿管损伤，一般情况好，无明显感染、化脓，局部组织炎症反应轻，损伤区域内无异物残留或污染者，即使确诊时间超过 48 h，一期修复术并不增加术后并发症的发生。对于有高热、局部炎症反应明显、有严重休克并多发伤者，应先行尿液转流 3 个月后再行修复手术[6,7]，常采用输尿管膀胱再植、Boari 瓣输尿管膀胱再植

和膀胱腰大肌固定等手术。随着腹腔镜的发展也有采用腹腔镜下输尿管修补术[8]、腹腔镜输尿管膀胱再植术及 PCN 加球囊扩张治疗等[1,9,10]。但此时对患者而言，原手术及输尿管损伤后并发症已增加了其痛苦，若再行二次开放手术，往往难以接受。现代泌尿外科腔镜技术的发展为医源性输尿管损伤的处理提供了新的治疗方法。

早期有人采用膀胱镜下置入双 J 管来处理输尿管损伤[11]。但对于已经漏尿的输尿管损伤，在膀胱镜下输尿管插管往往难以成功，且易插至输尿管外，加重损伤。经尿道输尿管镜手术因其疗效可靠、创伤小及并发症少的优点，易为患者接受。经尿道输尿管镜术处理输尿管损伤基本上不受输尿管局部情况的影响，对患者身体状况及输尿管损伤的时期无特殊限制，女性患者可以在局麻下完成手术，可以同时进行镜检和钬激光治疗等操作。本组采用 $F_{8.0/9.8}$ 输尿管镜，可以明确发生损伤的部位及狭窄原因，同时适时配合钬激光治疗处理缝扎造成的闭锁，然后留置双 J 管。我们体会，经尿道输尿管镜术处理输尿管损伤的关键是熟练掌握输尿管镜技术，进入输尿管后，控制灌注水流，缓慢进镜，仔细辨认瘘口及输尿管近端，只要输尿管仍残存部分连续性，一般均可通过漏尿部位到达输尿管近端，顺利留置双 J 管，必要时可结合 C 型臂 X 线机下注射造影剂来明确入镜方向。

通过本组病例总结，我们认为经尿道输尿管镜检联合钬激光治疗并置入双 J 管内引流术是处理医源性输尿管损伤的有效治疗方法，尤其对于输尿管误扎的患者具有疗效可靠、创伤小、患者易于接受等优点。与传统的开放手术行修补或输尿管膀胱再植术相比，术前行输尿管镜检没有增加患者痛苦及并发症，即使行微创治疗失败，也为开放手术明确输尿管病变位置提供了帮助。

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