

·精品手术视频·

机器人辅助下全腹腔镜一体位肾输尿管全长及膀胱袖口切除术在上尿路尿路上皮癌手术治疗中的应用

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摘要: **目的** 探讨闪电套管布局、高位腹膜打开技术等单次锚定机器人辅助腹腔镜肾输尿管全长+膀胱袖口切除术中的可行性和有效性。**方法** 患者女, 66岁, 主因“间断、无痛肉眼血尿1年, 加重1个月”入院。泌尿系彩超提示: 左肾盂低回声, 左肾积水。上腹部CT提示: 左肾窦区占位性病变。尿脱落细胞学(+), 膀胱镜检查未见明显异常。拟行达芬奇机器人(Xi型)辅助全腹腔镜一体位肾输尿管全长+膀胱袖口切除术。患者健侧卧位, 躯干后倾75°; 患侧上肢紧贴同侧躯干, 健侧上肢斜向头侧90°妥善固定。机器人手术车从患者背侧垂直推入, 采用“闪电”套管布局: 常规消毒后在患侧锁骨中线肋缘下方2横指处或经脐部气腹针VERESS法穿刺建立气腹, 保持腹腔压力10~13 mmHg, 置入8 mm Trocar (#1), 进镜确认Trocar置入腹腔, 检查腹腔无穿刺损伤。直视下于患侧腹直肌旁分别距离第一个Trocar 5 cm脐部上方平面建立镜头Trocar (C), 距离C 6~8 cm脐部下方平面建立第三个Trocar (#2)。于髂脊水平处靠近腹正中线部位建立第四个Trocar (#3)。于脐部上方1 cm腹正中线附近建立12 mm助手Trocar (#4)。连接达芬奇机器人机械臂后分别置入有孔双极镊、镜头、单极电凝剪刀、针持, 助手准备吸引器及无损伤钳、Hem-o-lok钳等进行配合。沿Told线打开侧腹膜并向下沿髂血管外侧至少1 cm高位打开腹膜, 沿Told间隙将结肠向腹中线游离, 于腰大肌表面寻找到输尿管, 沿输尿管鞘向下方游离, 无需切断输尿管及脐韧带。于输尿管近膀胱处切开膀胱浆膜层并围绕输尿管膀胱壁内段1 cm范围分离膀胱表面脂肪组织。在切开膀胱袖口前半小时灌注吉西他滨1 g预防肿瘤创缘种植。排空膀胱后于输尿管袖口12点处打开膀胱, 直视下切除患侧输尿管开口及相应壁内段, 随后应用可吸收线行膀胱壁全层连续缝合并浆肌层加固。随后游离肾、输尿管同时行相应部位淋巴结清扫。最后连接腹直肌旁两通道(C至#2), 取出标本。**结果** 顺利完成手术, 术中重新脱机锚定、更改体位, 无中转开腹手术。手术时间135 min, 术中估计出血量55 ml。术中及术后无相关并发症。术后住院6 d, 腹膜后引流3 d, 肾区引流5 d。术后病理回报: (左肾盂) 高级别乳头状尿路上皮癌, 侵犯肾实质, 分期PT3N0Mx; (左) 输尿管断端膀胱袖口未见癌侵及。患者术后接受替雷利珠单抗联合白蛋白紫杉醇辅助治疗, 无术后1个月内再次入院。术后随访18.5个月, 无膀胱及远处复发。**结论** 通过闪电套管布局及机械臂间的微调, 可以顺利实施单次锚定达芬奇机器人(Xi型)辅助腹腔镜肾输尿管全长+膀胱袖口切除术, 术中充分利用机器人各器械间在狭小空间操作协调的特点, 手术视野暴露良好, 膀胱袖口切除及膀胱壁缝合确切, 标准及扩大淋巴结清扫均可顺利实施。术后随访, 患者肿瘤控制效果满意, 总体安全性、有效性良好。

关键词: “闪电”套管布局; 单次锚定; 上尿路尿路上皮癌; 机器人辅助; 肾输尿管切除术

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Application of robot-assisted laparoscopic nephroureterotomy and bladder cuff resection without robot redocking or patient repositioning in upper tract urothelial carcinoma treatment

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Abstract: Objective To explore the feasibility and efficacy of “lightning” –shaped port layout and high peritoneal opening technique in robot–assisted laparoscopic nephroureterotomy and bladder cuff resection without robot redocking or patient repositioning for upper tract urothelial carcinoma (UTUC) treatment.

Methods A female patient, aged 66 years, was admitted with the chief complaint of “intermittent painless gross hematuria for one year, aggravated for one month.” Ultrasonography of the urinary system revealed a hypoechoic area in the left renal pelvis and left hydronephrosis. Computed tomography of the upper abdomen demonstrated a space–occupying lesion in the left renal sinus area. Urine cytology was positive, while cystoscopy showed no obvious abnormalities. The planned treatment is robot (Da Vinci Xi) –assisted laparoscopic radical nephroureterectomy with resection of the bladder cuff. During surgery, the patient was positioned in a lateral decubitus posture with the trunk tilted back 75° with the lumbar bridge slightly elevated; the ipsilateral upper limb was placed close to the ipsilateral trunk, and the contralateral upper limb was fixed obliquely toward the head. The robotic surgical cart was vertically moved into position behind the patient. A “lightning” trocar configuration was implemented: after routine disinfection, a VERESS needle was inserted two horizontal fingers under the costal margin on the ipsilateral clavicular midline or through the umbilicusto to establish the pneumoperitoneum with a pressure of 10–13 mmHg; an 8 mm trocar (#1) was inserted under the costal margin and confirmed to be in the abdominal cavity by endoscopy; no puncture injury was found in the abdominal cavity. Under direct vision, three more trocars were established on the ipsilateral rectus abdominis side: one for the camera trocar (C) at a point above the umbilicus level and 5 cm away from trocar #1; one for the third trocar (#2) at a point below the umbilicus level and 6–8 cm away from C; and one for fourth trocar (#3) at a point on abdominal midline and iliac crest level. Assistant port (#4) was located at 1 cm above the umbilicus at the ventral midline. After connecting the robotic arms of Da Vinci robot, bipolar forceps with holes, a camera, monopolar electrocoagulation scissors, and a needle holder were respectively inserted; an assistant prepared a suction device and non–traumatic forceps, Hem–o–lok forceps, etc. for cooperation. The lateral peritoneum was opened along the Told line and laterally 1 cm beyond the lateral margin of external iliac vessels. The colon was pulled to the ventral midline along the Told space. The ureter was found on the surface of the psoas major muscle and was detached downward through the ureteral sheath without severing the ureter and umbilical ligament. The serosa layer of the bladder was sliced at uretero–vesical junction, and the surrounding adipose tissue was removed. Intravesical instillation of 1 g gemcitabine was performed before opening the bladder to prevent tumor implantation. The bladder wall was opened at twelve o'clock, then the tissue surrounding the inner end of the bladder wall within 1 cm was removed, and the bladder was sutured continuously. The kidney and ureter were then dissected along with the lymph nodes. Lastly, the specimen were retrieved through the extended incision along the rectus abdominis muscle (C–#2).

Result The procedure was successfully completed without robot redocking or patient repositioning. The surgery lasted 135 minutes with an estimated intraoperative blood loss of 55 ml. There were no relevant complications during or after the procedure. The patient was hospitalized for six days postoperatively, with retroperitoneal drainage for three days and renal region drainage for five days. The postoperative pathology report revealed high–grade papillary urothelial carcinoma invading the renal parenchyma, staged as PT3N0Mx, in the left renal pelvis. No evidence of cancer invasion was found at the bladder cuff resection site of the left ureter. The patient received adjuvant treatment with tislelizumab combined with albumin–bound paclitaxel after the surgery and did not require readmission within one month after the operation. The follow–up time after surgery was 18.5 months, during which there was no evidence of bladder or distant recurrence.

Conclusion For laparoscopic nephroureterectomy

with bladder cuff excision without robot redocking or patient repositioning in dealing with UTUC, the use of a “lightning” -shaped port layout and high peritoneal opening technique led to smooth instrument coordination, ideal operative field visualization, accurate bladder cuff removal and closure, and simple lymphadenectomy. The postoperative follow-up revealed satisfactory tumor control results and positive profiles of safety and effectiveness.

Keywords: “Lightning” -shaped ports layout; Single robot docking; Upper tract urothelial carcinoma; Robot-assisted; Nephroureterectomy