

·精品手术视频·

腹腔镜下保留神经血管束的膀胱根治性切除 加体腔内金字塔形原位回肠新膀胱术

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摘要: **目的** 探讨腹腔镜下膀胱根治性切除加体腔内金字塔型原位回肠新膀胱构建术的关键步骤及围术期结果。**方法** 患者男, 49岁, 3年前行经尿道膀胱肿瘤电切术(transurethral resection of bladder tumor, TURBT), 术后病理: 高级别浸润性乳头状尿路上皮癌伴原位癌。术后卡介苗灌注18次, 规律复查, 肿瘤复发2次, 分别行TURBT术, 术后病理为高级别非浸润型尿路上皮癌乳头状尿路上皮癌伴原位癌。现肿瘤再次复发, PET-CT等检查提示肿瘤侵犯左输尿管口, 左肾及输尿管继发积水, 膀胱癌复发合并盆腔淋巴结转移。诊断: 膀胱癌(T3N1M0)。行新辅助化疗(吉西他滨+顺铂)联合PD-1免疫治疗2个疗程。实施腹腔镜下保留NVB网络的膀胱根治性切除, 标准盆腔淋巴结清扫及体腔内金字塔型原位回肠新膀胱重建术。关键手术步骤: ①保留NVB网络的根治性膀胱切除: 游离双侧输尿管, 保留输尿管鞘膜完整, 以免影响其血运和蠕动功能; 游离输精管、精囊, 不打开狄氏筋膜, 于筋膜内间隙向前列腺尖部分离, 并向两侧扩展; 游离膀胱前间隙, 2-0 V-Loc倒刺线缝合扎阴茎背深静脉复合体(dorsal vein complex, DVC); 离断双侧输尿管; 离断双侧膀胱侧蒂, 于前列腺筋膜内间隙, 继续向两侧及腹侧扩展, 直至尖部; 锐性分离、夹闭并离断尿道, 输尿管及尿道残端送快速病理检查。②标准盆腔淋巴结清扫: 清除髂外、髂内及闭孔区域淋巴结。③体腔内金字塔形回肠原位新膀胱重建: 寻找末端回肠襻最低点, 评估能否完成新膀胱与尿道无张力吻合, 并标记; 光源透射下, 距回盲部15 cm处截取55 cm肠襻, 注意保留肠襻血供; 使用切割吻合器恢复肠道连续性; 沿对系膜缘剖开肠襻, 两端各保留7~8 cm作为输入襻; 将已剖开肠襻U型折叠, 3-0 V-Loc倒刺线连续缝合新膀胱后壁; 3-0 V-Loc倒刺线吻合肠襻最低处与尿道残端; 4-0可吸收缝线分别吻合双侧输尿管—输入襻后壁, 由尿道经输入襻引入导丝, 置入双侧输尿管支架并固定, 吻合输尿管与输入襻前壁; 将新膀胱颈部缝合悬吊于DVC, 使其贴近腹壁, 更加符合人体解剖学膀胱位置, 预防新膀胱尿道成角, 术后排尿困难; 关闭新膀胱前壁近侧1/3; 折叠缝合新膀胱前壁近侧2/3, 完成金字塔形新膀胱构建。围术期ERAS全程管理, 包括免机械性灌肠, 禁食水至术前一天中午, 术后第1天下床活动, 开始少量进水等。**结果** 手术顺利完成, 手术时间500 min, 其中原位新膀胱构建360 min; 术中出血量400 ml, 无围术期输血。术后3 d患者诉腹胀, CT检查提示不完全肠梗阻; 给予胃肠减压、灌肠、禁食水等处理后缓解, 未出现其他并发症。术后2周拔除双侧输尿管支架, 3周拔除尿管, 拔除尿管后即刻控尿满意, 能自行腹压排尿, 尿量约100 ml。术后3个月尿控满意, 排尿间隔2~3 h, 最大尿量300 ml。术后病理: 未见肿瘤残留; 盆腔淋巴结(0/26); 手术切缘阴性; 结合患者病史及诊疗经过, 考虑病理完全缓解。**结论** 腹腔镜下体腔内金字塔型原位回肠新膀胱术安全、可行。新膀胱易于构建, 前壁远侧1/3直接闭合, 近侧2/3折叠缝合, 降低与尿道残端吻合的张力, 且符合扩大容量, 维持腔内低压的原则。左侧输尿管不需要由腹膜后穿至右侧, 双输尿管与输入襻原位、端端、非抗反流吻合, 降低吻合难度及吻合口狭窄发生率。经尿道留置双侧输尿管支架管, 减少创伤及尿漏, 便于管理。

关键词: 膀胱癌; 膀胱根治术; 金字塔形原位新膀胱; 体腔内

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Neurovascular bundle-sparing laparoscopic radical cystectomy with intracorporeal reconstruction of ileal orthotopic pyramid neobladder

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Abstract: Objective To describe procedure of laparoscopic radical cystectomy with standard pelvic lymph node dissection and intracorporeal reconstruction of ileal orthotopic pyramid neobladder and analyze perioperative results. **Methods** The 49-year-old male patient presented with hematuria and was diagnosed with high-grade muscle-invasive bladder cancer and carcinoma in situ (CIS) 3 years ago. The patient received transurethral resection of bladder tumor (TURBT) followed by 18 times of Bacillus Calmette-Guérin (BCG) instillation. The patient experienced 2 recurrences and was treated by TURBT, and the pathological report showed high-grade non-muscle-invasive urothelial carcinoma accompanying with CIS. PET-CT scan revealed that the tumor invaded the orifice of the left ureter, hydronephrosis in the left collective system and dilation of left ureter, and lymph node metastasis in the pelvis. Preoperative diagnosis: bladder cancer (T3N1M0). The patient was administered neoadjuvant chemotherapy (Gemcitabine + Cisplatin) combined with immunotherapy (PD-1) for 2 periods. Neurovascular bundle (NVB)-sparing laparoscopic radical cystectomy with standard pelvic lymph node dissection and intracorporeal reconstruction of ileal orthotopic pyramid neobladder was performed. ①NVB-sparing radical cystectomy: Bilateral ureters were dissected, leaving tissue surrounding the ureter intact, ensuring the preservation of blood flow and peristaltic function. The vas deferens and seminal vesicles were dissected; Denonvillier's fascia was kept unopened, intrafascial dissection was extended to the tip of the prostate and lateral sides. Bilateral pedicles of bladder were cut off. Dissect the space of Retzius, the dorsal vein complex (DVC) was bundled and sutured with 2-0 V-Loc. The urethra and bilateral ureters were transected, a rapid pathological examination reported margin negative. ②Pelvic lymph node dissection: External iliac, internal iliac and obturator adipose and lymphatic tissues were removed. ③Intracorporeal formation of pyramid neobladder: Mark the lowest point of the terminal ileal loop and assess whether a tension-free anastomosis can be achieved. Bowel isolation: under transillumination 55 cm ileal segment was isolated 15 cm from the ileo-caecal valve. Continuity of the small bowel was restored by performing a side-to-side stapled anastomosis using an Endo-GIA. Along the anti-mesenteric border, the small intestine was detubularized, leaving bilateral 7-8 cm ends as afferent loops. Place the detubularized ileum in U-shape. The posterior plate was closed with running sutures using 3-0 V-Loc. The ureter stump and the lowest point of the isolated ileum were anastomosed using a 3-0 V-Loc. Close the distal 1/3 of the anterior wall of the neobladder. Neobladder suspension: The anterior wall of the neobladder neck was secured to DVC, making it close to the abdominal wall in line with the human anatomy to avoid urethral-neobladder angle and postoperative voiding difficulties. End-to-end reflux orthotopic anastomosis between ureter and afferent loops: posterior wall of the ureter-intestinal anastomosis was achieved with a 4-0 absorbable suture; ureteral stents were placed in bilateral ureters passing through urethra and afferent loops; after the stent is fixed, anastomose the anterior wall of the ureter-afferent loops. Close the proximal 2/3 of the anterior wall by folding the neobladder wall to the caudal direction. ERAS protocol was applied perioperatively, including omitting mechanical enema, taking liquid food until noon of the day before operation and starting drinking water six hours after surgery, etc. **Results** The operation time was 500 min, 360 min for neobladder construction. The estimated blood loss was 400 ml without perioperative blood transfusion. The patient complained of abdominal distension 3 days after the operation. CT scan suggested incomplete intestinal obstruction. After gastrointestinal decompression, enema and fasting treatment, the symptom was relieved. There were no other complications after the surgery. Bilateral ureteral stents and urinary catheter were removed 2 weeks and 3 weeks after the operation respectively. The immediate urinary continence was achieved after removing the catheter. The patient can urinate freely under abdominal pressure and urine volume was about 100 ml. Three months after operation, the continence was satisfactory; the micturition interval was 2-3 h; the maximum urine volume was 300 ml. Postoperative pathology: no residual tumor; pelvic lymph nodes (0/26); surgical margins were negative. Combined with the patient's medical history, diagnosis and

treatment, pathological complete remission was considered. **Conclusions** The procedure of laparoscopic radical cystectomy and intracorporeal reconstruction of ileal orthotopic pyramid neobladder is safe and feasible. The neobladder is relatively easy to construct, caudal 1/3 of the anterior wall is closed directly and cephalic 2/3 is folded to the caudal direction to form the pouch, which can maintain low pressure in reservoir and facilitate to reach tension-free anastomosis between neobladder and urethral stump. The ureters can be anastomosed with bilateral afferent loops in situ without requiring left ureter pass beneath colon mesentery to the right side, thus reducing the difficulty of anastomosis and the incidence of anastomotic stricture. Bilateral ureteral stents are indwelled through the urethra, which effectively reduces possibility of trauma and urinary leakage.

Keywords: Bladder cancer; Radical cystectomy; Pyramid neobladder; Intracorporeal