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临床研究

## 腹腔镜下经腹膜外入路膀胱癌根治术的初步体会\*

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**摘要:** **目的** 评估腹腔镜下经腹膜外入路膀胱癌根治术的可行性及临床疗效。**方法** 选取2017年5月—2019年5月肌层浸润性膀胱癌患者16例, 年龄54~78岁, 平均69.4岁。开展腹腔镜下腹膜外入路膀胱癌根治术, 术中经腹膜外膀胱切除及淋巴清扫, 3例行输尿管皮肤造口术, 1例行Studer原位回肠新膀胱术, 其余12例行Bricker回肠膀胱术, 将回肠通道或回肠新膀胱置于腹膜外腔, 完整关闭腹膜, 观察术中术后并发症及术后肠道功能恢复情况。**结果** 所有患者均顺利完成手术, 无1例中转开放手术或经腹腔入路手术, 术中出血量120~360 mL, 平均190 mL。3例输尿管皮肤造口患者术后第1天恢复饮食, 其余13例术后平均4 d恢复饮食, 住院时间7~19 d, 平均13.8 d。随访8~32个月, 未发现肿瘤复发及转移, 无1例发生肠梗阻, 1例出现轻度肾积水, 随访无进行性加重, 所有患者肾功能均正常。**结论** 腹腔镜下经腹膜外入路膀胱癌根治术具有良好的安全性及可行性, 术后肠道功能恢复较快, 值得临床推广。

**关键词:** 腹腔镜; 膀胱肿瘤; 腹膜外途径; 经腹腔途径; 根治性膀胱切除术

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## Initial experience of laparoscopic extraperitoneal approach for radical resection of bladder cancer\*

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**Abstract:** **Objective** To evaluate the feasibility and clinical effect of laparoscopic radical resection of bladder cancer by extraperitoneal approach. **Methods** 16 cases of musculoskeletal invasive bladder cancer were selected from May 2017 to May 2019, aged 54 to 78 years, the average was 69.4 years old. Laparoscopic extraperitoneal approach for radical resection of bladder cancer was performed, extraperitoneal bladder resection and lymph node dissection was performed during operation, 3 cases underwent ureterocutaneostomy, 1 case underwent Studer orthotopic ileal neobladder, the remaining 12 cases underwent Bricker ileostomy, ileal channel or neobladder was put out of peritoneal cavity with complete closure of the peritoneum, complications and intestinal function recovery were observed after surgery. **Results** All the operations were completed successfully, no patients were converted to opening surgery or transperitoneal operation. Intraoperative blood loss was 120~360 mL, and the average was 190 mL. 3 cases of ureterocutaneostomy resumed diet on the first day after operation, and the other 13 cases resumed diet on average 4 days after operation, and the time of hospitalization after operation was 7~19 d, the average was 13.8 d. Follow up for 8~32 months showed no recurrence and metastasis, no intestinal obstruction occurred, 1 case

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had mild hydronephrosis and no progressive aggravation. All the patients had normal renal function. **Conclusion** Laparoscopic extraperitoneal radical cystectomy is safe and effective, and postoperative intestinal function recovery is faster, which is worthy of clinical promotion.

**Keywords:** laparoscopy; bladder neoplasms; extraperitoneal approach; transperitoneal approach; radical cystectomy

膀胱癌是泌尿生殖系统最常见的恶性肿瘤<sup>[1]</sup>,分为肌层浸润性和非肌层浸润性膀胱癌,在男性所有恶性肿瘤中居第3位<sup>[2]</sup>。根治性膀胱切除术是治疗膀胱肌层浸润性尿路上皮癌的标准术式,也是泌尿外科手术并发症最多的术式之一,并发症高达80%<sup>[3-4]</sup>。随着微创技术的发展,腹腔镜下膀胱癌根治术已逐渐应用于临床,较开放手术具有创伤小、恢复快和住院时间短等优点。但传统的腹腔镜膀胱癌根治术基本上都是经腹腔入路,术中对肠管干扰较大,因淋巴清扫及膀胱顶部腹膜反折切除导致无法关闭腹膜,术后肠道并发症发生率较高<sup>[5]</sup>,从而限制了腹腔镜在膀胱癌根治术中的应用。为了减少肠管干扰和术中能完整关闭腹膜以减少术后肠道并发症,2017年5月—2019年5月笔者尝试经腹膜外入路行腹腔镜下膀胱癌根治术,取得了良好的疗效。现报道如下:

## 1 资料与方法

### 1.1 一般资料

本组16例患者均为男性,年龄54~78岁,平均69.4岁,14例为无痛性肉眼血尿就诊,2例为体检发现。术前常规检查,排除心肺等重要脏器功能不全者,行计算机体层摄影尿路造影(computed tomography urography, CTU)明确病变范围及肌层浸润情况,排除合并上尿路肿瘤及邻近脏器或淋巴结转移者。术前经膀胱镜或电切活检明确诊断为肌层浸润性尿路上皮癌,根据国际抗癌联盟(Union for International Cancer Control, UICC)2002临床分期标准,均为T<sub>2</sub>M<sub>0</sub>N<sub>0</sub>期。

### 1.2 术前准备

术前3 d常规无渣半流质饮食,口服肠道抗生素,术前1 d改流质饮食,晚上服用肠道清洁剂。

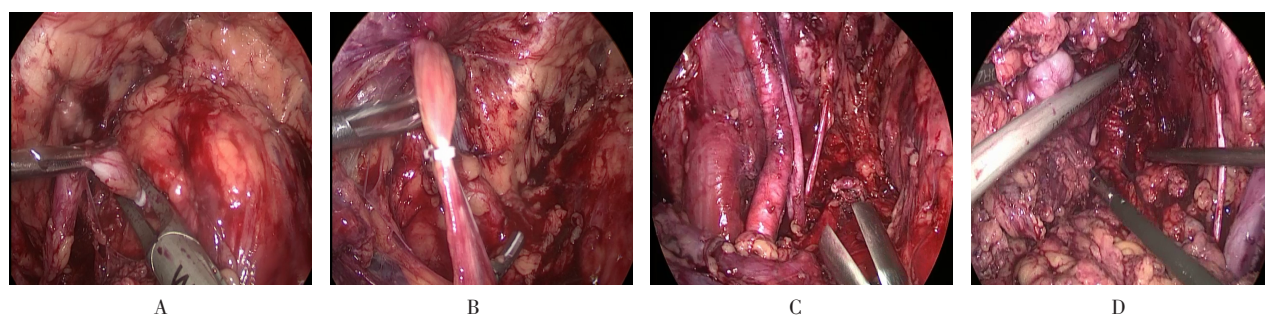
### 1.3 手术方法

腹腔镜下经腹膜外入路膀胱癌根治术过程见附图。

**1.3.1 体位及腹膜外腔的建立** 患者行全麻,取仰卧位,头低脚高位约20°左右。取脐下2 cm纵向切口作为观察孔,切开皮下及腹直肌前鞘,手指在腹直肌后方分离出一定的空间,置入用手套自制的气囊,充气约1 000 mL。在手指指引下平脐于左侧腹直肌外缘处作为第2穿刺点,置入12 mm Trocar,右侧于腹直肌外缘较左侧稍下方处作为第3穿刺点,置入12 mm Trocar,作为造口用,第4和5穿刺点分别在左髂和右髂前上棘内上方约2横指处,置入5 mm Trocar,连接气腹及相应器械,气腹压力维持在15 mmHg左右。

**1.3.2 腹膜外切除膀胱及清扫淋巴** 清除腹膜外脂肪组织,离断两侧精索血管,推开腹膜,使其向头端回缩,于髂血管前方找到右侧输尿管,向上游离至髂总以上,向下游离至靠近膀胱入口处,予以结扎离断,注意保护输尿管血供。左侧输尿管游离同右侧,并较右侧继续向上游离约2 cm。打开双侧盆筋膜,沿前列腺外侧缘向下游离至尿道,离断耻骨前列腺韧带,用1-0肠线缝扎阴茎背深静脉复合体,辨认并找到膀胱腹膜反折处,从膀胱顶部向下游离,避免损伤及切开膀胱和腹膜,找到并离断双侧输精管,以输精管下方为平面向底部游离,用Hemolock或Ligasure离断膀胱侧韧带,打开腹膜会阴筋膜,继续向底部分离至前列腺尖部,并向两侧分离,同样用Hemolock或超声刀离断前列腺血管蒂。充分游离尿道后,用Hemolock结扎近端尿道,超声刀离断远端尿道,肠线缝合封闭尿道断端,标本移除后再行标准淋巴清扫。或先行淋巴清扫再切除膀胱。

**1.3.3 尿流改道或尿路重建** 输尿管皮肤造口术:将左侧输尿管从腹膜后骶前绕至右侧,一并从第3穿刺点拉出行皮肤造口。Bricker回肠及Studer原位回肠新膀胱术:同开放手术经腹膜外入路,将回肠通道及新膀胱置于腹膜外,术中完整关闭腹膜。



A: 结扎离断左侧精索; B: 离断左侧输尿管; C: 左侧盆腔淋巴清扫; D: 腹膜外分离膀胱及前列腺

附图 腹腔镜下经腹膜外入路膀胱癌根治术

Attached fig. Laparoscopic extraperitoneal approach for radical resection of bladder cancer

## 2 结果

### 2.1 手术结果

所有患者均顺利完成手术, 无 1 例中转开放手术或经腹腔入路手术, 膀胱切除及淋巴清扫时间 110 ~ 190 min, 平均 147.4 min; 12 例 Bricker 回肠膀胱术手术时间 215 ~ 280 min, 平均 241.3 min, 1 例 Studer 原位回肠新膀胱术手术时间 345 min; 术中出血量 120 ~ 360 mL, 平均 190 mL。3 例输尿管皮肤造口患者术后第 1 天恢复饮食, 其余 13 例患者术后平均 4 d 恢复饮食, 1 例进食后出现腹胀的患者, 经再次禁食 2 d 后恢复正常。住院时间 7 ~ 19 d, 平均 13.8 d; 1 例术后淋巴瘘患者, 经引流管引流 9 d 后愈合。

### 2.2 术后随访

术后随访 8 ~ 32 个月, 无 1 例肿瘤复发或转移, 无肠梗阻发生, 1 例术后出现轻度肾积水, 无进行性加重, 无需外科处理, 所有患者肾功能均正常。

## 3 讨论

膀胱癌根治术后有着较高的并发症发生率, 复杂的尿流改道是术后并发症的主要原因<sup>[6]</sup>。膀胱癌根治术后需尿路重建, 除了输尿管皮肤造口外均涉及肠管, 导致术后肠道功能恢复较慢, 肠道并发症较多<sup>[7-9]</sup>, 其中以肠梗阻最为常见<sup>[10-11]</sup>。经腹腔入路的膀胱癌根治术, 术中需行淋巴清扫及膀胱腹膜反折切除, 无法完整关闭腹膜, 使腹膜失去了润滑和吸收功能, 而盆壁创面暴露和炎症因子刺激则促进了肠粘连及肠梗阻的发生; 将回肠输出道或新膀胱置于腹腔内, 处置不当亦可引起内疝, 术后潜在漏尿还会影响肠道功能恢复; 而经腹腔手术本身对肠道干扰较大, 也是阻碍肠道功能恢复的因素之一。

KULKARNI 等<sup>[12]</sup>对 338 例膀胱癌根治术病例进行研究, 发现经腹膜外入路较经腹腔入路具有更低的肠道并发症发生率。FENG 等<sup>[13]</sup>对腹腔镜下经腹腔和腹膜外入路的膀胱癌根治术进行单中心研究, 发现两组病例在肿瘤预后方面结果相似, 但经腹膜外入路方式在肠道功能恢复方面具有明显优势。有 Meta 分析<sup>[14]</sup>认为, 即使是前列腺癌根治术, 经腹膜外入路也较经腹腔入路恢复更快, 更说明了腹膜外切除膀胱及术中腹膜重建的重要性。

笔者认为, 膀胱癌根治术经腹膜外入路, 术中完整关闭腹膜将回肠通道或新膀胱置于腹膜外腔有以下优点: ①术中操作不易受肠管干扰且减少手术损伤的概率, 对腹腔脏器扰动较少, 有利于腹腔内环境的稳定和肠道功能恢复; ②拥有完整腹膜能够吸收炎性物质并隔绝盆壁创面, 减少术后肠粘连的发生; ③回肠通道位于腹腔内容易引起内疝, 有文献<sup>[15-17]</sup>报道, 一些迂曲较长的髂外动脉或闭孔神经, 经过淋巴清扫后也会形成内疝, 关闭腹膜有助于减少内疝的发生; ④回肠通道或新膀胱位于腹膜外, 如术后潜在漏尿, 或在随访中出现肿瘤复发和(或)输尿管-肠吻合口狭窄时, 较腹腔内容易处理; ⑤在术后肿瘤局部盆底复发需行放疗时, 肠道副反应相对较轻。

笔者尝试在腹腔镜下像开放手术一样在腹膜外切除膀胱, 术中行肠管尿流改道或新膀胱重建, 仍能完整关闭腹膜、重建腹膜外腔, 并将回肠通道及新膀胱置于腹膜外, 以减少术中对腹腔的干扰, 从而加快术后肠道功能恢复和减少术后并发症发生。由于有传统开放手术下腹膜外膀胱癌根治术的经验, 笔者再结合腹腔镜下腹膜外前列腺癌根治术的实践基础, 顺利开展了腹膜外腹腔镜下膀胱癌根治术。

术中腹膜外腔制备已较为成熟, 肥胖患者可先切



除膀胱、离断精索,再行标准淋巴清扫,空间会比较充足。本研究中,淋巴结清扫16~29个,平均( $22.0 \pm 3.6$ )个,与开放手术和传统腹腔镜下手术相似。由于腹膜具有吸收功能,有学者认为一些淋巴瘘能被腹腔内淋巴液自行吸收,恢复较快,但随着对解剖的精准理解和Hemolock及超声刀的应用,淋巴瘘发生率较低<sup>[15, 18]</sup>,即使发生淋巴瘘,经过充分引流也能自行愈合,形成淋巴囊肿的病例极少<sup>[16, 19]</sup>。本研究中有1例出现淋巴瘘,引流9 d后自行愈合,在肠道功能恢复方面,如排气和进食时间,本研究均较传统腹腔途径有较大改善,有1例患者在进食过程中出现腹胀,经再次禁食2 d后恢复,3例行输尿管皮肤造口的患者术后第1天就恢复了饮食。

笔者认为,本术式最大难点为腹膜外切除膀胱过程中怎样在膀胱与腹膜之间选择平衡:如果能在膀胱与腹膜之间的疏松脂肪间隙内分离就会比较容易,当然很多情况下腹膜会有破损,可在修补后关闭腹膜,但是需要保证术中不能切破膀胱壁,否则容易引起肿瘤种植转移,而肿瘤位于膀胱顶壁的患者应尽量避免该术式。术中清除腹膜外脂肪后,应先分离并离断两侧精索,使推开腹膜向头端回缩较容易,且增加空间。腹膜反折对于肥胖患者来说,辨认较为困难,可经尿道置入金属扩张器并向上顶开,有助于辨认膀胱上界,实在辨认不清时,宁可在较高位置打开少许腹膜,也要避免切破膀胱导致肿瘤播散,分离膀胱与腹膜反折时需锐性结合钝性分离。

综上所述,经腹膜外腹腔镜下膀胱癌根治术与传统经腹腔手术疗效相近,同时有利于胃肠功能的恢复,减少肠道并发症的发生,并可相对较易地处理术后漏尿等并发症,有着良好的可行性及安全性,是对传统腹腔镜术式的一种改良。但本研究样本例数较少,对其全面评估还需较大样本和多中心的研究来判定。随着腹膜外腹腔镜技术经验的积累,该手术方式将会得到广泛应用。

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