



Robotic-assisted Laparoscopic Bilateral Nerve Sparing and Apex Preserving Cystoprostatectomy in Young Men With Bladder Cancer

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OBJECTIVE	To describe our technique and outcomes of robotic-assisted nerve-sparing cystoprostatectomy with prostatic apex preservation and orthotopic ileal conduit urinary diversion in young men undergoing robotic-assisted radical cystectomy (RARC) for the management of urothelial carcinoma.
MATERIALS AND METHODS	Young men (<40 years old) with the diagnosis of urothelial carcinoma undergoing RARC with orthotopic neobladder formation were eligible for our technique of nerve-sparing cystoprostatectomy with prostatic apex preservation at the time of orthotopic ileal conduit urinary diversion. During the apical prostatic dissection step of the RARC, the plane of dissection is directed under the dorsal vein complex and through anterior prostatic fibromuscular stroma. This plane is further carried through the prostatic urethra, transecting the most caudal aspect of prostatic peripheral zone posteriorly, to create a long urethra and a posterior urethral plate formed by peripheral zone of the prostate, which serves as a robust, long stump for the subsequent vesicourethral anastomosis.
RESULTS	From January 2013 to January 2014, 3 men were treated with RARC and intracorporeal neobladder urinary diversion based on the described technique. There were no intraoperative complications. Two patients experienced grade II complications postoperatively. Pathologic assessment demonstrated negative surgical margins in all 3 cases. With mean follow-up time of 28.2 months, 2 out of 3 patients are free from disease recurrence. All patients report daytime urinary continence with no pad usage and potency without the need for phosphodiesterase-5 inhibitors.
CONCLUSION	RARC with bilateral nerve and apical preservation can be performed safely in appropriately selected young patients with excellent functional and acceptable short-term oncologic results. UROLOGY 94: 259–264, 2016. © 2016 Elsevier Inc.

Radical cystoprostatectomy (RC) is the gold-standard treatment for muscle-invasive and selected high-risk noninvasive urothelial carcinoma (UC) of the bladder.¹ RC has profound consequences on patient quality of life.² For young men, in particular, sexual function preservation and urinary continence, as well as oncological outcomes, are important postoperative factors that are worthy of consideration in the preoperative counseling setting.^{3,4}

RC with orthotopic neobladder urinary diversion offers preservation of body image along with a continent urinary system. Since the initial experience of laparoscopic approach to RC with intracorporeal continent orthotopic ileal neobladder creation, increase in cumulative surgical experience and advances in robotic-assisted surgery have facilitated refinements in the surgical technique to address postoperative continence and potency.

Herein we describe our technique and outcomes of robotic-assisted nerve-sparing cystoprostatectomy with prostatic apex preservation and orthotopic ileal conduit urinary diversion.

MATERIALS AND METHODS

Sample Population

Young men (<40 years old) with the diagnosis of UC undergoing robotic-assisted radical cystectomy (RARC) with

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orthotopic neobaldder formation were eligible for our technique of nerve-sparing cystoprostatectomy with prostatic apex preservation at the time of orthotopic ileal conduit urinary diversion. Preoperative sexual function was assessed using the validated Sexual Health Inventory for Men (SHIM) questionnaire.⁵ Patients with poor preoperative sexual function (SHIM < 20), co-existing carcinoma in situ, and prostate-specific antigen (PSA) > 2.5 ng/mL were not treated with this approach. All patients underwent repeat cystoscopy and restaging transurethral resection of bladder tumor with transurethral prostate biopsy prior to surgery. Institutional review board approval was obtained.

Surgical Technique

The technique for RARC and intracorporeal urinary diversion has been previously defined.⁶ In brief, after port placement and docking of the robot, the ureters are mobilized distal to iliac vessels down to the vesicoureteric junction where they are clipped and divided. The peritoneum overlying the cul de sac is incised posterior to the bladder at the tip of the seminal vesicles, and the

space between prostate and rectum is developed distally to the prostatic apex (intrafascial dissection). The space between bladder and anterior abdominal wall is developed just lateral to medial umbilical ligaments and this plane of dissection is carried caudally inferior to pubic bone all the way to endopelvic fascia covering the prostate. The endopelvic fascia is then opened lateral to the prostate bilaterally. The vascular pedicles of the bladder are subsequently controlled with harmonic scalpel and Hem-o-lock (Weck) clips progressively. The bladder is then completely freed by taking down its attachments at median umbilical ligament. The remaining endopelvic fascia as well as puboprostatic ligaments are then released sharply. At this point, bilateral intrafascial nerve dissection is completed.

Attention is then made to apical dissection. The plane of dissection at this point is just under the dorsal vein complex and through anterior prostatic fibromuscular stroma. This plane is further carried through the prostatic urethra and transecting the most caudal aspect of prostatic peripheral zone (Fig. 1), leaving a long urethra and a posterior urethral plate formed by peripheral zone of the prostate to serve as a robust, long stump for the

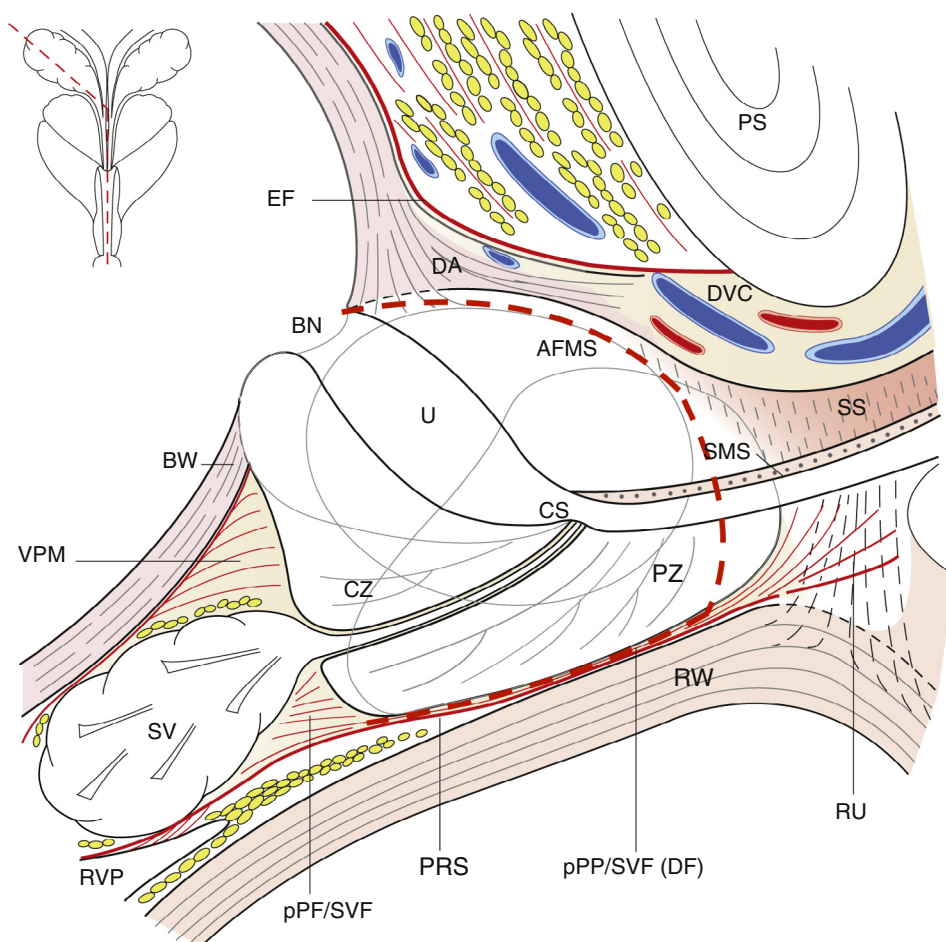


Figure 1. Midline sagittal section of prostate, bladder, urethra, and striated sphincter. The dotted line represents the dissection performed for apical preservation with our technique. AFMS, anterior fibromuscular stroma; BN, bladder neck; C, capsule of prostate; CS, colliculus seminalis (verumontanum); CZ, central zone; DA, detrusor apron; DVC, dorsal vascular complex; MDR, medial dorsal raphe; PS, pubic symphysis; pPF/SVF, posterior prostatic fascia/seminal vesicle fascia (Denonvilliers' fascia); PZ, peripheral zone; R, rectum; RU, recto-urethralis muscle; SMS, smooth muscle sphincter (lissosphincter); SMS, smooth muscle sphincter; SS, striated sphincter (rhabdosphincter); U, urethra; VEF, visceral endopelvic fascia; VPM, vesico-prostatic muscle.

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