

# Robotic radical cystectomy and intracorporeal urinary diversion: The USC technique

Andre Luis de Castro Abreu, Sameer Chopra, Raed A. Azhar, Andre K. Berger, Gus Miranda, Jie Cai, Inderbir S. Gill, Monish Aron, Mihir M. Desai

Catherine and Joseph Aresty Department of Urology, USC Institute of Urology, Keck School of Medicine, University of Southern California, Los Angeles, California, USA

## ABSTRACT

**Introduction:** Radical cystectomy is the gold-standard treatment for muscle-invasive and refractory nonmuscle-invasive bladder cancer. We describe our technique for robotic radical cystectomy (RRC) and intracorporeal urinary diversion (ICUD), that replicates open surgical principles, and present our preliminary results.

**Materials and Methods:** Specific descriptions for preoperative planning, surgical technique, and postoperative care are provided. Demographics, perioperative and 30-day complications data were collected prospectively and retrospectively analyzed. Learning curve trends were analyzed individually for ileal conduits (IC) and neobladders (NB). SAS® Software Version 9.3 was used for statistical analyses with statistical significance set at  $P < 0.05$ .

**Results:** Between July 2010 and September 2013, RRC and lymph node dissection with ICUD were performed in 103 consecutive patients (orthotopic NB=46, IC 57). All procedures were completed robotically replicating the open surgical principles. The learning curve trends showed a significant reduction in hospital stay for both IC (11 vs. 6-day,  $P < 0.01$ ) and orthotopic NB (13 vs. 7.5-day,  $P < 0.01$ ) when comparing the first third of the cohort with the rest of the group. Overall median (range) operative time and estimated blood loss was 7 h (4.8-13) and 200 mL (50-1200), respectively. Within 30-day postoperatively, complications occurred in 61 (59%) patients, with the majority being low grade ( $n = 43$ ), and no patient died. Median (range) nodes yield was 36 (0-106) and 4 (3.9%) specimens had positive surgical margins.

**Conclusions:** Robotic radical cystectomy with totally ICUD is safe and feasible. It can be performed using the established open surgical principles with encouraging perioperative outcomes.

**Key words:** Bladder cancer, intracorporeal urinary diversion, robot-assisted radical cystectomy, robotic, urinary diversion

## INTRODUCTION

Radical cystectomy (RC) is the gold-standard treatment for muscle-invasive and refractory nonmuscle-invasive bladder cancer (BCa) with 5- and 10-year recurrence-free survival rates approaching 70%.<sup>[1,2]</sup> Robotic RC (RRC) has emerged as a viable option for treating BCa as the robotic approach

can replicate the technical aspects of the open approach, achieving similar oncologic outcomes while providing additional benefits, such as decreased blood loss, lower transfusion rates and decreased perioperative morbidity.<sup>[3-7]</sup>

While open RC (ORC) is still used more frequently, RRC has increased in popularity with a rise in proportion from 0.6% of RCs performed by a robotic approach in 2004 to 12.8% in 2010 in the US.<sup>[5,6]</sup> Despite this increase, the vast majority of urinary diversions (UD) are still performed extracorporeally.<sup>[8]</sup> We routinely perform RRC and intracorporeal UD (ICUD) and herein, we describe the technique utilized at our institution.

## INDICATIONS FOR ROBOTIC RADICAL CYSTECTOMY

The indications for RRC are the same as for ORC. Contraindications for RRC are: Bulky disease with fixation of the bladder to the pelvis or surrounding structures and uncorrected bleeding diathesis. For patients with multiple comorbidities consisting of morbidity obesity, previous

For correspondence: Dr. Mihir M. Desai,  
441 Eastlake Avenue, Suite 7416, Los Angeles, CA 90089, USA.  
E-mail: adityadesai2003@gmail.com

Access this article online	
Quick Response Code: 	Website: www.indianjurol.com
	DOI: 10.4103/0970-1591.135673

abdominal surgery or radiation, major abdominal vascular surgery, locally advanced disease or an elderly patient population, the robotic approach has shown to provide acceptable outcomes.<sup>[9-13]</sup>

### Preoperative evaluation and patient preparation

In our enhanced recovery after surgery (ERAS) protocol, the patients take a preoperative educational class and begin a high carbohydrate diet 2-3 days prior to operation. The day before the operation, patients take oral alvimopan and begin a clear liquid diet. There is no mechanical or laxative bowel preparation, heparin is administered 1 h prior to operation, and cefoxitin is given during induction of anesthesia. If an ileal conduit (IC) is planned, a stoma therapist marks the stoma site before the procedure.

### Nerve sparing radical cystoprostatectomy

#### Patient positioning and port placement

The patient is positioned in modified lithotomy position with the legs abducted and secured in appropriate stirrups. All the bony prominences and pressure points are padded, a warming blanket and compressive stockings are applied, and the patient is secured to the table. The patient is then prepped and draped and a 20 Fr urethral Foley catheter is inserted. Using a 2 mm MiniPort™ (Covidien, New Haven, CT, USA), a 15 mmHg pneumoperitoneum is established. Six ports are placed transperitoneally similar to a robotic radical prostatectomy port configuration, with the exception that the RRC ports are more cephalad and the camera-port is 7 cm cephalad to the umbilicus.<sup>[14]</sup> This configuration allows for complete urachus excision, proximal dissection of the ureters, super-extended lymph node dissection (LND) up to the inferior mesenteric artery (IMA), and wide bowel manipulation during the creation of the UD. Steep Trendelenburg is established and the robot (da Vinci Si Surgical System, Intuitive Surgical, Sunnyvale, CA, USA) is docked in between the patient's legs.

#### Mobilization and division of the ureters

The ureters are identified in the retroperitoneum at the level where they cross the common iliac vessels. The retroperitoneum is incised and, maintaining the periureteric fatty tissue, the ureters are dissected distally up to their insertion into the bladder. They are then divided between Hem-o-lok® clips (Teleflex Medical, Athlone, Ireland) and the distal ureteral margins are sent to pathology for assessment. The ureters remain clipped until they are anastomosed, as this avoids urine spillage into the peritoneal cavity and allows proximal hydrodistension, which facilitates ureteroenteric anastomosis.

#### Retrovesical dissection

While the 4<sup>th</sup> arm retracts the bladder anteriorly and proximally, a transverse peritoneotomy is carried out in the cul-de-sac. This plane of dissection between the seminal vesicles (anterolaterally) and the rectum (posteriorly) is then

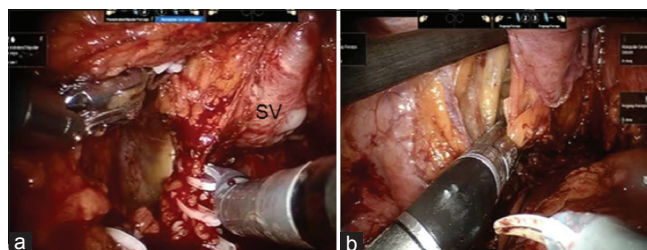
developed up to Denonvillier's fascia and incised. A blunt dissection evolves further distally toward the apex of the prostate.

#### Lateral dissection of the bladder and control of vascular pedicles

The parietal peritoneum is then incised lateral to the medial umbilical ligament, the vas deferens is clipped and divided, and a blunt dissection is performed between the pelvic side wall (laterally) and the bladder, which is retracted medially by the 4<sup>th</sup> arm away from the external iliac vessels and obturator nerve. The lateral pedicles of the bladder are now exposed. For a nerve sparing RRC, the vessels are individually clipped and ligated without using thermal energy. The dissection begins at the tip of the seminal vesicles and progresses toward the prostate. It is performed close to the bladder and the posterior surface of the prostate, peeling the neurovascular bundle superolaterally [Figure 1a]. This is in contrast to the nonnerve sparing RC, where the lateral pedicles of the bladder are divided *en bloc*, distant from the bladder and the prostate, closer to the rectum and using a sequence of 60 mm laparoscopic vascular staplers (60 U.S. EndoGIA® Surgical, Norwalk, CT, USA) [Figure 1b].

#### Anterior dissection, transection of dorsal vein complex and membranous urethra, and specimen entrapment

With the 4<sup>th</sup> arm retracting the urachus, an anterior peritoneotomy is performed just caudal to the umbilicus and the urachus and medial umbilical ligaments are divided. The avascular plane between the bladder and the abdominal wall muscles is then developed distally toward the pubic bone. The space of Retzius is dissected, and the areolar tissue anterior to the bladder and prostate are bluntly dissected. The endopelvic fascia is incised lateral to the prostate and the levator ani muscles are dissected laterally. The anterior surface of the prostate is defatted and the lateral pelvic fascia is incised high on the prostate, so the neurovascular bundles can be dropped posterolaterally. The puboprostatic ligaments and the dorsal vein complex (DVC) are sequentially transected using cold scissors. The DVC is suture ligated with a running 2-0 V-loc suture (V-loc, Covidien, New Haven, CT, USA) on a CT-1 needle. The urethra is meticulously dissected circumferentially, and an



**Figure 1:** (a) Nerve-sparing cystoprostatectomy: The left bladder pedicle is ligated close to the bladder with selective control of the pedicle using clips. (b) This is in contrast to the nonnerve sparing approach, which utilizes an en bloc ligation of the pedicle using a vascular stapler

anterior urethrotomy is performed. The Foley catheter is divided between clips and the posterior part of the urethra is transected proximal to the verumontanum, leaving a long urethral stump. A distal urethral margin from the apical prostatic urethra is sent to pathology for assessment. The freed specimen is entrapped in an Endocatch bag (II Endocatch bag 15 mm; Covidien, Mansfield, MA, USA) for later retrieval.

### *Cystectomy in women*

#### *Pelvic exenteration*

In women, the cystectomy begins with ureteral identification and dissection similar to the technique for men. The uterus is retracted proximally; the infundibulopelvic ligaments and uterine arteries are transected *en bloc* using EndoGIA staplers (Covidien, Mansfield, MA, USA). The 4<sup>th</sup> arm now retracts the uterus anteriorly, and the pouch of Douglas is incised transversally. With a sponge-stick inserted through the vulva into the vagina, the posterior vaginal fornix is then identified and scored. At this point, the posterior dissection is on hold and will resume after controlling the pedicles and dropping the bladder. The parietal peritoneum is then incised lateral to the medial umbilical ligament. The lateral dissection of the bladder and control of the pedicles are performed similar to the nonnerve-sparing cystoprostatectomy technique. The bladder is then dissected from the anterior abdominal wall and the DVC is ligated as previously described. The uterus is retracted anteriorly and the previously scored posterior vaginal fornix is incised. The incision is enlarged distally and anteriorly toward the urethra. The urethra is transected as previously described and a central strip of the anterior vaginal wall is resected *en bloc* with the bladder, uterus and adnexa. If an orthotopic UD is not planned, an urethrectomy can be performed through a transperineal approach. The specimen is entrapped in an Endocatch bag (II Endocatch bag 15 mm; Covidien, Mansfield, MA, USA) and extracted through the vulva [Figure 2a-c]. With a sponge in the vagina to avoid CO<sub>2</sub> leakage and loss of pneumoperitoneum, the vagina is reconstructed with a running 2-0 V-loc suture on a CT-1 needle.

### *Super-extended lymphadenectomy*

After the cystectomy is completed, we perform a super-extended LND up to the IMA using the “split-and-roll” technique. It is noteworthy that the number of lymph nodes retrieved as well as the quality of the LND (skeletonizing the vessels) is important for oncological outcomes.<sup>[15]</sup> It is also important to clip major lymphatic vessels, to avoid lymphocele or chylous ascites, and to avoid cutting into the nodes to prevent tumor spillage. The template for a super-extended LND is: The IMA, proximally; the genitofemoral nerve, laterally; the perivesical fat, medially; and the lymph nodes of Cloquet, distally. The LND is performed in a distal to proximal (retrograde) fashion and from right to left. Thus, the procedure begins with

the dissection of the right node of Cloquet and is carried out proximally following the external and internal iliac vessels, and then the aortic bifurcation up to the IMA according to the template. The right ureter is further dissected proximally to avoid inadvertent injury. The sigmoid colon is retracted laterally, the presacral lymph nodes are dissected, and then the left side LND is performed, initially from proximal (aorta) to distal, following the left common iliac vessels. At this point, a “window” is created posterior to the sigmoid colon, which is utilized later to facilitate the transposition of the left ureter to the right side during ureteroenteric anastomosis. The sigmoid colon is then retracted medially, and the left LND is now performed distal to proximal starting with the left node of Cloquet, following the external iliac vessels and up to the left common iliac vessels, which have already been dissected. To properly dissect the obturator fossa, the LND should also be performed laterally to the external iliac vessels, allowing direct visualization of the obturator nerve [Figure 3a-c]. The nodes are retrieved in reusable bags (Anchor Tissue Retrieval System, Anchor, Addison, IL, USA), in individual packets, according to each sub-region of the template.

### *Urinary diversion*

#### *Intracorporeal orthotopic ileal neobladder - surgical technique*

Our technique for orthotopic ileal neobladder (NB) replicates the open principles in order to create a pouch with good filling capacity, low pressure, and complete voiding.<sup>[16]</sup> We have performed more than 135 ICUD to date; of these, over 54 were intracorporeal NBs (ICNB). Herein, we describe our technique for ICNB with modifications that were incorporated along the learning curve.

#### *Small bowel measurements*

Using a previously measured Penrose drain to measure the segments, 65 cm of small bowel are isolated to create an ICNB: 44 cm for the pouch, 16 cm for the chimney and 5 cm for discard. The most important modification of the technique is that we must first locate the most mobile loop of ileum that reaches the urethra without tension [Figure 4a]. This point is marked with a barbed suture (3-0 V-loc stitch), which will become the point of urethroileal anastomosis (UIA) [Figure 4b]. From the UIA, 11 cm are marked distally (0 cm), toward the ileo-cecal valve [Figure 4c], and 11 cm proximally (total 22 cm). This 22 cm point will become the apex of the posterior plate (APP) and is around 37 cm (22 cm for the pouch + 15 cm for the terminal ileum) away from the ileo-cecal valve [Figure 4d]. From the APP, 22 cm are measured proximally (total 44 cm) and marked to become the end of the pouch and beginning of the chimney (afferent limb) [Figure 4e]. From this point (44 cm), 16 cm are measured proximally for the afferent limb (total 60 cm). Finally, an additional 5 cm is selected for the discard segment (total 65 cm) [Figure 4f]. The segments are marked with undyed 2-0 Vicryl® sutures for the UD part (undyed for UD) and with dyed 2-0



Vicryl® sutures for the intestine part. This allows for better intraoperative identification of the segments and avoids confusion.

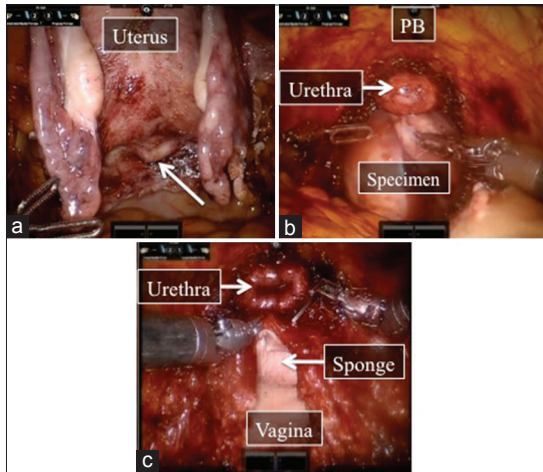
**Small bowel isolation**

The bowel is divided at points 0 cm and 65 cm using a 60 mm laparoscopic stapler (Echelon Stapler, Ethicon Endo-Surgery Inc., Cincinnati, OH, USA) with a blue tissue cartridge. Usually, two cartridges are used at each site. The stapler is fired through the mesentery, and indocyanine

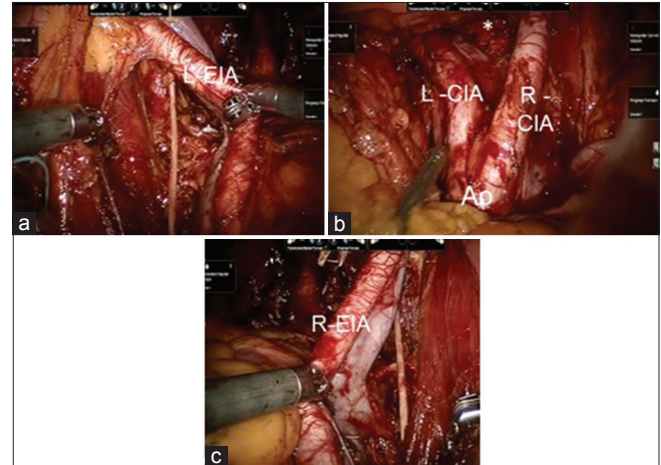
green (“fire-fly”) is used to assess and ensure preservation of the intestine vascularization. The intestinal stumps are then lined up and an intracorporeal side-to-side anastomosis is performed with a 60 mm laparoscopic stapler.

**Discard segment**

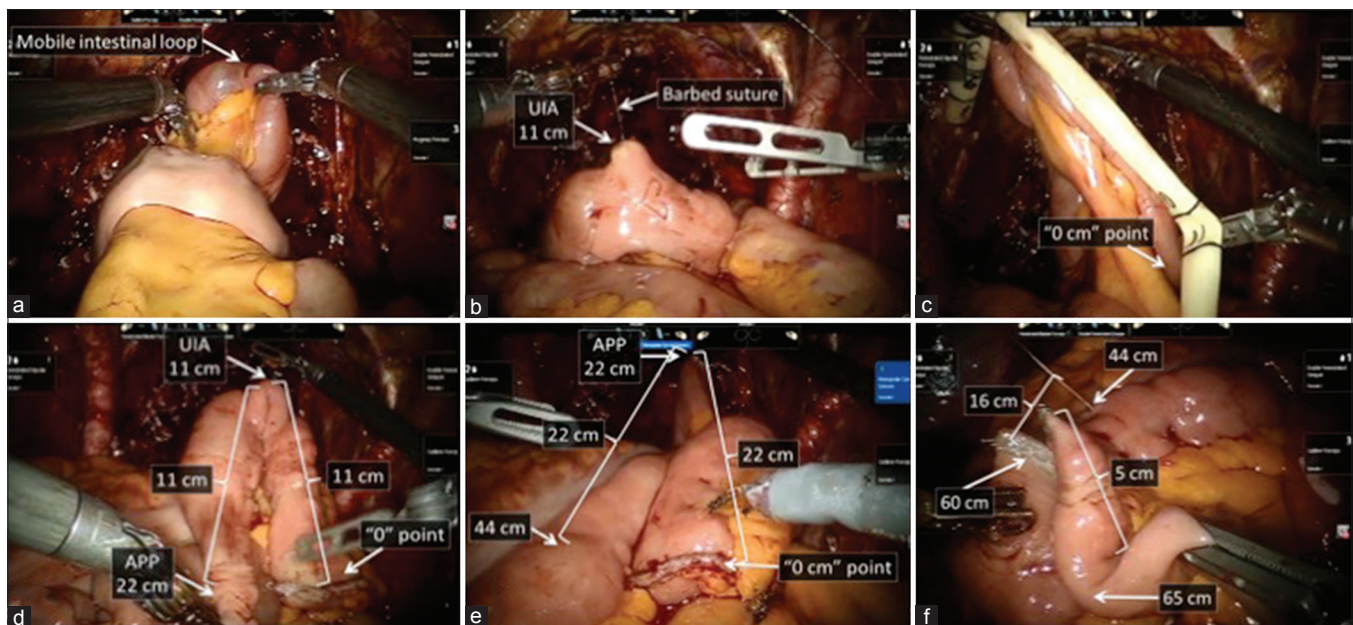
For the discard segment, a 60 mm laparoscopic stapler is fired parallel to the mesenteric-enteric junction. Discarding a 5 cm intestinal segment helps maintain the distance of the pouch to the intestinal anastomosis, to help prevent the formation of pouch-enteric fistulas and to ensure adequate



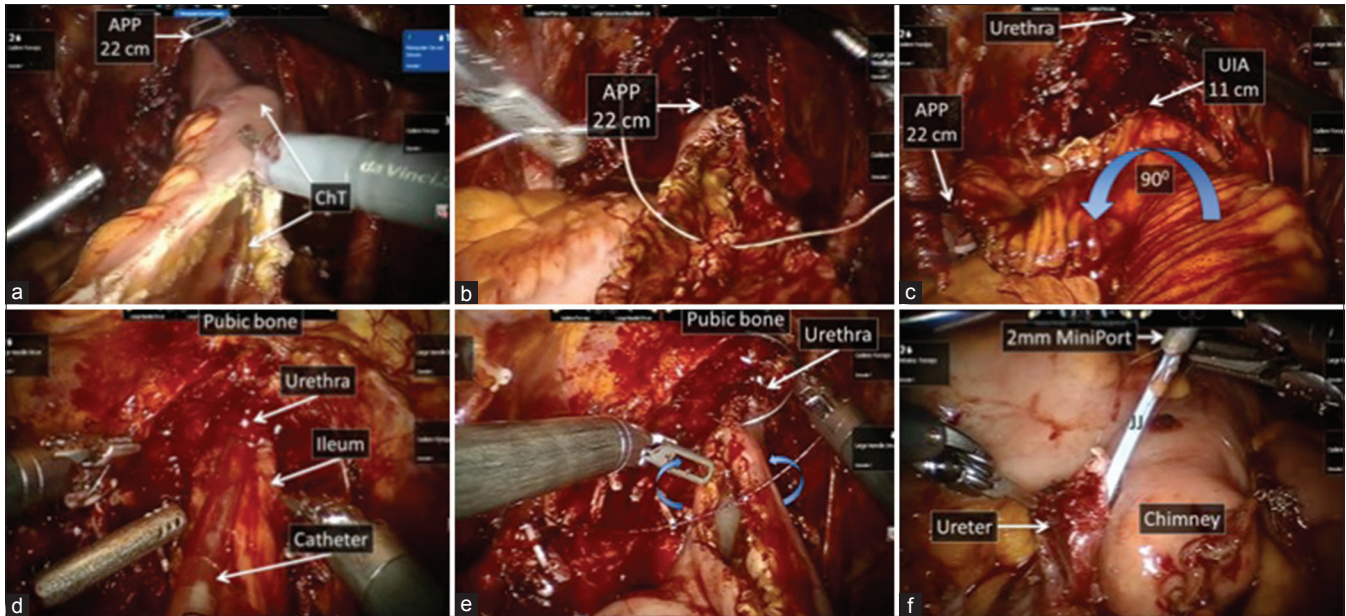
**Figure 2:** Robotic radical cystectomy in women. (a) A sponge-stick is inserted through the vulva to assist in identification of the vagina (arrow) during anterior pelvic exenteration. (b) An excellent option for extracting the specimen is through the vagina. If orthotopic neobladder is planned for urinary diversion, an adequate urethral stump is required. (c) The vagina is reconstructed with a running suture and a sponge is inserted into the vagina to minimize CO<sub>2</sub> leakage and loss of pneumoperitoneum



**Figure 3:** Super-extended pelvic lymphadenectomy. (a) Lymphadenectomy of the left obturator fossa. (b) Lymph node dissection cephalad to the Aortic (Ao) bifurcation. (c) Lymphadenectomy of the right obturator fossa. L-EIA: Left external iliac artery, R-EIA: Right EIA, L-CIA: Left common iliac artery; R-CIA: Right CIA, \*presacral lymph node dissection



**Figure 4:** Small bowel measurements. (a) The most mobile loop of ileum that reaches the urethra without tension is identified. (b) This point (11 cm) is marked with a barbed suture and will be the point of future urethroileal anastomosis (UIA). (c) From the UIA, 11 cm are marked distally (0 cm), towards the ileo-cecal valve. (d) From the UIA, 11 cm are also marked proximally. This 22 cm-point will become the apex of the posterior plate (APP). (e) From the APP, 22 cm are measured proximally (total 44 cm) and marked to become the end of the pouch and beginning of the chimney (afferent limb). (f) 16 cm are measured proximally for the afferent limb (total 60 cm). An additional 5 cm is selected for the discard segment (total 65 cm)



**Figure 5:** Creating the intracorporeal orthotopic ileal neobladder (NB). (a) A 24 Fr chest tube is inserted into the isolated intestine beginning at the 0 cm point and moving towards the 44 cm point. A biased incision is made towards the medial mesenteric edge of the intestine. (b) The medial edges of the bivalved intestine are lined up and interrupted sutures are placed to maintain posterior plate symmetry and allow handling. (c) The posterior plate of the NB is rotated 90° counter-clockwise (arrow) so that the urethroileal anastomosis (UIA) point (11 cm) aligns with the urethra. (d) The UIA begins by suturing the ileal edge to the posterior (6 O'clock) part of the urethral stump. (e) The lateral edges of the posterior plate are folded anteriorly (arrows) and sutured in a running fashion up to the chimney. (f) A Bricker-like anastomosis is carried out over a 7 Fr double-J (JJ) stent, which is inserted through a 2 mm MiniPort™

vascularization to the ends of the bowel. The mesentery is then reconstructed using interrupted sutures.

#### *Bowel detubularization and creation of the posterior plate of the neobladder*

With the 4<sup>th</sup> arm retracting the APP (22 cm) toward the pelvis, a 24 Fr chest tube is inserted into the isolated intestine, beginning at the 0 cm and toward the 44 cm point. A biased incision is made toward the medial mesenteric edge of the intestine [Figure 5a]. The medial edges of the bivalve intestine are lined up and interrupted sutures are placed to maintain posterior plate symmetry and allow handling [Figure 5b]. The edges of the intestine are approximated with running sutures in a distal to proximal (from APP to chimney) fashion using a 2-0 V-loc stitch on a CT-1 needle. The use of barbed sutures helps keep tension and allows for a watertight seal after each stitch. Each suture should be 6 inches long to facilitate intracorporeal handling.

#### *Urethroileal anastomosis and folding the pouch*

The posterior plate of the NB is rotated 90° counterclockwise so that the UIA point (11 cm) aligns with the urethra [Figure 5c]. The previously placed barbed stitch (11 cm) is sutured to the distal Denonvilliers' fascia, adjacent to the rectourethralis muscle, to decrease tension on the UIA. The UIA begins by suturing the ileal edge to the posterior (6 O'clock) part of the urethral stump, using a double-armed 3-0 Monocryl suture on a RB-1 needle [Figure 5d]. The anastomosis continues anteriorly in a running fashion, over a 22 Fr Couvelaire urethral

catheter, up to the 12 o'clock position. The lateral edges of the posterior plate are folded anteriorly and closed with a running suture anteriorly up to the chimney using 2-0 V-loc stitch on a CT-1 needle [Figure 5e]. This helps create a spherical configuration for the pouch.

#### *Ureteral-afferent limb anastomoses*

The left ureter is brought to the right side under the sigmoid colon. The distal ends of the ureters that were previously clipped are now resected, the lengths of the ureters are tailored according to the anastomoses location at the chimney, and the ureteral ends are spatulated. Two small enterotomies are created in the afferent limb and Bricker-like anastomoses are carried out [Figure 5f]. The anastomoses are separately performed, using 4-0 Vicryl® on RB-1 needle with running sutures, over a 7 Fr double-J stent, which is inserted through a 2 mm MiniPort™ that is transiently placed in the right inferior quadrant to help facilitate stent placement. The proximal end of the chimney is closed in a water-tight manner with a 3-0 Vicryl® running suture. This is done to minimize the staples from contacting urine/mucus and thus prevent stone formation.

#### *Testing the pouch and retrieving the specimen*

The pouch is filled with 180 mL of saline to confirm water-tightness. A drain (BLAKE® Silicone Drains, Ethicon Endo-Surgery Inc., Cincinnati, OH, USA) is inserted through the 8 mm port in the right iliac fossa, positioned in the pelvis and secured to the skin. The specimen is retrieved through the midline camera-port incision (note this incision may



**Table 1: Demographics, perioperative, complications and pathology data of the first 103 patients that underwent robotic Radical cystectomy with Intracorporeal urinary diversion**

Variable	Overall median (range) or n (%)	IC median (range) or n (%)	NB median (range) or n (%)	P value
Number of patients	103	57	46	-
Age (years)	66.9	72	60.5	<0.001
Gender				
Male	84 (82)	43 (75)	41 (89)	0.07
Clinical stage				
Organ confined	84 (82)	46 (81)	38 (83)	1
Extravesical	19 (18)	11 (19)	8 (17)	
Neoadjuvant chemotherapy	18 (17.5)	10 (17.5)	8 (17.4)	0.98
Operative time (h)	7 (4.8-7)	6.6 (4.8-10)	7.7 (4.9-13)	<0.001
Estimated blood loss (mL)	200 (50-1200)	250 (50-650)	200 (100-1200)	0.2
Hospital stay (days)	7 (3-53)	6 (3-53)	7 (3-44)	0.5
Number 30-day complications	61 (59)	37 (65)	24 (52)	0.22
Complication by Clavien grade				
None	42 (41)	20 (35)	22 (48)	0.20
Low (I-II)	43 (42)	24 (42)	19 (41)	
High (III-IV)	18 (17)	13 (23)	5 (11)	
Number deceased within 30 days	0	0	0	-
Pathologic stage				
Organ confined	61 (59)	28 (49)	33 (72)	0.06
Extravesical	16 (16)	12 (21)	4 (9)	
Positive node	26 (25)	17 (30)	9 (20)	
Number of lymph nodes removed	36 (0-106)	39 (0-79)	35 (0-106)	0.05
Number of positive surgical margins	4 (3.9)	4 (7)	0 (0)	0.13

IC=Ileal conduit, NB=Neobladder

need to be extended). Laparoscopic exit is now completed in the usual fashion and the patient is sent to the recovery room after waking up from anesthesia.

### Intracorporeal ileal conduit

For creating an intracorporeal IC, 15 cm of ileum are isolated 15 cm proximal to the ileo-cecal valve. The bowel isolation and reconstruction are carried out similarly as for the ICNB using laparoscopic staplers. The proximal end of IC is closed with a running vicryl suture and the

uretero-ileal anastomoses are performed as described for ICNB. The staples at the distal end of the IC are excised; the IC is exteriorized using an Allis forceps and the stoma is then fashioned in the preoperatively marked location.

### Postoperative care

After surgery, the patient recovers in the ward or intensive care unit depending on the specifics of the case. As per our ERAS protocol, there is no nasogastric tube. Nausea and vomiting prophylaxis are actively provided. Alvimopan, neostigmine, proton pump inhibitors, and chewing gum are introduced early in the postoperative period. Pain is controlled with nonnarcotic medications. Patients are encouraged to ambulate and start on enteral feeding early postoperatively. Diet is advanced as tolerated. On the postoperative day (POD) 1, antibiotics are discontinued. The NB is gently irrigated every 4 h with 50 mL of saline. The drain is removed once the drain output decreases below 500 cc in a 24-h period and body fluid analysis confirms absence of urine leak. The urethral and ureteral catheters are removed once routine cystography performed on POD 21 shows no leakage.

### Our experience

From July 2010 to September 2013, RRC and LND with ICUD were performed in 103 consecutive patients (orthotopic NB=46, IC=57) by the same surgical team at three institutions Table 1. All procedures were completed robotically replicating the open surgical principles. The learning curve trends showed a significant reduction in hospital stay for both IC (11 vs. 6-day,  $P < 0.01$ ) and orthotopic NB (13 vs. 7.5-day,  $P < 0.01$ ) when comparing the first third of the cohort with the rest of the group. Overall median (range) operative time and estimated blood loss was 7 h (4.8-13) and 200 mL (50-1200), respectively. Within 30-day postoperatively, complications occurred in 61 (59%) patients, with majority being low grade ( $n = 43$ ), and no patient died. Median (range) nodes yield was 36 (0-106) and 4 (3.9%) specimens presented positive surgical margins.

### CONCLUSIONS

Robotic radical cystectomy with totally ICUD is safe and feasible. It can be performed using the established open surgical principles with encouraging perioperative outcomes.

### REFERENCES

- Stein JP, Lieskovsky G, Cote R, Groshen S, Feng AC, Boyd S, et al. Radical cystectomy in the treatment of invasive bladder cancer: Long-term results in 1,054 patients. *J Clin Oncol* 2001;19:666-75.
- Witjes JA, Compérat E, Cowan NC, De Santis M, Gakis G, Lebrét T, et al. EAU guidelines on muscle-invasive and metastatic bladder cancer: Summary of the 2013 guidelines. *Eur Urol* 2014;65:778-92.

3. Khan MS, Elhage O, Challacombe B, Murphy D, Coker B, Rimington P, *et al.* Long-term outcomes of robot-assisted radical cystectomy for bladder cancer. *Eur Urol* 2013;64:219-24.
4. Snow-Lisy DC, Campbell SC, Gill IS, Hernandez AV, Fergany A, Kaouk J, *et al.* Robotic and laparoscopic radical cystectomy for bladder cancer: Long-term oncologic outcomes. *Eur Urol* 2014;65:193-200.
5. Leow JJ, Reese SW, Jiang W, Lipsitz SR, Bellmunt J, Trinh QD, *et al.* Propensity-matched comparison of morbidity and costs of open and robot-assisted radical cystectomies: A contemporary population-based analysis in the United States. *Eur Urol* 2014; doi: 10.1016/j.eururo.2014.01.029.
6. Yu HY, Hevelone ND, Lipsitz SR, Kowalczyk KJ, Nguyen PL, Choueiri TK, *et al.* Comparative analysis of outcomes and costs following open radical cystectomy versus robot-assisted laparoscopic radical cystectomy: Results from the US Nationwide Inpatient Sample. *Eur Urol* 2012;61:1239-44.
7. Li K, Lin T, Fan X, Xu K, Bi L, Duan Y, *et al.* Systematic review and meta-analysis of comparative studies reporting early outcomes after robot-assisted radical cystectomy versus open radical cystectomy. *Cancer Treat Rev* 2013;39:551-60.
8. Ahmed K, Khan SA, Hayn MH, Agarwal PK, Badani KK, Balbay MD, *et al.* Analysis of intracorporeal compared with extracorporeal urinary diversion after robot-assisted radical cystectomy: Results from the International Robotic Cystectomy Consortium. *Eur Urol* 2014;65:340-7.
9. Al-Daghmin A, Aboumohamed A, Din R, Khan A, Raza SJ, Sztorc J, *et al.* Readmission after robot-assisted radical cystectomy: Outcomes and predictors at 90-day follow-up. *Urology* 2014;83:350-6.
10. Al-Daghmin A, Kauffman EC, Shi Y, Badani K, Balbay MD, Canda E, *et al.* Efficacy of robot-assisted radical cystectomy (RARC) in advanced bladder cancer: Results from the International Radical Cystectomy Consortium (IRCC). *BJU Int* doi: 10.1111/bju.12569.
11. Lee DJ, Rothberg MB, McKiernan JM, Benson MC, Badani KK. Robot-assisted radical cystoprostatectomy in complex surgical patients: Single institution report. *Can J Urol* 2009;16:4664-9.
12. Leslie S, Ahmadi H, de Castro Abreu AL, Berger AK, Yu JR, Tsai S, *et al.* V1857 challenging cases of robotic assisted radical cystectomy following radiotherapy or vascular surgery. *J Urol* 2013;189:1.
13. Phillips EA, Uberoi V, Tuerk IA. Robot-assisted radical cystectomy in octogenarians. *J Endourol* 2014;28:219-23.
14. Abreu AL, Chopra S, Berger AK, Leslie S, Desai MM, Gill IS, *et al.* Management of large median and lateral intravesical lobes during robot-assisted radical prostatectomy. *J Endourol* 2013;27:1389-92.
15. Desai MM, Berger AK, Brandina RR, Zehnder P, Simmons M, Aron M, *et al.* Robotic and laparoscopic high extended pelvic lymph node dissection during radical cystectomy: Technique and outcomes. *Eur Urol* 2012;61:350-5.
16. Goh AC, Gill IS, Lee DJ, de Castro Abreu AL, Fairey AS, Leslie S, *et al.* Robotic intracorporeal orthotopic ileal neobladder: Replicating open surgical principles. *Eur Urol* 2012;62:891-90.

**How to cite this article:** Abreu AL, Chopra S, Azhar RA, Berger AK, Miranda G, Cai J, *et al.* Robotic radical cystectomy and intracorporeal urinary diversion: The USC technique. *Indian J Urol* 2014;30:300-6.  
**Source of Support:** Nil, **Conflict of Interest:** None declared.

## Author Help: Online submission of the manuscripts

Articles can be submitted online from <http://www.journalonweb.com>. For online submission, the articles should be prepared in two files (first page file and article file). Images should be submitted separately.

1) **First Page File:**

Prepare the title page, covering letter, acknowledgement etc. using a word processor program. All information related to your identity should be included here. Use text/rtf/doc/pdf files. Do not zip the files.

2) **Article File:**

The main text of the article, beginning with the Abstract to References (including tables) should be in this file. Do not include any information (such as acknowledgement, your names in page headers etc.) in this file. Use text/rtf/doc/pdf files. Do not zip the files. Limit the file size to 1 MB. Do not incorporate images in the file. If file size is large, graphs can be submitted separately as images, without their being incorporated in the article file. This will reduce the size of the file.

3) **Images:**

Submit good quality color images. Each image should be less than 4096 kb (4 MB) in size. The size of the image can be reduced by decreasing the actual height and width of the images (keep up to about 6 inches and up to about 1800 x 1200 pixels). JPEG is the most suitable file format. The image quality should be good enough to judge the scientific value of the image. For the purpose of printing, always retain a good quality, high resolution image. This high resolution image should be sent to the editorial office at the time of sending a revised article.

4) **Legends:**

Legends for the figures/images should be included at the end of the article file.