# LAPAROSCOPIC RADICAL CYSTECTOMY WITH ILEAL CONDUIT URINARY DIVERSION, FIRST EXPERIENCE IN BANDUNG

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### ABSTRACT

**Objectives:** To report our experience in performing laparoscopic radical cystectomy with ileal conduit urinary diversion (extracorporeal reconstruction). **Material & method:** This study was take place in Hasan Sadikin Hospital Bandung. A 54-year-old male with histologically proven transitional cell carcinoma of the bladder cT2bN0M0 underwent a laparoscopic radical cystoprostatectomy and ileum dissection was performed under laparoscopy. Ileal conduit and stoma reconstruction performed extracorporeal through small incision between ports (about 4 cm). **Results:** The surgical margins were free of disease. The operative time was 360 minutes. Estimated blood loss was 600cc. Hospital stay was 5 days. Patient was discharge with no complication of post-op wound, and urine production about 1500cc/24hrs via stoma. **Conclusion:** Laparoscopic radical cystectomy with ileal conduit extracorporeal reconstructive urinary diversion could be the preferred means in managing bladder tumor on selective case.

**Keywords:** Laparoscopic radical cystectomy, ileal conduit, bladder tumor.

#### ABSTRAK

Tujuan: Melaporkan pengalaman radikal sistektomi per laparoskopik dengan diversi urinileal conduit (rekonstruksi ekstrakorporeal). Bahan & Cara: Penelitian ini mengambil tempat di RSUP Hasan Sadikin bandung. Laki-laki berumur 54 tahun dengan diagnosis histopatologi karsinoma sel transisional buli-buli cT2bN0M0 dilakukan radikal cystoprostatectomy dan diseksi ileum per laparoskopi. Ileal conduit dan rekonstruksi stoma dilakukan ekstrakorporeal melalui insisi antar port (sekitar 4cm). Hasil: Batas eksisi bebas tumor. Waktu operasi 360 menit dan estimasi perdarahan 600cc. Lama perawatan rumah sakit 5 hari. Tidak didapatkan komplikasi pasca operasi, produksi urin sekitar 1500cc/24jam melalui stoma. Simpulan: Radikal sistektomi per laparoskopi dengan diversi ileal conduit rekonstruksi ekstrakorporeal dapat menjadi pilihan terapi bagi kasus tumor buli.

*Kata kunci:* Radikal sistektomi laparoskopik, ileal conduit, tumor buli-buli.

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## **INTRODUCTION**

Radical cystectomy is the gold standard for muscle-invasive urothelial carcinoma of the bladder because it provides excellent local cancer control. Laparoscopic radical cystectomy has been reported since 1992 by Parra et al, and proposed as an alternative to open radical cystectomy (ORC). Since then, this method has continue to studied by many institution in the world as described in table 1. In the past years, several studies had been done to reveal advantages and disadvantages of Laparoscopic radical cystectomy compared with open radical cystectomy. Provided the studies had been done to reveal advantages and disadvantages of Laparoscopic radical cystectomy.

Laparoscopic radical cystectomy is associated with safe and effective operation, faster recovery, perioperative and functional outcomes comparable with open surgery, reduced blood loss and faster ileus duration, despite of same operation duration, hospital length of stay and increased cost. The increased experience with laparoscopic surgery and progressive familiarity of the urologist with pelvic laparoscopic procedures, notably lymph node dissection, bladder neck suspension, and, most importantly, laparoscopic radical prostatectomy, have naturally led to laparoscopic cystectomy. Basically, laparoscopic cystectomy can be performed for various benign conditions such as pyocystis or an

**Table 1.** Results and outcomes.<sup>8</sup>

Custome criteria	Laparoscopic Radical Cystectomy	Open Radical Cystectomy
Blood loss	Decreased (< 300 ml)	Significant (> 1 litre)
Peri -operative pain	Decreased	Can be significant
Return to full activity	Weeks	Months
Operative time	5-13 hours	3-5 hours
Technical difficulty	Highly advanced	Advanced
Cost	Expensive	Relatively cheaper
Long Term Outcome	Unknown Proven	
Cosmetic appearance	Smaller scars Vertical median incision	

intractably contracted bladder with a non-functional outlet. In recent days, laparoscopic radical cystectomy has so many variation in technique, including the method for the urinary diversion.<sup>10,11</sup>

Despite of the advantages, many questions emerged about the pathological and surgical outcomes of laparoscopic radical cystectomy, compared with open surgery. Recent study conducted by Treiyer, et al (2012) have shown its comparable pathological result, desired surgical outcomes, and numbers of lymph nodes positive disease, comparable with open surgery. They included a total of 91 patients (76 male and 15 female), 86 with clinically localized bladder cancer and 5 with non-urothelial tumors underwent a radical robotic assisted cystectomy. They analyzed the perioperative factors, length of hospital stay, pathological outcomes and complication rates. The result was, in 29% of the cases with urothelial carcinoma the T-stage was pT1 or less, 38% were pT2; 26% and 7% were classified as T3 and pT4, respectively. 14% of cases had lymph node positive disease. Mean number of lymph nodes removed was 15 (range 4-33). Positive surgical margins occurred in 2 cases (2.1%). Mean days to flatus were 2.13, bowel movement 2.88 and inpatient stay 18.8 (range 10-33). There were 45 postoperative complications with 11% major (Clavien grade 3 or higher). At a mean follow-up of 15 months 10 patients had disease recurrence and 6 died of the disease. <sup>12</sup> Another study conducted by Albisinni, et al (2014) confirmed that recurrence free survival (RFS), cancer specific survival (CSS), and overall survival (OS) rates after LRC appear comparable to those reported in current RC series.13

In Indonesia, there was no publication yet about laparoscopic radical cystectomy procedure that had been performed. Here, we are report our experience in performing laparoscopic radical cystectomy with ileal conduit urinary diversion (extracorporeal reconstruction) that had been performed in Hasan Sadikin Hospital, Bandung, Indonesia.

## **OBJECTIVE**

Here we present our first experience in performing laparoscopic radical cystectomy with ileal conduit urinary diversion extracorporeal reconstructive.

# **MATERIAL & METHOD**

A 54 years old male with histologically proven transitional cell carcinoma of the bladder cT2bN0M0 from previous TUR Bladder Tumor. CT scan reveals multiple tumors, located in anterior and posterior wall of the bladder. The tumor still confined within the bladder and there is no lymph nodes extension was found.

General anaesthesia was given to the patient and folley catheter was introduced. The patient is placed in a dorsal supine position with a 20–25° Trendelenburg position. The operating surgeon stands on the left side of the patient, the assistant on the opposite side, the camera holder behind the head of the patient. A 15-mm incision is made 3-4 cm cranial to the umbilicus for placement of the camera laparoscopic using port two 10-mm. Three ports are placed at the level of the umbilicus, on the left and center using 5-mm, on the right side using 10-mm. last port was placed on right lower abdomen using 5-mm port.

Initial inspection was performed to anatomical landmark of the procedure which are the abdominal wall, right and left umbilical arteries, ureters, bladder, internal iliac artery, spermatic cord, small intestine and sigmoid colon. The colon is

mobilized and displaced medially. We performed dissection of both ureters to free the ureters from adjacent tissues. After that, we continue to dissect the retroperitoneal space and free the posterior part of the bladder. We also performed excision of bilateral vas deferenses and identification of seminal vesicles, proceeds to dissect the right and left lateral part of the bladder. The parietal peritoneum lateral to the medial umbilical ligaments is incised from the vas deferens as it crosses the pelvic brim towards the peritoneum across the rectovesical cul-de-sac. The bladder pedicles was clipped with hem-o-lok clips and cut.

The dorsal vein complex was transected with a laparoscopic stapler. After dissection of the seminal vesicles, a window is developed encompassing the dorsal aspect of the prostate and the prostatic pedicles. The posterior layer of the Denonvilliers fascia is then incised and the prerectal fatty tissue (yellow) is visualized. The dissection is continued in a blunt and sharp fashion as far as possible towards the apex of the prostate and strictly in the midline in order to avoid injury to the neurovascular bundles, and the prostate excised.

The membranous urethra then transected, and the catheter which exposed from urethra was clipped by hem-o-lok before being cut to prevent spillage of urine. The right ureter is clipped with Hem-o-lok clips at the VUJ and divided, such that there are two clips on the bladder side and one on the distal ureter. On the left side, the ureter must be divided as close as possible to the bladder in order to provide sufficient length to perform the uretero ileal anastomosis. Left ureter was dissected and the distal part was placed to the right side through the meso-intestinal. The specimen is placed into an endobag.

Using laparoscopy technique, ileal segment was dissected to provide the segment for the conduit. Once its free, opening incision about 4 cm was performed between upper and lower right laparoscopy port. The specimen was then removed, and ileal conduit reconstruction was conducted through this incision extracorporeally.

A 8 cm ileal segment was isolated 15 to 20 cm proximal to the ileocecal valve and an end-to-endentero-entero anastomosis was performed to reestablish bowel continuity. Subsequently, the ureters was brought up, freshened and spatulated for approximately 1.5-cm. Bilateral, 6F double J ureteral stents were inserted to the ureter. End-to-side anastomosis and the ureters were directly anastomosed to the ileal segment using 4-0 PDS. Proximal part of the ileal segment was closed while the distal part reconstructed as stoma.

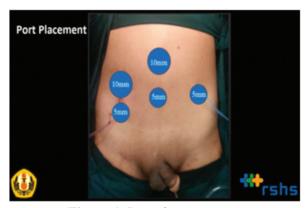


Figure 1. Port placement.



Figure 2. Patient position.



Figure 3. Anatomical landmark.

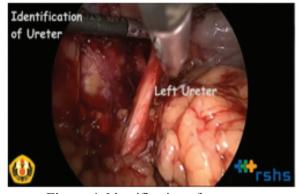


Figure 4. Identification of ureter.



Figure 5. Dissection of retroperitoneal space.



Figure 6. Dissection of the lateral side of the bladder.



Figure 7. Division of the bladder pedicles

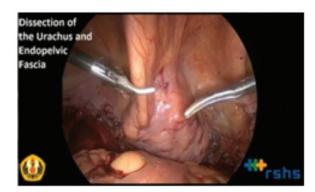


Figure 8. Dissection of the urachus and endopelvic fascia

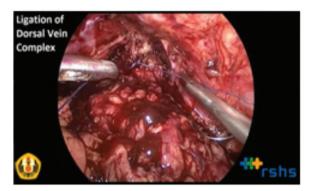


Figure 9. Ligation of dorsal vein complex.

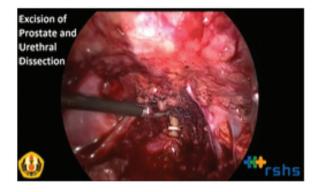


Figure 10. Excision of prostate and urethral dissection.



Figure 11. Dissection of ileal segment.



Figure 12. Extracorporeal ileal conduit reconstruction.



**Figure 13.** Finishing the operation.



Figure 14. Follow-up at POD 14.

## **RESULTS**

The duration of operation was 360 minutes. The estimated blood loss was 600cc. Blood transfusion was 1200 cc. No lymph node involvement. The surgical margins were free of tumor, according to pathological result. Urine production about 2000 cc/24 hours. The patient started ambulating at day 1 post operation day. Drain was removed 3 days after

surgery. There were no significant intraoperative complications. Patient was discharged at day 5 after operation.

## **DISCUSSION**

Laparoscopic radical cystectomy is a minimal invasive procedure optimizing an advance in technology; replacing open surgical procedures that convey many complications. Laparoscopic radical cystectomy is indicated in patients with organ-confined muscle-invasive bladder cancer or recurrent multifocal carcinoma in situ which has failed endoscopic tumor resection therapy and intravesical chemotherapy. Contraindications for LRC are prior pelvic radiotherapy, multiple previous abdominal operations, active bladder or upper tract infection, coagulopathy, and extravesical involvement by the bladder cancer.

The laparoscopic approach should convey some advantage to the patient such as less pain, shorter hospital stay, and earlier return to normal activity. The results of laparoscopic and open radical cystectomy between this case and the other studies are described in table 2. Laparoscopic radical cystectomy resulted in impressive improvements in patient outcome when compared to open radical cystectomy. In this case, duration of operation was 300 minutes. Duration of operation in previous study is  $294 \pm 27$  minutes, duration in open surgery is 349.1± 86.8 minutes. Patient was discharge 5 days after operation, while length of stay after open radical cystectomy ranges from  $10.2 \pm 8.4$  days from recent series, with the most typical stay being 6-10 days. While in the laparoscopic series the length of stay were between 7-11 days.

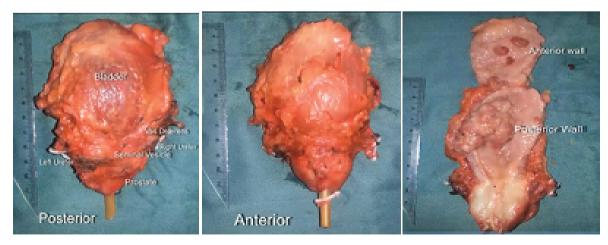


Figure 15. Specimen and tumor location.

**Table 2.** Our result compare to previous studies.

	This Case	Laparoscopy Procedure	Open Surgery
Duration of Operation	300 minutes	$294 \pm 27 \text{ minutes}^1$	$349.1 \pm 86.8 \text{ minutes}^9$
Estimated Blood Loss	600 cc	$249.69 \pm 95.59 \text{ cc}^{1}$	475 (100 - 3000) <sup>9</sup>
Length of stay	5 days	$9.42 \pm 2 \text{ days}^{1}$	$10.2 \pm 8.4 \text{ days}^9$

Laparoscopic radical cystectomy has a very wide spectrum of variability, especially in choosing method for urinary diversion. Therefore this procedure still remains technically challenging with a steep learning curve.

## **CONCLUSION**

Laparoscopic radical cystectomy with ileal conduit extracorporeal reconstructive urinary diversion is technically feasible and safe. In the future this method could be the preferred means in managing bladder tumor on selective case.

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