Case Report

Laparoscopic Radical Cystoprostatectomy, Surgical Technique and Result: A Case Report

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Objective: *Laparoscopic radical cystoprostatectomy is a complicated operation. The objective of this study is to present our technique and results of laparoscopic radical cystoprostatectomy.*
Material and Method: *A 72-year-old Thai male presented with gross hematuria. Cystoscope was performed. Large bladder tumor near right ureteric orifice was observed. Then, transurethral resection of bladder tumor was performed. His tumor pathology was muscle invasive high grade urothelial carcinoma with clinical staging T2N0M0. Laparoscopic radical cystoprostatectomy was then conducted with bilateral pelvic nodes dissection and ileal conduit.*
Results: *Operation period was eight hours. Blood loss was 500 ml. In pathological results, tumor invaded bladder muscle into perivesical tissue. Tumor margin was free. Lymph nodes were positive for malignancy 5/7 for right side and 0/4 for left side. Pathological staging was T3aN1M0. After post-operative period, the patient was discharged from hospital uneventfully.*
Conclusion: *Laparoscopic radical cystoprostatectomy in Maha Chakri Sirindhorn Medical Center is minimal invasive, feasible and safe. However, a longer follow-up period regarding long-term cancer control as well as functional and technical aspects will be required.*

Keywords: *Laparoscopic radical cystoprostatectomy, Bladder cancer, Minimally invasive surgery*

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Nowadays, laparoscopic surgery has been accepted as a standard treatment in many urologic surgical procedure. Radical cystoprostatectomy with extra corporealileal conduit is the standard treatment and the most commonly selected treatment option for muscle invasive bladder cancer by urologists worldwide.

Radical cystoprostatectomy with ileal conduit is a complicated operation. Besides the operation to remove tumor radically with bilateral pelvic lymph nodes dissection, there is also a reconstruction part in this operation. The reconstruction consists of cutting segment of ileum to connect with bilateral ureters for ileal conduit (Fig. 1).

Laparoscopic radical cystoprostatectomy has been described by various authors[1] but remains under evaluation. Complication rates, functional results, and long term oncologic outcome in comparison to open surgery still have to be defined[2].

Laparoscopic urologic surgery in HRH Princess Maha Chakri Sirindhorn Medical Center (MSMC) is, however, still at an initial stage. The objective of this study is to present our surgical techniques and results for this complex oncologic/

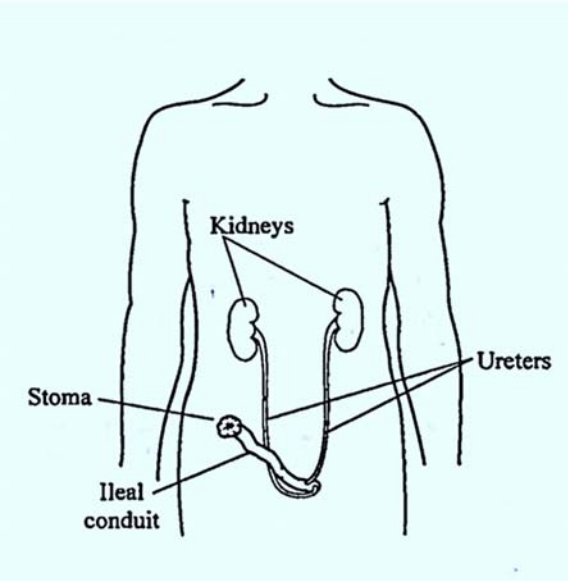

Fig. 1 Ileal conduit 15 cm ileal segment is used for urine passage from ureters to abdominal wall.

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urologic minimally invasive procedure.

Material and Method

A 72-years old Thai male presented with gross hematuria. Cystoscopy was performed. Large bladder tumor near right ureteric orifice was found. Tranurethral resection of bladder tumor was then performed. Abdominal computed tomography ruled out evidence of extravesical involvement. Clinical staging is T2N0M0. After detailed informed consent was given, laparoscopic radical cystoprostatectomy with ileal conduit urinary diversion was conducted on January 30, 2014.

Techniques

The patient was in supine position, a five-port transperitoneal approach was used (Fig. 2). Right pelvic lymph nodes were dissected along external iliac and internal iliac vessels. Right ureter was identified and dissected distally to ureterovesical junction. Left pelvic lymph nodes and left ureters were dissected in the same fashion. With the bladder retracted anteriorly and the sigmoid colon retracted posteriorly and cephalad, a horizontal incision was made in the posterior parietal peritoneum between bladder and rectum. Both vasa deferentia were divided, and dissection was performed along the posterior aspect of the seminal vesicles toward the bladder base. The Denonvilliers fascia was incised, and the plane between the prostate and the rectum was developed. The lateral and posterior vascular pedicles were controlled by Hem-o-lock clips.

An inverted V incision was made in the anterior parietal peritoneum. The urachus was dissected and the bladder was mobilized posteriorly. The retropubic space was developed, and the endopelvic fascia was divided bilaterally. The puboprostatic ligaments were divided, and the dorsal vein complex was suture-ligated laparoscopically. The urethra was transected distal to the apex of the prostate, the remaining attachments were released to completely free the radical cystoprostatectomy specimen, which was immediately entrapped within a bag.

Mini-laparotomy incision about 5-6 cm distally from umbilicus was performed. The specimen was then removed. A 15-cm segment of ileum was resected approximately 15 cm proximal to the ileocecal junction. Isolation the ileal loop and its mesentery was then performed. Intestinal continuity was re-established by creating a generous side to side ileoileal anastomosis with two sequential firings of the GIA stapler. The left ureter was delivered retroperitoneally to the right side of the abdomen under the sigmoid mesocolon. A 6Fr feeding tube was inserted through ureter and ileal conduit for ileoureteral stent. After spatulating both ureters, the open ends of the bowel were closed with right and left ureteroileal anastomosis (Wallace technique) (Fig. 3) by 4-0 chromic catgut suture.

The distal end of the ileal loop was exteriorized through the preselected stoma site in the right rectus muscle, and an end-ileal stoma was created. Two 10 mm Radivac drains were inserted through different port sites. Hemostasis was confirmed and laparoscopic port wounds wereclosed.

Results

Procedure was completed laparoscopically

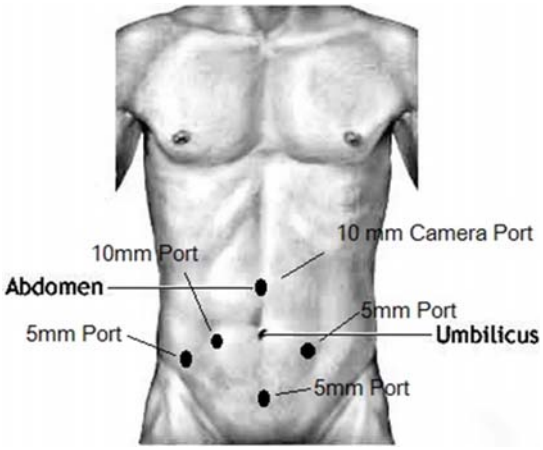

Fig. 2 Five port placement as figure. Zero degree laparoscope is used through 10 mm camera port. The surgeon stands on the left side of the patient.

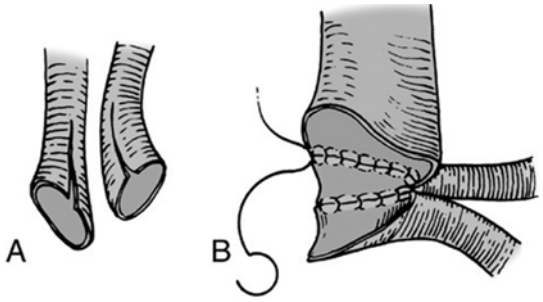

Fig. 3 Wallace ureterointestinal anastomosis. A) Both ureters are spatulated and laid adjacent to each other. B) The apex of one ureter is sutured to the apex of the other ureter with chromic 4-0 sutures. The lateral ureteral walls are then sutured to the intestine.

without intra-operative or post-operative complications. The total surgical time (from initial skin incision to final skin stitch) was 8 hours. The estimated blood loss was 500 ml. Patient resumed ambulation on Day 2, oral intake on Day 3, ureteric stents was removed and discharged on Day 14. Pathologic examination revealed pT3aN1M0 urothelial cell carcinoma of the bladder. Tumor invaded bladder muscle into perivesical tissue. The surgical margins of the specimen, including both distal ureteral edges, were negative for cancer. Lymph nodes were positive for malignancy 5/7 for right side and 0/4 for left side. After three months, the patient was given adjuvant chemotherapy due to pathologically pelvic lymph nodes metastasis.

Discussion

The main therapeutic aims in modern oncologic surgery are oncologic control, fast post operative recovery and good quality of life. Since there are only a limited number of successful cases for laparoscopic radical cystoprostatectomy for bladder cancer, the oncologic assessment still remains under evaluation. The author demonstrates that a laparoscopic approach to cystectomy and pelvic lymph node dissection in combination with an open technique for the reconstructive part through a minilaparotomy is feasible and ensures the advantages of minimal invasive surgery.

Moinzadeh A et al[3] reported the mean operative time 450 minutes, the mean blood loss 520 ml. Some authors reported laparoscopic radical cystoprostatectomy with urinary diversion which the entire procedure completed intracorporeally[4-7]. Overall operative times remained higher than those of extracorporeal performance. Hemal et al[8] reported encouraging results for decreased operative time and costs in comparison to a total laparoscopic approach by modifying the procedure using a small infra umbilical incision to deliver the specimen and perform the ileal conduit reconstruction. Taylor et al[9] also stated that extracorporeal assistance for urinary diversion was a feasible tool that did not decrease the advantages of minimal invasive surgery. There were a few reports of consequently abandoning the intracorporeal reconstruction of urinary diversion for safety reasons[10] or to decrease the overall operative time and costs[8,11].

The known advantages of laparoscopic radical cystoprostatectomy are reduced blood loss, decreased need for narcotics, decreased fluid and electrolyte imbalances, minimized bowel manipulation and faster recovery[12,13].

Conclusion

The author has demonstrated that laparoscopic radical cystoprostatectomy is a feasible and potential approach. With increasing experience, the author believe that the operative times will be decreased, thus enhancing the popularity of such procedure. However, a longer follow-up period regarding long-term cancer control as well as functional and technical aspects will be required.

What is already known in this topic ?

The diagnosis and treatment guideline for bladder cancer is already known.

What this study adds ?

This study adds the technique for laparoscopic cystoprostatectomy with ileal conduit.

Acknowledgement

None.

Potentail conflicts of interest

None.

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รายงานการผ่าตัดมะเร็งกระเพาะปัสสาวะโดยวิธีผ่าตัดส่องกล้องทางช่องท้อง เทคนิคการผ่าตัดและผลการรักษา

ศรายุทธ วิริยะศิริพงศ์

ภูมิหลัง: *แม้ว่าในปัจจุบันการผ่าตัดโดยวิธีการส่องกล้องผ่าตัดในช่องท้องได้รับการยอมรับแล้วว่าเป็นการรักษาที่ได้มาตรฐาน ในการผ่าตัดหลายอย่างของระบบทางเดินปัสสาวะ แต่ที่ศูนย์การแพทย์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี การผ่าตัดส่องกล้องในช่องท้องของระบบทางเดินปัสสาวะยังอยู่ในระยะเริ่มต้นการผ่าตัดมะเร็งกระเพาะปัสสาวะผ่านทางการส่องกล้องในช่องท้องเป็นการผ่าตัดที่ซับซ้อน*

วัตถุประสงค์: *เสนอประสบการณ์การผ่าตัดมะเร็งกระเพาะปัสสาวะผ่านทางการส่องกล้องในช่องท้องเป็นครั้งแรกที่โรงพยาบาลมหาวิทยาลัยแห่งนี้*

วัสดุและวิธีการ: *ผู้ป่วยชายไทยอายุ 72 ปี มาด้วยอาการปัสสาวะเป็นเลือดสด จากการส่องกล้องในกระเพาะปัสสาวะพบว่ามีเนื้องอกขนาดใหญ่ อยู่ใกล้รูเปิดของท่อไตข้างขวา ผลชิ้นเนื้อเบื้องต้นพบว่าผู้ป่วยเป็นมะเร็งกระเพาะปัสสาวะระยะ T2N0M0 ผู้ป่วยจึงได้รับการผ่าตัดมะเร็งกระเพาะปัสสาวะผ่าตัดต่อมน้ำเหลืองในอุ้งเชิงกรานผ่านทางการส่องกล้องในช่องท้องและได้รับการทำท่อนำปัสสาวะออกทางช่องท้องโดยใช้ลำไส้เล็ก*

ผลการศึกษา: *การผ่าตัดใช้ระยะเวลาทั้งหมด 8 ชั่วโมง เสียเลือดทั้งหมด 500 มิลลิลิตร ผลชิ้นเนื้อหลังการผ่าตัดพบว่ามะเร็งมีการลุกลาม ผ่านชั้นกล้ามเนื้อออกมานอกกระเพาะปัสสาวะ พบต่อมน้ำเหลืองข้างขวาเป็นมะเร็ง 5/7 และข้างซ้าย 0/4 ผลชิ้นเนื้อหลังการผ่าตัดพบว่าเป็นระยะ T3aN1M0 หลังการผ่าตัดผู้ป่วยสามารถกลับบ้านได้โดยไม่มีภาวะแทรกซ้อน*

สรุป: *การผ่าตัดมะเร็งกระเพาะปัสสาวะโดยวิธีการส่องกล้องผ่าตัดในช่องท้องในศูนย์การแพทย์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี เป็นการผ่าตัดที่มีความรุนแรงน้อย สามารถทำได้และมีความปลอดภัย อย่างไรก็ตามการศึกษาในระยะยาวโดยเฉพาะในแง่การควบคุมมะเร็งในระยะยาวยังมีความจำเป็น*