Case Report

Laparoscopic Retropubic Simple Prostatectomy for Large Benign Prostatic Hyperplasia: First Case Report in Thailand

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Background and Objective: *At Rajavithi Hospital, open retropubic simple prostatectomy was started in 1985. The purpose of the present was to describe a surgical technique and early post-operative results of the first successful laparoscopic retropubic simple prostatectomy (LRSP) in Thailand.*

Case Report: *A 69-year-old Thai male presented with a chief complaint of refractory urinary retention. Digital rectal examination was performed with prostate gland of 4 finger breadths, firm consistency and smooth surface. The PSA level was 27.16 ng/ml. Transrectal ultrasound volume was 143 gm. The biopsy sample confirmed BPH and chronic prostatitis. The cystoscopy revealed prostate gland enlargement with obstruction. This patient's manifestation required surgical treatment of BPH, and the LRSP technique was chosen. The prostatic capsule was incised by monopolar scissors and the prostatic adenoma was enucleated. The prostatic capsule was closed and a 22 Fr three-way irrigating Foley catheter was inserted. The operative time was 2 hours, with estimated blood loss of 600 ml and no immediate post-operative complications. The prostate specimen weighed 169 gm. The pathologic results confirmed BPH and prostatitis. Postoperative ambulation and catheter removal was on the 2nd and the 7th day, respectively. Postoperative uroflowmetry report showed a Q_{max} of 15 ml/s.*

Conclusion: *Operated by an experienced laparoscopic team, laparoscopic retropubic simple prostatectomy for large BPH is a feasible alternative approach to open surgery.*

Keywords: *Laparoscopic retropubic simple prostatectomy, Benign prostatic hyperplasia, Case report, Thailand*

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Benign prostatic hyperplasia (BPH) is one of the most common diseases in senile male. The majority of males over 50 years of age was found with BPH[1] and about 30% of them may undergo surgery[2]. Over the years, transurethral resection of prostate (TURP) as a treatment modality for obstructing BPH has gained popularity throughout the world. It is now considered the gold standard for the surgical management of BPH[3]. Although an upper limit for the TURP technique is that it is recommended for the prostate with a size smaller than 75 gm[4,5], open prostatectomy is the preferred operational technique for larger volume of prostate because TURP will increase risk of bleeding and TURP syndrome. In Rajavithi Hospital, the first open retropubic simple prostatectomy was performed in 1985. Progress in laparoscopic techniques has led to extension of their use in prostate cancer[6]. The laparoscopic retropubic simple prostatectomy approach seems to be an excellent alternative to open surgery for treating obstructive prostatic hyperplasia with a size of more than 75 gm. In the present study, the authors aim to describe the surgical technique and early postoperative results of the first successful laparoscopic retropubic simple prostatectomy in Thailand.

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Case Report

A 69-year-old Thai male presented with refractory urinary retention. Digital rectal examination showed the prostate gland of four finger breadths in size with firm consistency and smooth surface, not tender, and normal sphincter tone. The PSA level was 27.16 ng/ml. The prostate volume was 143 gm as measured by transrectal ultrasound. The biopsy sample confirmed BPH and chronic prostatitis. Cystoscopy showed enlarged prostate gland with obstruction and

normal bladder mucosa. The laparoscopic retropubic simple prostatectomy technique was performed under general anesthesia. The duration of operation, total amount of blood loss during operation, date of ambulation, duration of hospitalization, duration of tube drain placement, duration of catheter placement, blood transfusion needs, and other complications were all recorded. The maximum urinary flow rate (Q_{max}) of this patient was also recorded.

Surgical technique

Patient position

After general anesthesia, the patient was placed in the Trendelenberg and lithotomy position.

Laparoscopic port access

After retaining Foley catheter No. 16 Fr. and emptying the bladder, the first incision was created at 1 cm infra-umbilical area by open technique. The extraperitoneal space was created by a kidney shape balloon dissector. The first 10 mm balloon port was inserted at the infra-umbilical incision. The other two 5 mm ports were placed under laparoscopic vision at midway between anterior superior iliac spine and the first balloon port, one at the right side and the other at the left side. The last one was the short 5 mm port at lower one third between infra-umbilical incision and pubis symphysis as shown in Fig. 1.

Identifying prostate gland and cleaning periprostatic fat tissue

After laparoscopic ports were placed, the prostate gland was identified and periprostatic fat tissue was dissected using a bipolar grasper and monopolar scissors to identify the superficial dorsal vein, prostatic capsule and bladder neck.

Incision of prostatic capsule

The incision was performed using monopolar scissors at 1 cm distal from the bladder neck. Dissection to create subcapsular plane of prostate gland was performed in order to enucleate prostatic tissue.

Enucleate prostatic tissue

After finishing creating the subcapsular plane of the prostate gland, the minimal extended incision was created at the site of the short 5 mm port to insert a finger to enucleate prostatic tissue from the prostatic capsule. At this step gas insufflation was stopped and released in order to access the prostate gland with one finger without difficulty, and the other hand performed per rectal digital elevation of the prostate gland as shown in Fig. 2. Insufflation was restarted after the re-insertion of the short 5 mm port at the same site and a temporary suture was put in place to seal gas leakage around this port.

Transection of prostatic urethra

The prostatic urethra was transected at the apex of the prostate gland and bladder neck area. Subsequently, prostatic adenoma was removed from the prostatic fossa as shown in Fig. 3.

Control bleeding at prostatic fossa

Bleeding was controlled by figure of eight

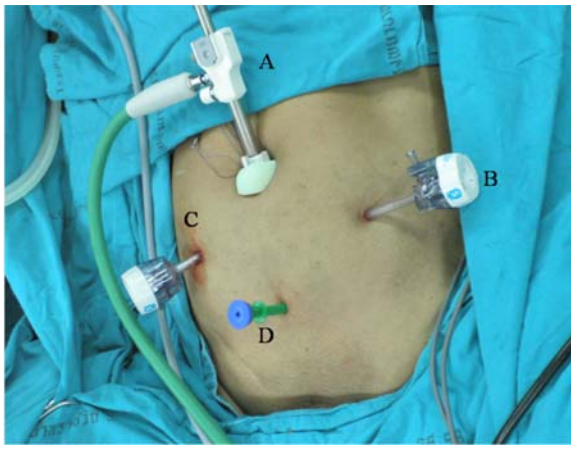

Fig. 1 Port site position, A: 10 mm balloon port at infra-umbilical area, B & C: both 5 mm ports at midway between anterior superior iliac spine and first balloon port site, D: short 5 mm port at lower one third between first port and pubis symphysis

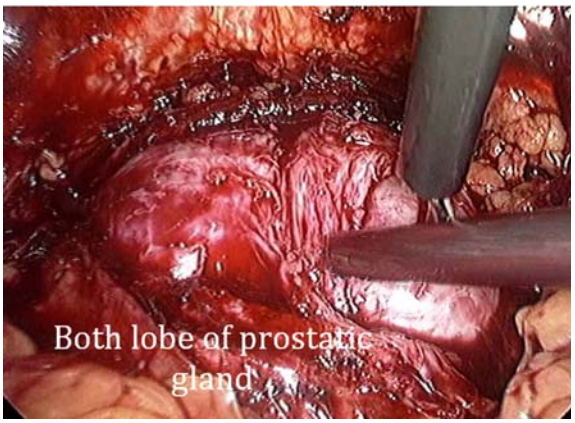

Fig. 2 Both lobes of prostate gland

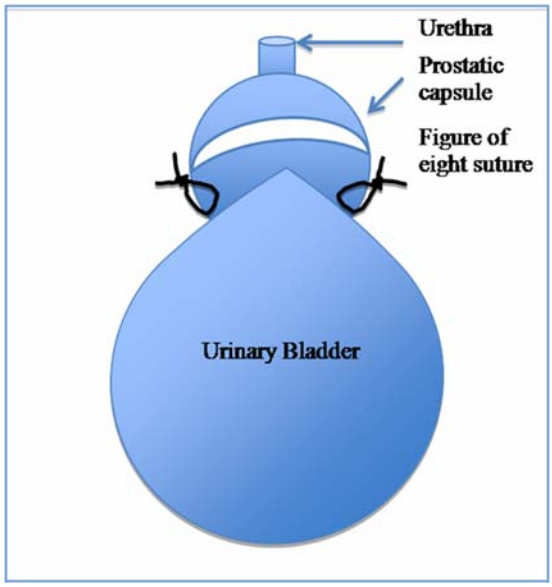

Fig. 3 Control of bleeding at 5 and 7 o'clock at prostatic capsule near bladder neck in figure of eight fashion by 2-0 polyglycolic acid

sutures at 5 and 7 o'clock of prostatic capsule near the bladder neck using 2-0 polyglycolic acid sutures as shown in Fig. 3. The prostate fossa was inspected for any remaining nodules of adenoma and bleeding points were controlled by bipolar electrical cauterization.

Closure of prostatic capsule

After bleeding was controlled, a 22 Fr three-way irrigating Foley catheter with a 30 ml retention balloon was inserted through the urethra into the bladder. The transverse incision of the prostatic capsule was closed with a continuous suture of 2-0 polyglycolic acid, ensuring a watertight closure. Slight catheter traction was applied, and continuous bladder irrigation was instituted. The bleeding at the periprostatic area was checked and controlled.

Insert specimen in bag and tube drain insertion

The specimen was put in an endobag and retrieved via the infra-umbilical port. A two tube drain was placed in the extraperitoneal space via left and right side 5 mm ports.

Closure of port site

Closure of the port site was performed.

Results

Laparoscopic retropubic simple prostatectomy was successful in this case. The duration of operative time was 2 hours. The total amount of blood loss during operation was about 600 ml and there were no immediate postoperative complications. The weight of the prostate specimen was 169 gm, and the pathologic result was BPH, chronic prostatitis and negative for malignancy. The pain score was 2nd level and the analgesic medication was minimal. Post-operative ambulation was on the 2nd day. The duration of tube drain placement was 3 days, and duration of catheter placement was 7 days. The maximum urinary flow rate (Q_{max}) of this patient was 15 ml/s at 1 week after the operation.

Discussion

Open prostatectomy is the gold standard treatment in BPH of which the volume is more than 75 gm[4,5]. When compared with TURP, open prostatectomy offers the advantages of lower re-treatment rate and more complete removal of the prostatic adenoma under direct vision. It also helps avoid the risk of dilutional hyponatremia (TURP syndrome) that occurs in approximately 2% of patients undergoing TURP which can be a serious complication in elderly patients[7,8]. Open retropubic simple prostatectomy is to perform enucleation of the hyperplastic prostatic adenoma through a direct incision of the anterior prostatic capsule. This approach was popularized by Terrence Millin, who first reported the results of the procedure on 20 patients in The Lancet in 1945[9]. The advantages of this procedure are excellent anatomic exposure of the prostate, direct visualization of the prostatic adenoma during enucleation to ensure complete removal, precise transection of the urethra distally to preserve urinary continence, clear and immediate visualization of the prostatic fossa after enucleation to control bleeding, and minimal to no surgical trauma to the urinary bladder[4]. The disadvantage of the open prostatectomy approach is the need for a large abdominal incision involving blood loss and an increased rate of transfusions that leads to hospitalization and a longer convalescence period. The development of techniques and instruments in laparoscopic urologic surgery has provided urologists with more understanding of the anatomy of the pelvic organ. To date, many physicians have reported the laparoscopic approach to BPH to be a feasible and reproducible technique[9,10-15]. Several of them have already mentioned the better control of haemostasis with the laparoscopic approach compared with open surgery; this is probably due to the gas pressure, acting

in a closed space, and the careful dissection of the adenoma[9,10]. The author team began performing LRSP in 2005[6]. This procedure helped us to standardize laparoscopic retropubic simple proststectomy, and the authors' institute was well-known in open retropubic prostatectomy as a standard treatment in large volume BPH since before 1985. The authors performed laparoscopic retropubic simple prostatectomy with finger assistance for the enucleation of prostatic tissue because prostatic tissue may be accessed rapidly by digital assistance and this allows a great saving of time. The series without finger assistance for the enucleation requires high-level pressure on the instruments, leading to a rapid deterioration of the instruments, long duration of both operation and anesthesia. It also may lead to increased risk of bleeding and a higher risk of developing the dissection in the wrong plane, which could subsequently increase the risk of residual prostatic tissue at the prostatic fossa[9-15]. The perioperative results of the present report in all record data of this case were not superior to previous world series[9-15], but the author team acquired greater understanding of the steps of operation and clear surgical anatomy from laparoscopic vision, which made our team develop techniques to reduce operating time and blood loss in the future. In this first case report in Thailand, the author team was successful in the operation, but more study is needed to confirm correlations between this technique and long term outcomes. Finally, the advantage of laparoscopic retropubic simple prostatectomy is reduced post-operative pain and decreased convalescence period because no retractors are needed and incisions are smaller than in open retropubic simple prostatectomy. The most important factor to reduce blood loss can be attributed to a precise and selective hemostasis of the capsule, prostatic fossa, and figure of eight sutures at 5 and 7 o' clock of the prostatic capsule achieved quickly after the fast enucleation of the adenoma.

Conclusion

In the hands of an experienced laparoscopic team, laparoscopic retropubic simple prostatectomy is a feasible and alternative approach to open surgery. It is safe, with minimal intraoperative hemorrhage and no serious postoperative complications, and a shorter convalescence period is required compared to open surgery.

Potential conflicts of interest

None.

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การผ่าตัด laparoscopic retropubic simple prostatectomy ในผู้ป่วยต่อมลูกหมากขนาดโตมากผิดปกติ: รายงานแรกของประเทศไทย

ธเนศ ไทยดำรงค์, ดนัยพันธ์ อัครสกุล

ภูมิหลังและวัตถุประสงค์*: ผู้ป่วยที่ต่อมลูกหมากมีขนาดโตมากผิดปกติ คือ ขนาดมากกว่า 75 กรัม ส่วนใหญ่จะได้รับการรักษาด้วยวิธีการผ่าตัดเปิดหน้าท้อง จากความก้าวหน้าทางการผ่าตัดทางกล้องผ่านหน้าท้อง หน่วยศัลยศาสตร์ยูโรได้นำมาพัฒนาวิธีผ่าตัด laparoscopic retropubic simple prostatectomy (LRSP) ดังนั้นผู้นิพนธ์จึงเสนอรายงานวิธีการผ่าตัดและผลการผ่าตัด LRSP รายงานแรกในประเทศไทย*

รายงานผู้ป่วย*: ผู้ป่วยชาย อายุ 69 ปี มาด้วยอาการถ่ายปัสสาวะไม่ออก ได้รับการวินิจฉัยว่ามีภาวะต่อมลูกหมากโตร่วมกับถ่ายปัสสาวะไม่ออก มีระดับ PSA 27.16 ng/ml; การตรวจอัลตราซาวด์ทางทวารหนัก ขนาดต่อมลูกหมาก 143 กรัม ผลการเก็บชิ้นเนื้อส่งตรวจทางพยาธิวิทยาไม่พบเซลล์มะเร็ง ได้รับการผ่าตัดด้วยวิธี LRSP โดยเริ่มจากการเปิดเยื่อหุ้มต่อมลูกหมากโดยกรรไกรต่อจี้ไฟฟ้า ทำการเลาะต่อมลูกหมากออกทีละซีกจนหมด ใส่สายสวนปัสสาวะและเย็บปิดเยื่อหุ้มต่อมลูกหมาก ในผู้ป่วยรายนี้ประสบผลสำเร็จ การผ่าตัดใช้ระยะเวลาการผ่าตัด 2 ชั่วโมง, ปริมาณการเสียเลือดระหว่างผ่าตัด 600 มิลลิลิตร ต่อมลูกหมากหนัก 169 กรัม ผลการตรวจทางพยาธิวิทยาเป็น BPH และ prostatitis ต้องการยาระงับความเจ็บปวดเพียงเล็กน้อย, สามารถถอดสายสวนปัสสาวะออกได้ในวันที่ 7 หลังการผ่าตัด, ผลตรวจความแรงของการถ่ายปัสสาวะคือ 15 มิลลิลิตร/วินาที ไม่มีภาวะแทรกซ้อนหลังผ่าตัด*

สรุป*: ปัจจุบันการผ่าตัดด้วยวิธีการผ่าตัดทางกล้องกำลังได้รับความนิยม ซึ่งเป็นอีกทางเลือกหนึ่งในการรักษาและได้ผลดีใกล้เคียงการผ่าตัดด้วยวิธีดั้งเดิม ดังนั้นการผ่าตัดด้วยวิธีการผ่าตัดทางกล้อง LRSP น่าจะเป็นอีกหนึ่งทางเลือก และผลการผ่าตัดของวิธีนี้ให้ผลดีไม่มีอาการแทรกซ้อน แต่อย่างไรก็ตามยังต้องการการศึกษาเพิ่มเติมในแง่ผลการรักษาระยะยาวต่อไป*