

การผ่าตัดมะเร็งต่อมลูกหมากด้วยการส่องกล้อง: ประสบการณ์เริ่มแรก ในโรงพยาบาลศรีนครินทร์

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Laparoscopic Radical Prostatectomy: Initial Experience in Srinagarind Hospital

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หลักการและวัตถุประสงค์: การรักษาที่เป็นมาตรฐานของมะเร็งต่อมลูกหมากระยะที่จำกัดอยู่เฉพาะที่คือการผ่าตัดเอาต่อมลูกหมากออก ด้วยการยอมรับที่มากขึ้นของการผ่าตัดแบบลูกค้าน้อย การผ่าตัดต่อมลูกหมากออกด้วยการส่องกล้องจึงได้เข้ามามีบทบาทและเป็นหัตถการที่มีประสิทธิภาพในศัลยแพทย์ที่มีประสบการณ์ การศึกษานี้รายงานประสบการณ์เริ่มแรกของการผ่าตัดต่อมลูกหมากออกด้วยการส่องกล้องที่โรงพยาบาลศรีนครินทร์

วิธีการศึกษา: เป็นการศึกษาจากเวชระเบียนผู้ป่วย 20 ราย ที่เป็นมะเร็งต่อมลูกหมากที่จำกัดอยู่เฉพาะที่ที่ได้รับการผ่าตัดต่อมลูกหมากออกด้วยการส่องกล้องโดยศัลยแพทย์ระบบปัสสาวะหนึ่งคน ที่โรงพยาบาลศรีนครินทร์ในช่วง ตุลาคม พ.ศ. 2559 ถึง กุมภาพันธ์ พ.ศ. 2562 โดยศึกษาข้อมูลทั่วไปของผู้ป่วย รายละเอียดของการผ่าตัด และภาวะแทรกซ้อนจากการผ่าตัด

ผลการศึกษา: อายุเฉลี่ยของผู้ป่วยคือ 67.5 ปี (57-76) ค่าเฉลี่ยของระดับมะเร็งต่อมลูกหมากในกระแสเลือดอยู่ที่ 14.1 (6-39) ผู้ป่วย 7 รายได้รับการรักษาด้วยการให้ยาฮอร์โมนเพศชายก่อนการผ่าตัด เวลาเฉลี่ยของการผ่าตัดและปริมาณการเสียเลือดเฉลี่ยของการผ่าตัดคือ 180 นาที (120-330) และ 400 มิลลิลิตร (100-2,000) ตามลำดับ มีผู้ป่วยเพียง 1 ราย ที่ต้องเปลี่ยนเป็นผ่าตัดแบบเปิดเนื่องจากสัญญาณชีพที่ไม่คงที่ ระยะเวลาดำเนินการในโรงพยาบาลอยู่ที่ประมาณ 5 วัน และไม่มีผู้ป่วยคนใดที่ต้องมานอนโรงพยาบาลซ้ำอีกรอบหลังการผ่าตัด มีผู้ป่วย 14 ราย (ร้อยละ 70) ที่ผลทางพยาธิวิทยาพบว่าไม่มีมะเร็งหลงเหลือ

สรุป: จากการศึกษาเริ่มแรกนี้พบว่า การผ่าตัดต่อมลูกหมากออกด้วยการส่องกล้องเป็นหัตถการที่มีความปลอดภัยและสามารถทำได้ ด้วยผลลัพธ์ทางด้านมะเร็งที่ยอมรับได้สำหรับมะเร็งต่อมลูกหมากระยะต้นที่โรงพยาบาลศรีนครินทร์

Background and objective: The standard treatment for clinically localized prostate cancer is surgery, radical prostatectomy. With the gaining acceptance of minimally invasive surgery, laparoscopic radical prostatectomy (LRP) has been determined to be an effective procedure in an experienced surgeon's hands. This study reported initial experience of LRP in Srinagarind hospital.

Methods: Medical records of 20 patients with clinically localized prostate cancer who underwent LRP by a single urologist in Srinagarind hospital between October 2016 to February 2019 were retrospectively reviewed. Patient characteristics, operative and peri-operative details, post-operative complications, and oncological outcomes were assessed.

Results: The median age was 67.5 years (57-76). The mean pre-operative prostate specific antigen level was 14.1 ng/mL (6-39). Seven patients were treated with GnRH agonist before the operation. The median operative time and blood loss were 180 min (120-330) and 400 ml (100-2000), respectively. Only one operation had to be converted to open surgery as a result of hemodynamic instability. The median hospital stay was 5 days and no one had to be readmitted. Fourteen patients (70%) were margin negative in the pathological specimen.

Conclusion: From this preliminary study, LRP is safe and feasible, with acceptable oncological outcomes for early prostate cancer in Srinagarind hospital.

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คำสำคัญ: มะเร็งต่อมลูกหมาก, การส่องกล้องช่องท้อง
ระยะเวลาการเรียนรู้, ประสบการณ์เบื้องต้น

Keyword: Prostate cancer, Laparoscopy,
Learning curve, Early experience

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Introduction

Prostate cancer is becoming more common in Thai men with an incidence of 3.5 per 100,000¹. For clinically localized disease, treatment includes surgery or radiation. For surgery, the surgeon has to perform radical prostatectomy which could be done by open surgery or laparoscopically.

Many studies have demonstrated the advantages of laparoscopic radical prostatectomy (LRP) including fewer post-operative complications, less blood loss, and shorter hospital stay while maintaining similar oncological results compared to open surgery. With the gaining acceptance of the minimally invasive technique, LRP has become the standard operation since it was introduced in 1990s². However, the surgeon's expertise is one of the most important factors to achieve these promising results.

Herein, we report our initial experience with LRP, highlighting the short-term complications and pathological outcome.

Materials and Methods

Participants and setting

This study was a retrospective study that reviewed all LRP procedures performed by a single surgeon between October 2016 and February 2019 in Srinagarind hospital, Khon Kaen university. This study was approved by the Khon Kaen university Ethics committee.

Procedure

The surgical technique of LRP is shown in Figure 1. Five trocars are placed in a fan array: 12 mm umbilical trocar for the laparoscope, 10 mm trocar is placed on the left side on the lateral edge of the rectus muscle, a 5mm trocar on the right lateral edge of the rectus abdominis muscle, and two 5 mm trocars are inserted approximately 2 cm medial and superior to the anterior superior iliac spines. Pneumoperitoneum is created. The Retzius space is developed via a Transperitoneal approach. Neurovascular bundle preservation is performed in selected patients with prostate-confined disease and low risk for recurrence. A Jackson-Pratt drain is routinely placed and removed around postoperative day 2-3. The urethral catheter

is removed on day 14 postoperatively without cystography.

Statistical analysis

Demographic data were analyzed using descriptive statistics and presented as a percentage, mean and standard deviation, or median (if the distribution was not normal). Spearman's correlation was used to determine the association between factors. A p-value of <0.05 was considered statistically significant. All data analysis was carried out using STATA version 10.0 (StataCorp, College Station, TX, USA).

Results

Baseline characteristics and operative outcome

Of 20 patients undergoing LRP, the median age was 67.5 years (57-76). The mean pre-operative prostate specific antigen (PSA) level was 14.1ng/mL (SD 10.0). Seven patients were treated with preoperative GnRH agonist due to undesirable symptoms and the long waiting time for surgery. Mean pre-operative pathological resulted from transrectal ultrasound prostate biopsy was Gleason 7 (range 6-9). Five patients underwent nerve-sparing surgery.

The median operative time was 180 min (range 120-330) and the median estimated blood loss was 400 ml (100-2,000), respectively. Only 2 patients received a blood transfusion. There were 3 perioperative complications; 1) one patient had to be converted to open radical prostatectomy due to hemodynamic instability in steep Trendelenburg position. 2) Urethrovesical anastomosis bleeding at postoperative day 14 that needed endoscopic intervention to stop the bleeding. 3) Urine leakage that could be resolved spontaneously before the removal of the urethral catheter. However, there was neither serious complication nor perioperative mortality in this study. The median length of hospital stay was 5 days (range 4-10).

Regarding the TNM pathological staging, 13 patients (65%) had a pT2 disease, 6 patients (30%) had a pT3b disease and 1 patient (5%) had d pT3a disease. Six patients (30%) had a positive margin; four out of six were pT3b. The mean final Gleason score was 7. The average prostate tissue weight was 43 grams

(range 22-65) as shown in Table 1.

Association between the number of cases and clinical factors

A Spearman's correlation was run to assess the relationship between the operative time and number of the case using a small sample of 20 participants.

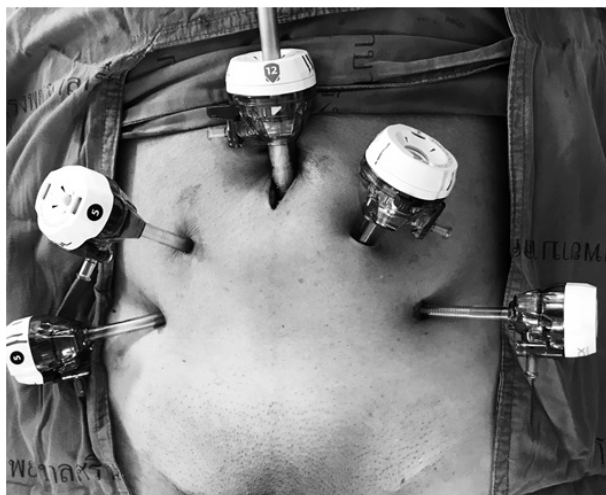


Figure 1 Port and trocar position

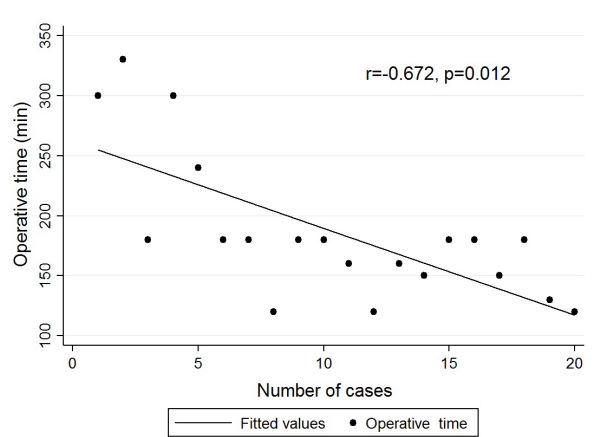


Figure 2 Correlation between operative time and number of case

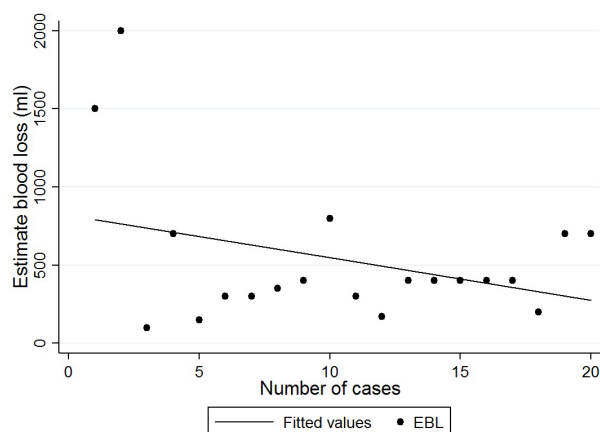


Figure 3 Correlation between blood loss and the number of case

There was a strong negative correlation between the operative time and number of case, which was statistically significant, $r = -0.672$, $p = 0.0012$ (Figure 2). The operative time was longer in the early experience cases and became shorter.

Likewise, there was a trend toward a negative correlation between estimated blood loss and

Table 1 Pathological results

	Average	Range
Weight (grams)	43	22-65
Gleason score	7	6-9
Pathological findings, n(%)		
pT2	13 (65)	
pT3a	1 (5)	
pT3b	6 (30)	
Positive surgical margin	6	

number of the case but did not reach statistical significance. As shown in Figure 3, after 5 cases, there was a plateau of estimated blood loss at just below 500 ml.

Discussion

Cancer of the prostate is important in male in Thailand. Radical prostatectomy is one of the curative treatments for localized prostate cancer. The 10-year specific survival rate after this operation is greater than 85%^{3,4}. However, because of potential perioperative morbidity of open surgery, minimally invasive surgery by laparoscopy is an original approach designed to achieve the same oncological results as conventional radical prostatectomy while decreasing the morbidity of this operation⁵.

The present study reported data on perioperative parameters and morbidities. The overall results were comparable to other reported studies both in Thailand and other countries as shown in Table 2.

The median operative time in this series was 180 min which was shorter than other reported series (208-350 min)⁶⁻¹¹. The operative time was more than 250 minutes in the first five patients, but as the surgeon gained more experience, it became shorter. The rate of conversion to open surgery was less than two times compared to the report by Chaibong et al¹⁰. The transfusion rate of 10% in our series was comparable

to the rate reported by Bollens et al⁹. and it was less than other reported series from Thailand (16.7-27.6%)^{10,11}. The better outcome in this cohort was partly due to the major advancement in laparoscopic technology; visual guidance and surgical technique over the last decade and the better postoperative care improvement.

Early experience of LRP resulted in 9.6-36% of complications^{9,12}. In this series, the complication rate was 15% which was acceptable, and there was no post-operative mortality.

From the oncological point of view, it is still too early to evaluate the long-term results from the present series. The overall positive surgical margin rate was 30% which was slightly higher compared to many series with the positive margin of 12.3%- 29.8%⁶⁻¹¹. The patients' high T stage of pT3b in 30% of patients could have contributed to this higher rate of positive

margin.

This study reported the outcomes and morbidity of LRP from the first case series. The present series included the initial experience period that is needed to contribute the skills required for success. However, the complication rates were minor complications and no mortality in the present series. This indicated that the author technique and experience for LRP can be a standard method for prostate cancer surgery in Srinagarind hospital.

Conclusion

Perioperative outcomes of LRP in the first 20 cases were satisfactory, based on the experience of the surgeon. The morbidity was acceptable. This operation was safe and feasible in Srinagarind hospital.

Table 2 Comparison of operative outcomes and complications of this series with that previously reported.

Study	n	Mean/ median operative time (min)	Mean/ median blood loss (mL)	Con- ver- sion rate (%)	LOH (days)	Trans- fu- sion rate (%)	Positive margin (%)	C/P
Guillonneau et al ⁶ (1999)	59	265	400	9.2	4.5	15.4	12.3	1 Rectal injury 1 Bleeding
Abbou et al ⁷ (2000)	10	258	NA	0	9	4.7	27.9	1 Rectal injury 4 Urine leakage
Turk et al ⁸ (2001)	125	255	185	0	8	2	26.4	3 Rectal injury
Bollens et al ⁹ (2001)	50	317	680	2	NA	13	22	NA
Chaiyong et al ¹⁰ (2006)	56	350	883	16	NA	27.6	29.8	1 Rectal injury 5 Urine leakage
Patkawat et al ¹¹ (2011)	24	208	295	NA	6.1	16.7	20	NA
Present series (2019)	20	180	400	5	5	10	30	1 Delayed bleeding 1 Urine leakage

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