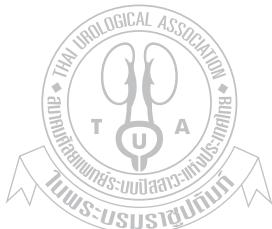# Outcome of Robotic Assisted Laparoscopic Radical Prostatectomy after 112 Consecutive Cases.

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Abstract

Introduction: Robotic Assisted Laparoscopic Radical Prostatectomy (RALRP) has been shown to provide the best surgical outcomes in terms of potency and continence, following surgical treatment for early prostate cancer. So far, there was no report in functional outcome in Thailand.

Objective: To evaluate functional outcome of Robotic Assisted Laparoscopic Radical Prostatectomy done at the author's institute.

Materials and methods: 112 patients with localized prostate cancer were undergone Robotic Assisted Laparoscopic Radical Prostatectomy by the author, using either transperitoneal approach or extraperitoneal approach. Functional and pathological outcome were evaluated.

Results: All of 112 cases were successfully undergone RALRP. Mean operative time was 166 minutes. The average blood loss was 488 mls. Mean catheterization time and hospital stay were 8.7 days and 7.3 days, respectively. At 12 months after surgery, full control (Pad Free) of continence was found in 88.3% of patients; and successful sexual intercourse was reported by 87.5% in patients with Sexual Health Inventory for Men (SHIM) score of more than 19 prior to having undergone the surgery.

Conclusion: In the author's experience, RALRP provides good functional outcomes. The operation should be encouraged among urologists, as the patients can gain benefit from good quality of life and oncological control.

Key words: radical prostatectomy, prostate cancer, robotic prostatectomy, impotency, incontinence

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Introduction

In Thailand, Robotic Prostatectomy was firstly reported in 2007 by the author[1-3]. With the use of new technology, robotic prostatectomy is comparable to the value of conventional laparoscopic radical prostatectomy[4]. Patients undergone robotic prostatectomy can gain benefit of minimally invasive surgery. The recent developed surgical techniques provide a good oncological control with excellent functional outcomes[5-10]. With experience surgeons, complication rate was considerably low[11]. So far, there was no report on functional outcome in Thailand. This present study aims to analyze functional outcome in the patients with early prostate cancer undergone Robotic Prostatectomy.

Material and Method

112 patients with localized prostate cancer were undergone Robotic Assisted Laparoscopic Radical Prostatectomy (RALRP) by the author at the department of surgery, Faculty of Medicine Siriraj Hospital. All patients were histological proven as having adenocarcinoma of the prostate from biopsy. All patients were given an informed consent for the procedure. Patients' data was collected and evaluated. Operative techniques were reported previously by the author[12-14].

Cystography is performed on post-operative day 7 and a urethral catheter is removed if there is no leak of contrast media from urethro-vesicle anastomosis.

Peri-operative data, operative results, and functional outcomes were analyzed. On 1, 3, 6, 9 and 12 months after surgery, functional outcomes were evaluated by questionnaires asking about incontinence (number of pad used per day) and Sexual Health Inventory for Men (SHIM) score.

Results

Of 112 patients undergone RALRP, 76 patients were undergone RALRP with extraperitoneal approach.

The mean age of patients was 66.6±7.6 years. Mean PSA was 18.7 ng/ml. The average operative time was 166.3±83.5 minutes. Average blood loss was 488.8±393 ml. Transfusion rate was 13.4%. Mean catheterization time was 8.7±3.9 days Mean hospital stay was 7.3±2.6 days. All data was shown in table 1.

Pathological outcome reported positive surgical margin rate of 25.4% and 68.9%, in pT2 and pT3 respectively, as shown in table 2.

Total continence (Pad Free) was reported at 16%, 36.5%, 64.4% and 88.3% on 1st, 3rd, 6th, and 12th months after surgery respectively, as shown in

Table 1 *Dermographic Data*

	Minimum	Maximum	Mean	Std.Deviation
Age	50	82	66.59	7.65
PSA	1.78	300	18.69	34.30
IPSS	0	26	12.36	5.83
SHIM	0	25	14.78	7.60
P weight	15	160	43.59	21.09
Operative time (min)	72	720	166.33	83.53
Intra operative blood loss	50	2,500	488.83	393.39
Tot.days of cath insertion	5	23	8.70	3.91
Hospital stay	3	17	7.30	2.59

Table 2 *Pathological outcomes*

Staging	Number of Case	% of Positive Margin
pT2	67	25.37%
pT3	45	68.89%

table 3. There was no different in incontinence rate, whether or not nerve sparing procedure was carried out.

Of 31 patients with sexually active prior to the operation (SHIM Scores $\geq$20), 22 patients, had undergone nerve sparing procedure, of which 16 had bilateral nerve sparing. Erection with successful sexual intercourse was reported at 18.8%, 50%, 77.8% and 87.5% on 3rd, 6th, 9th and 12th months after surgery respectively, as shown in table 4.

Complication was found in 12 cases (10.7%), 2 patients had experience major complication including 1 pulmonary emboli, and 1 pelvic collection with sepsis. All complication is reported in table 5.

Table 3 *Continence outcome*

Duration Post Operation (months)	Total Continence Rate
1	16%
3	36.5%
6	64.4%
12	88.3%

Table 4 *Potency outcome*

Duration after Surgery (months)	Full Erection with Sexual Intercourse Rate
3	18.75%
6	50%
9	77.8%
12	87.5%

Discussion

In the present study the author reports 112 cases of RALRP. The operation is safe and feasible. There were 2 major complications in the patients. Transfusion rate was much reduced as compare to early experience by the author[12-14]. Functional outcomes have been shown to be well accepted by the patients. However, the result in this study is inferior than the large cohort study of Menon et al. In their study, median duration of incontinence was 4 weeks; 0.8% of patients had total incontinence at 12 months. The intercourse rate was 93% in men with no preoperative erectile dysfunction[15]. This is probably due to either the author in this study's early experience in the robotic technology or difference in the method of outcome measurement between the 2 studies. However, to gain a better functional outcome one needs to gain experience of more than 150 cases of robotic prostatectomy[16].

In the present study, positive surgical margin rate was 25.4%, which is lower than the author's experience in previous reports[12-14]. This is probably due to much better experience in recognizing the tissue plan without tactile sensation using the new approach of the robotic surgery. Oncological outcome is affected by the experience of robotic prostatectomy. Positive surgical margin rate can be reduced after approximately 30 cases of robotic prostatectomy[17].

Conclusion

Robotic Prostatectomy is safe and feasible. Patients with early prostate cancer can gain benefit from minimally invasive surgery with high chance of

Table 5   *Complication*

N=112	Complication	Number
Major		
	Pulmonary Emboli	1
	Pelvic collection with sepsis	1
Minor		
	Bleeding required blood transfusion	3
	Prolong drainage	2
	Foley catheter dislodge	2
	Pelvic collection	1
	Retention of Urine	1
	UTI	1

cure from the cancer. With nearly 90% rates of continence and successful sexual intercourse, the operation is well accepted among Thai men suffering from early prostate cancer, therefore, Robotic Prostatectomy is quickly established as one of the gold standard treatment option in early prostate cancer.

References

1. Srinualnad S. Early Experience of Robotic Prostatectomy. ใน: การประชุมวิชาการประจำปีสมาคมศัลยแพทย์ระบบปัสสาวะ (ประเทศไทย) ในพระบรมราชูปถัมภ์. กรุงเทพ: บริษัท บียอนด์ เอ็นเทอร์ไพรซ์ จำกัด; 2550. หน้า 18. (abstract)

2. Srinualnad S. Robotic Prostatectomy in Early Prostate Cancer. ใน: การประชุมวิชาการส่วนภูมิภาค ครั้งที่ 51 ประจำปี 2550 แพทยสมาคมแห่งประเทศไทย และการประชุม CMAAO ครั้งที่ 25 และการประชุมคณะกรรมการบริหาร CMAAO ครั้งที่ 43. กรุงเทพ: 2550 หน้า 47. (abstract)

3. Srinualnad S. Minimally Invasive Surgery for Early Prostate Cancer. ใน: National Cancer Conference, Sufficiency Phiosophy in Oncology: From Treatment to Prevention. กรุงเทพ: 2550 หน้า 95. (abstract)

4. Menon M, Shrivastava A, Tewari A, Sarle R, Hemal A, Peabody JO, et al. Laparoscopic and robot assisted radical prostatectomy: establishment of a structured program and preliminary analysis of outcomes. **J Urol** 2002; 168(3): 945-9.

5. Menon M, Shrivastava A, Sarle R, Hemal A, Tewari A. Vattikuti Institute Prostatectomy: a single-team experience of 100 cases. **J Endourol**. 2003; 17(9): 785-90.

6. Ahlering TE, Eichel L, Edwards RA, Lee DI, Skarecky DW. Robotic radical prostatectomy: a technique to reduce pT2 positive margins. **Urology** 2004; 64(6): 1224-8.

7. Ahlering TE, Skarecky D, Borin J. Impact of cautery versus cautery-free preservation of neurovascular bundles on early return of potency. **J Endourol**. 2006; 20(8): 586-9.

8. Kaul S, Savera A, Badani K, Fumo M, Bhandari A, Menon M. Functional outcomes and oncological efficacy of Vattikuti Institute prostatectomy with Veil of Aphrodite nerve-sparing: an analysis of 154 consecutive patients. **BJU Int**. 2006; 97(3): 467-72.

9. Tewari AK, Rao SR. Anatomical foundations and surgical manoeuvres for precise identification of the prostatovesical junction during robotic radical prostatectomy. **BJU Int**. 2006; 98(4): 833-7.

10. Zorn KC, Gofrit ON, Orvieto MA, Mikhail AA, Zagaja GP, Shalhav AL. Robotic-assisted laparoscopic prostatectomy: functional and pathologic outcomes with interfascial nerve preservation.: **Eur Urol**. 2007; 51(3): 755-62.

11. Bhandari A, McIntire L, Kaul SA, Hemal AK, Peabody JO, Menon M. Perioperative complications of robotic radical prostatectomy after the learning curve. **J Urol**. 2005; 174(3): 915-8.

12. Srinualnad S. Robotic Assisted Laparoscopic Radical Prostatectomy without Proctorship: Early Experience of the First Series in Asia. **Thai J Surg** 2008; 29(1): 1-5.

13. Srinualnad S. Early Experience of Robotic Assisted Laparoscopic Radical Prostatectomy. **J Med Assoc Thai** 2008; 91(3): 377-82.

14. Srinualnad S. Extraperitoneal Robotic Assisted Laparoscopic Radical Prostatectomy: The New Approach for Early Prostate Cancer. **Thai J Urol** 2007; 28(1): 1-6.

15. Menon M, Shrivastava A, Kaul S, Badani KK, Fumo M, Bhandari M, et al. Vattikuti Institute prostatectomy: contemporary technique and analysis of results. **Eur Urol**. 2007; 51(3): 648-57.

16. Herrell SD, Smith JA, Jr. Robotic-assisted laparoscopic prostatectomy: what is the learning curve? **Urology**. 2005; 66(5 suppl.): 105-7.

17. Atug F, Castle EP, Srivastav SK, Burgess SV, Thomas R, Davis R. Positive surgical margins in robotic-assisted radical prostatectomy: impact of learning curve on oncologic outcomes. **Eur Urol**. 2006; 49(5): 866-71.