

Short Communication

Laparoscopic Radical Prostatectomy: Initial Cases at Okayama University Hospital

Atsushi Nagai*, Yasutomo Nasu, Yoshinori Shirasaki,
Hiroki Iguchi, Ryouji Arata, Masaya Tsugawa,
Tomoyasu Tsushima, and Hiromi Kumon

Department of Urology, Okayama University Graduate School of Medicine and Dentistry, Okayama 700-8558, Japan

We performed laparoscopic prostatectomy in seven cases with organ-confined prostate cancer. In 6 cases, the surgery was completed successfully and the mean operative time was 424 min. Volume of blood loss was 200 to 3,200 ml and catheterization lasted 6 to 37 days. No major complications were observed in 6 of the cases. In one case, open surgical conversion was necessary mainly due to a bladder injury. Although these were the first cases of laparoscopic prostatectomy in our institution, the technical difficulty and complexity of the surgery were moderate. We believe that laparoscopic radical prostatectomy will become a standard option for the treatment of organ-confined prostate cancer.

Key words: prostatic cancer, laparoscopy, prostatectomy

Radical prostatectomy is a curative treatment for localized prostate cancer. During the last 2 years, new laparoscopic radical prostatectomy techniques have been developed, demonstrating satisfactory results that are similar to those obtained by the traditional open procedure [1, 2]. The steps taken during the laparoscopic operative procedure are the same as those for a standard retropubic prostatectomy, except that dissection begins posteriorly with the seminal vesicles and transection of vasa deferentia. In the present report, we describe 7 initial cases treated at our clinic by laparoscopic radical prostatectomy.

Before initiation of the laparoscopic radical prostatectomy, approval was obtained from the institutional review board and written informed consent was received from each patient. Between November 2000 and October 2001, we performed laparoscopic prostatectomy in a total

of 7 patients with localized prostate cancer. The mean age was 66.9 (range: 62-71) years old and the mean PSA value was 6.29 (range: 4.38 to 8.10) ng/ml. The Gleason score ranged from 2 to 7 and the clinical stage ranged from T1c to T2b (Table 1).

We employed the operative techniques reported by Guillonnet and Vallancien [2]. Briefly, transperitoneal dissection of the seminal vesicles was performed and the prostate was detached from the anterior face of the rectum. Then, the prevesical cavity was dilated by a balloon dilation device and the endopelvic fascia was incised and the puboprostatic ligaments were dissected. Santorini's plexus was ligated. The bladder neck was dissected from the prostate and the urethra was sectioned. The lateral pedicles were coagulated and sectioned; care was taken to preserve the neurovascular bundles, whenever possible. Santorini's plexus was dissected and the urethra was incised, freeing the prostate. Vesico-urethral anastomosis was performed with interrupted or running sutures.

Table 1 shows patient characteristics and clinical

Received December 6, 2001; accepted December 26, 2001.

*Corresponding author. Phone: +81-86-235-7286; Fax: +81-86-231-3986
E-mail: atsnagai@md.okayama-u.ac.jp (A. Nagai)

Table 1 Patient Characteristics and Outcomes

Case	Age	Clinical Stage	Preoperative PSA (ng/ml)	Preoperative Gleason score	Operative time (min)	Blood loss (ml)	Catheter duration days	Follow up months	Urinary continence
1	68	T1c	5.71	2	650	1000	37	11	dry at 6 months
2	68	T2a	6.77	5	270	200	6	10	dry at 6 months
3	66	T2a	7.27	5	465	500	8	8	dry at 6 months
4	68	T2a	5.30	5	open conversion	3200	24	4	20mg/day at 4 months
5	71	T2b	6.50	6					
6	65	T2a	8.10	3	455	1000	15	3	50mg/day at 70 days
7	62	T1c	4.38	7	210	400	7	1	dry at 20 days

outcomes. In 6 cases, the mean operative time was 424 min, which was considerably longer than that required for the open method. The duration also appears to have been reduced by an increase in the surgeon's experience (learning curve). In Case 1, there was minor leakage of urine from the anastomosis portion of the urinary bladder and urethra; this necessitated longer use of a catheter than was required in the other 5 cases. No other major complications were observed. In one case (Case 4), open surgical conversion was necessary mainly due to a bladder injury.

Urinary incontinence is the most problematic complication observed after radical prostatectomy. The reported rates of urinary continence after open radical prostatectomy vary from 20.5 to 92% [3, 4, 5]. Similarly, the total continence rate at 6 months after laparoscopic prostatectomy has been reported as 68.9 to 72% [2, 6]. Surgical techniques involving bladder neck reconstruction, as well as the surgeon's experience, are the main factors affecting postoperative urinary continence [5]. Based on our surgical experience, laparoscopic bladder neck reconstruction, including vesico-urethral anastomosis, can in the future be performed more easily and more surely than open surgery, since the laparoscopic magnified view provided a more efficient view of relevant anatomy and of the operative field in general. In fact, 3 patients in the present series, Cases 1, 2 and 3, showed total urinary continence at 6 months after the surgery. In the remaining 3 patients, the follow-up duration to continence was less than 6 months; Cases 5 and 6 became almost continent within 4 months and Case 7 achieved complete

continence 20 days after the surgery. Therefore, we believe that one clear benefit of laparoscopic radical prostatectomy is the avoidance of retarded urinary incontinence after surgery.

Although the present report records only our initial and limited experience, we observed a significant learning curve. We have also confirmed that laparoscopic radical prostatectomy can be performed satisfactorily using ordinary laparoscopic techniques. Laparoscopic radical prostatectomy promises to become a good treatment option as a minimally invasive surgery for organ-confined prostate cancer.

References

- Guillonnet B and Vallancien G: Laparoscopic radical prostatectomy: Initial experience and preliminary assessment after 65 operations. *Prostate* (1999) **39**, 71-75.
- Guillonnet B and Vallancien G: Laparoscopic radical prostatectomy: The Montsouris technique. *J Urol* (2000) **163**, 1643-1649.
- Stanford JL, Feng Z, Hamilton AS, Gilliland FD, Stephenson RA, Eley JW, Albertsen PC, Harlan LC and Potosky AL: Urinary and sexual function after radical prostatectomy for clinically localized prostate cancer: The Prostate Cancer Outcomes Study. *JAMA* (2000) **283**, 354-360.
- Bates TS, Wright MP and Gillatt DA: Prevalence and impact of incontinence and impotence following total prostatectomy assessed anonymously by the ICS-male questionnaire. *Eur Urol* (1998) **33**, 165-169.
- Catalona WJ, Carvalhal GF, Mager DE and Smith DS: Potency, continence and complication rates in 1,870 consecutive radical retropubic prostatectomies. *J Urol* (1999) **162**, 433-438.
- Olsson LE, Salomon L, Nadu A, Hoznek A, Cicco A, Saint F, Chopin D and Abbou CC: Prospective patient-reported continence after laparoscopic radical prostatectomy. *Urology* (2001) **58**, 570-572.