



Oncology

Salvage surgery for residual disease following unsuccessful laparoscopic radical prostatectomy for prostate cancer

Kojiro Tashiro^{a,*}, Fumihiko Urabe^a, Daisuke Ito^b, Mahito Atsuta^a, Hiroshi Sasaki^a, Shin Egawa^a^a Department of Urology, The Jikei University School of Medicine, Tokyo, Japan^b Department of Surgery, The Jikei University School of Medicine, Tokyo, Japan

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ABSTRACT

Salvage radical prostatectomy (SRP) has been one of the common procedures for the patients with a failure after primary treatment. We present a case of SRP with rare surgical history. To our knowledge, this is the first report of salvage surgery for residual prostate gland including prostate cancer after unsuccessful radical prostatectomy. We indicated new possibility for salvage radical prostatectomy.

1. Introduction

The primary goal of radical prostatectomy for prostate cancer is complete removal of the tumor-bearing prostatic gland en bloc with bilateral seminal vesicles and often with regional lymph nodes. This report describes a novel experience of salvage surgery for a residual tumor following a previous attempt at laparoscopic radical prostatectomy elsewhere.

2. Case presentation

A 56-year-old Japanese male was first referred to our clinic in December 2017 with a complaint of persistent prostate specific antigen (PSA) of 1.5 ng/mL and moderate incontinence requiring >3 pads a day after laparoscopic radical prostatectomy (LRP) abroad. He had been diagnosed with prostate cancer in that in 2015, with a biopsy Gleason score (GS) of 3 + 3 in 1 out of 6 cores at the right lobe of the prostate. His initial PSA had been 13.4 ng/mL, and imaging studies had not shown any signs of metastasis (cT1N0M0). He had subsequently undergone LRP, with the final pathology findings of prostate cancer, GS 3 + 3, pT2aNx. A multiparametric MRI with gadolinium enhancement at our institution indicated a small but residual prostatic gland with intact bilateral seminal vesicles (Fig. 1). Neither any suspicious lesions of the residual tumor nor evident signs of extraprostatic disease was noted. A transperineal needle biopsy at our institution confirmed a residual tumor of GS 3 + 4 in 5 out of 18 cores. Catheterization was not smooth, owing to mild anastomotic stricture. Serum PSA continued to rise to 2.25

ng/mL in September 2018 and then to 3.15 ng/mL in July 2019. Imaging studies were negative for metastasis.

After a thorough discussion of the potential benefits and risks of multiple salvage options, the patient opted for the removal of the residual mass with a possible implantation of an artificial urethral sphincter thereafter.

A transperitoneal laparoscopic salvage surgery with a posterior approach was conducted in September 2019 (Video Clip 1). Both the seminal vesicles and vas deferens were easily identified at the level of the Douglas pouch. Minimal adhesion was noted inside the peritoneal and Retzius cavity. After dissecting the mucosa of the posterior bladder neck, we confirmed the remaining whole peripheral zone (PZ) of the prostate with severe lateral adhesion (Fig. 2). The previously isolated seminal vesicles and vas deferens were secured and hoisted upward. Antegrade dissection was slowly advanced distally. No attempted nerve sparing was applied. The rectal dissection was uneventful except around the site of the apex, where severe adhesion was encountered. The anastomotic stricture was incised with a hooked knife antegradely at the 12 o'clock position to secure smooth passage of a 16Fr urethral catheter. After visual inspection to confirm the absence of rectal injury, anastomosis of the urethra and bladder was carried out with 8 interrupted stitches of 3-0 Polysorb®. A bilateral modified pelvic lymph node dissection followed.

Supplementary video related to this article can be found at <https://doi.org/10.1016/j.eucr.2020.101435>

The pathology showed residual prostatic adenocarcinoma, GS 3 + 4, pT3aN0, with negative margins. The patient's postoperative course was

* Corresponding author. 3-25-8 Nishi-Shimbashi, Minato-ku, Tokyo, Japan.
E-mail address: tashikoji@jikei.ac.jp (K. Tashiro).

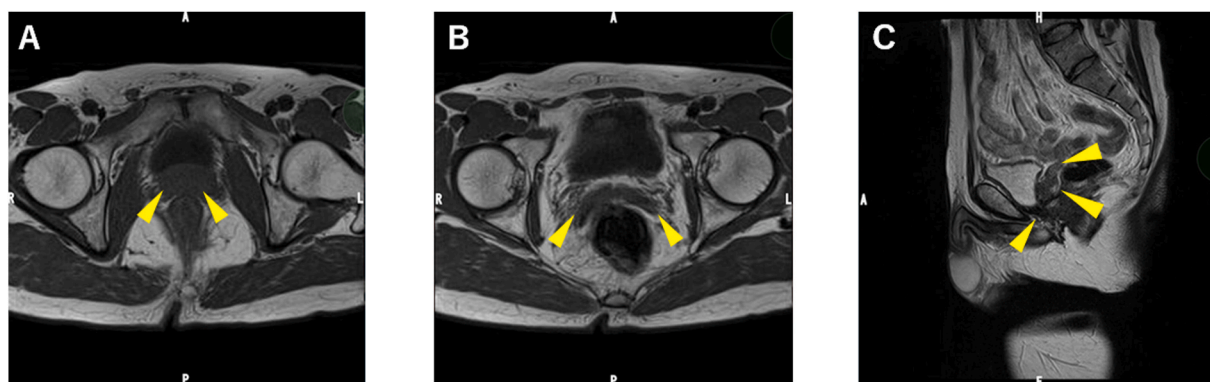


Fig. 1. Axial views of multiparametric magnetic resonance imaging showing residual prostatic gland (A, arrows) and seminal vesicles (B, arrows). Sagittal view (C).

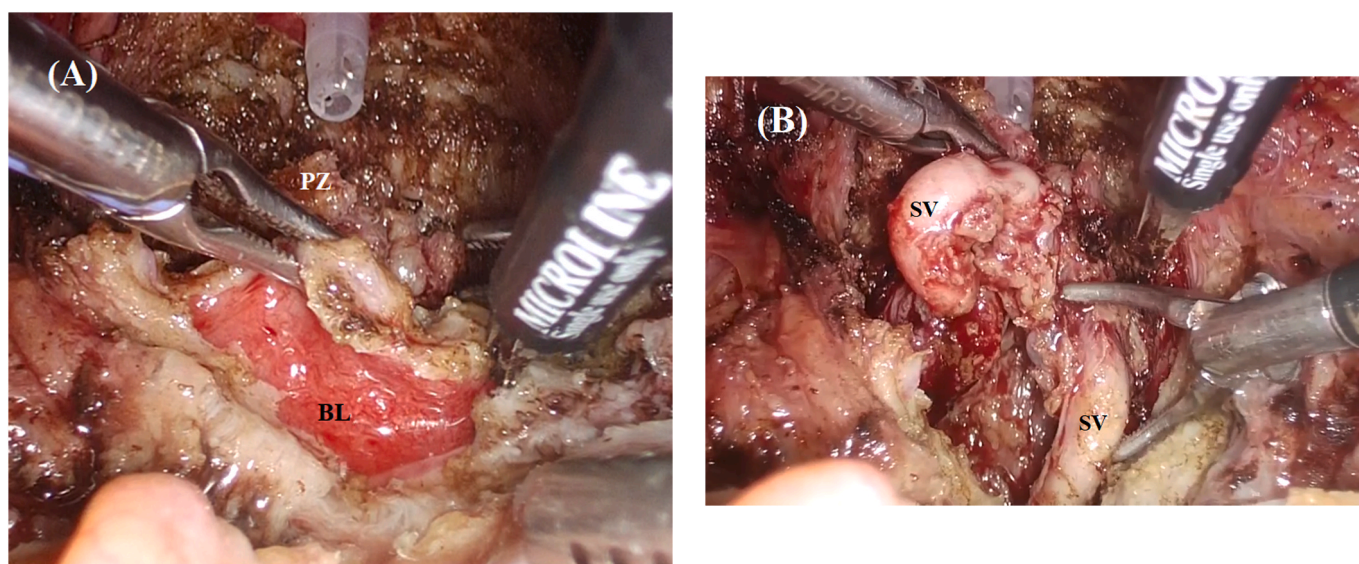


Fig. 2. The residual peripheral zone was dissected away from the posterior bladder neck (A) and secured (B). PZ: peripheral zone, BL: bladder, SV: seminal vesicles and ampullae of the vas deferens.

eventful due to delayed rectal perforation and subsequent peritonitis, which developed on postoperative day 4, necessitating ileostomy and open extensive drainage of the abdomen and pelvis. A rectal laceration 10 mm in length was found right side to the anastomosis. Urine leakage through the rectum complicated the situation. After 2 months of conservative therapy, the patient recovered and was discharged from the hospital on postoperative day 91 with only a single urethral catheter. The ileostomy was closed 5 months after the salvage surgery. The urethral catheter was removed last, and voluntary urination was regained. Counterintuitively, the patient's continence improved substantially to one pad a day, with a residual urine volume of 20 mL.

Serum PSA levels have been undetectable (<0.01 ng/mL) to date since the salvage surgery.

3. Discussion

Of all the complications possible after cancer surgery for localized disease, unsuccessful and incomplete dissection often appears the most ominous and devastating to the patient. In our present case, the entire PZ seemed to be left intact, as in the situation after a simple rather than radical prostatectomy. This lost control of dissection planes is known to occur sometimes under a magnified view of the laparoscope, especially with the use of anterior dissection.¹ The cleavage plane between the transition zone and the PZ is easily mistaken as the boundary of the

gland and entered, particularly in the case of enlarged adenoma. Only awareness of this surgical pitfall and accumulated experience can prevent this undesirable complication.

Rectal injury has been reported to occur in 1–5% of cases after salvage radical prostatectomy for radiorecurrent diseases.^{2,3} In a series of 1000 radical retropubic prostatectomies for non-irradiated, localized prostate cancer, Borland and Walsh reported a case of delayed rectal injury noted on postoperative day 2.⁴ They attributed this to ischemic changes during and following surgery. The patient was treated with delayed closure and a temporary diverting colostomy. In hindsight, the placement of an ileostomy would have been a more prudent choice because substantial adhesion was noted intraoperatively around the apical field, which had been violated once in the previous surgery. It is noteworthy that the rectal injury went unnoticed during surgery, and even a review of the recorded surgery video did not indicate any abnormalities.

Interestingly, the patient reported improved continence after the 2nd round of laparoscopic surgery, possibly due to resolution of anastomotic stricture. His preoperative incontinence may have primarily been due to associated fibrosis leading to incompetent sphincteric motility.⁵ The details are unknown due to the lack of a sufficient preoperative evaluation, including the lack of a cystoscopy examination.

Most clinicians would agree on offering the patient definitive radiotherapy and/or androgen deprivation therapy as salvage options in

the first place. Our experience indicates that salvage surgery can be an option for young, fit, and strongly motivated patients. Modern advanced techniques and technologies, accompanied by adequate experience, have opened a new window of opportunity for innovative treatment. Salvage surgery might be added to the list of salvage options in the future practice through confirmation of safety and efficacy. Further work is warranted.

Declaration of competing interest

There are no conflicts interest or funding sources to report.

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