

# Internal Genital Organ-preserving Radical Cystectomy: A Case Report

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## ABSTRACT

*Adenocarcinoma of the bladder is usually managed by radical cystectomy. However, recent literature shows that internal genital organ-preserving radical cystectomy is feasible in selected cases in order to get a better impact on patient's psychology, sexuality and potential fertility. Here, we report a 32-year-old woman with adenocarcinoma of the bladder who was managed with internal genital organ-preserving radical cystectomy. The patient was never had any child and the radiologic examination (MRI) showed no involvement of internal genitalia organ. This procedure aims to maintain fertility potential of the patient. Intraoperatively, no adhesion was found between the tumor and internal genitalia organ. The internal genitalia organ was successfully preserved during the radical cystectomy.*

**Keywords:** adenocarcinoma of the bladder, radical cystectomy, fertility

## ABSTRAK

Tata laksana adenokarsinoma kandung kemih umumnya berupa sistektomi radikal. Akan tetapi, penelitian terbaru menunjukkan bahwa preservasi organ internal genitalia dapat diterapkan pada kasus-kasus tertentu dengan tujuan untuk mempertahankan potensi seksual dan fertilitas pasien. Saat ini kami melaporkan seorang perempuan berusia 32 tahun dengan adenokarsinoma kandung kemih yang menjalani sistektomi radikal dengan tetap mempertahankan organ genitalia interna. Pasien merupakan nulipara dan pada pemeriksaan radiologi MRI tidak didapatkan infiltrasi tumor pada organ genitalia interna. Prosedur operasi dilakukan dengan tujuan mempertahankan potensi fertilitas. Intraoperatif, tidak didapatkan perlekatan antara tumor dan organ genitalia interna. Organ genitalia interna berhasil dipreservasi selama prosedur sistektomi radikal.

**Kata Kunci:** adenokarsinoma kandung kemih, sistektomi radikal, fertilitas

## INTRODUCTION

Adenocarcinoma of the urinary bladder is an uncommon malignant neoplasm, accounting for 0,5-2% of all malignant bladder tumors.<sup>1,2,3</sup> Adenocarcinoma of the bladder may occur in association with irrelative conditions of the urinary bladder.<sup>4</sup> Similarly to urothelial carcinoma, adenocarcinoma of the bladder shows a male predominance with sex ratio of male to female was 2,7:1.<sup>4</sup> It is classified according to its site of origin as primary, urachal and secondary (metastatic) adenocarcinoma.<sup>5</sup> The gold standard treatment of primary adenocarcinomas of bladder are radical cystectomy and pelvic node dissection. A classical radical cystectomy in a woman consists of removing the bladder, urethra, uterus, bilateral fallopian tubes, ovaries,

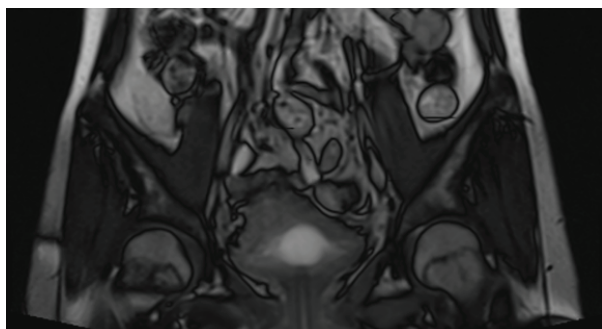
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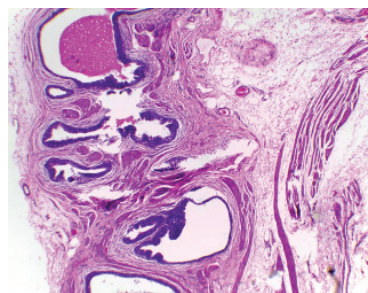
and resection of the upper third of the anterior vaginal wall that causes infertility.<sup>6,7,8</sup> However, recent literatures encourage that preservation of the gynecologic organs like uterus, ovaries, and vagina either totally or partially in the course of radical cystectomy is possible.<sup>9</sup> Here, we report a case of adenocarcinoma of the bladder in a nulliparous woman that was treated with internal genital organ-preserving radical cystectomy and ileal conduit.

### CASE REPORT

A 33-year-old nulliparous woman was diagnosed with adenocarcinoma of the bladder. Her chief complaint was painless hematuria since one month before admission. She also had a history of vesicolithotomy due to bladder stone when she was teenager. There were increased ureum and creatinine level, and ultrasound revealed bilateral hydronephrosis. Bilateral nephrostomies were performed. Unfortunately, the ureum and creatinine level never reached normal range until one week after nephrostomies (Ureum 75, Creatinine 4.5). Urinalysis showed microscopic hematuria and the urine sitology result was negative. Abdominal MRI showed tumor on right supero-lateral bladder wall without any involvement of perivesical fat or adjacent organs, including internal genital organ (picture 1). There were also no lymphadenopathy and metastatic signs in the liver. During transurethral resection, we found unifocal tumor on right supero-lateral bladder wall with histopathologic result was muscle-invasive adenocarcinoma of the bladder, pT2 (picture 2). Gynecologic evaluation showed no involvement of internal genital organs and no other gynecologic pathology.



Picture 1: Abdominal MRI results showed tumor on right supero-lateral bladder wall (red-marked area)



Picture 2: Pathologic examination results show muscle-invasive adenocarcinoma of the bladder (arrow)

In order to maintain patient's reproduction function and to give a better quality of life, we decided to perform an internal genital organ-preserving radical cystectomy. First, we removed the urachal remnant and performed lateral dissection to remove bilateral iliac lymph nodes by sparing both ovarian vessels. After we entered retropubic space, the dorsal vein complex was ligated and endopelvic fascia was dissected to reach the posterior urethra. Posterior separation of the uterus and anterior vagina wall from bladder was performed by a combination of blunt and sharp dissection. The uterine vessels were preserved, while the posterior bladder pedicle on each side were ligated and transected. The bladder was removed while uterus, vagina, both fallopian tubes and ovaries were left intact (picture 3). Ileal conduit was chosen as urinary diversion methods in order to reduce the operation time since the patient had an impairment of renal function.



Picture 3: Illustration of posterior dissection

Patient condition was good till day 7 post operation and ileal conduit worked well. Unfortunately, due to hospital acquired pneumonia, the patient died on day 21 post operation.

## DISCUSSION AND LITERATURE REVIEW

Infertility after cancer treatment has become a recognized issue, doctors should discuss the negative impact of cancer therapy on fertility potential as one of the risks of cancer treatment.<sup>10</sup> In women, infertility following cancer treatment may be regarded as an essential loss of femininity that can decrease the quality of life of cancer survivors.<sup>11</sup> A trend toward more organ preservation is also encouraged by recent studies that show low incidence of secondary malignant involvement of the gynecologic organs by bladder cancer.<sup>8,12,13</sup> Furthermore, salpingo-oophorectomy in premenopausal women is associated with medical results such as increased ischemic heart disease and osteoporosis risk.<sup>8</sup>

Radical cystectomy and urinary diversion as the gold standard therapy for muscle-invasive bladder cancer include cystectomy, urethrectomy, bilateral salpingo-oophorectomy, and resection of the upper third of anterior vaginal wall, is also called anterior pelvic exenteration. One of the complications of this procedure is permanent infertility. Thus, internal genital organ sparing surgery has been gained attention to overcome this complication. This procedure is a conservative surgery approach with aims to preserve reproductive organs that offers the opportunity to preserve fertility potential and to achieve pregnancy naturally in some cases.<sup>11</sup> This is one of established fertility preservation methods for female cancer patient besides embryo cryopreservation and shielding during radiotherapy.<sup>11</sup> Previous studies showed that internal genital organ-preserving radical cystectomy could be performed either partially or totally.<sup>9</sup> Total internal genital organ-preserving radical cystectomy means that the procedure is able to preserve the uterus, both ovaries and the whole vagina, while partial internal genital organ-preserving radical cystectomy means that some internal genital organ are resected during operation.

In addition, preserving internal genital organ is also believed may decrease the risk of neobladder-vaginal fistula and the incidence of chronic retention (hypercontinence) following orthotopic bladder substitution.<sup>12,13</sup>

In our case, we performed radical cystectomy by sparing all internal genital organs; uterus, vagina,

fallopian tubes and ovaries, of the patient in order to preserve her fertility potential. This procedure was our first experience and the assessment was made due to patient's preference and supporting preoperative findings. Supporting preoperative findings such as abdominal MRI, cystoscopy, transurethral resection of bladder tumor (TURBT) and gynecologic evaluation revealed that the tumor was a unifocal muscle-invasive adenocarcinoma of the bladder, pT2, at the right supero-lateral bladder wall without any involvement of perivesical fat or adjacent organs, including internal genital organ. Similar to previous studies, our selection criteria for this internal genital organs-sparing radical cystectomy are young sexually active patient, low stage (pT2) tumor, unifocal tumor that was not located on posterior bladder wall, and free internal genital organs as judged by physical examination and by imaging.<sup>9,12</sup>

Our technique of this operation was similar to classic radical cystectomy, consist of lateral, posterior, and anterior dissection. The differences were we spared the ovaries, fallopian tubes, ovarian and uterine vessels during the lateral dissection followed by anterior dissection where we opened the endopelvic fascia and separated the urethra from anterior vaginal wall. After the urethra was free, the peritoneum covering the uterovesical pouch was incised and the dissection was continued caudally till the posterior urethra was reached. Our technique is quite similar with technique that was performed by Gupta et. al and Ali-El-Dein et. al, however we did not perform omental flap interposition as back support to the ileal pouch.<sup>9,14</sup>

A variety of urinary diversions can be performed following radical cystectomy includes urinary conduits, continent cutaneous diversions, and orthotopic bladder substitution (OBS).<sup>15</sup> Studies by Kassouf W et.al concluded that an OBS should be offered to both female and male patients in the absence of contraindication. An absolute contraindication for OBS is overt involvement of urethra.<sup>15</sup> Other contraindications are compromised renal function, severe hepatic dysfunction, intestinal dysfunction, urinary stress incontinence, sphincter dysfunction, and recurrent/multiple urethral strictures.<sup>15</sup> In our case, we preferred ileal conduit as urinary diversion methods since the patient had impairment renal function that cannot be normalize by percutaneous drainage.

Postoperative condition, the patient was showing a good response to the operation. However, her condition was deteriorated from day seven after

operation due to pneumonia and finally she died due to septic shock. Despite septic shock that end up with patient death, our operation showed that preserving internal genital organ during radical cystectomy was feasible. Partial or total internal genital organ-preserving radical cystectomy that are reported by Horenblas S et.al, Koie T et.al, and Ali-El-Dein B et.al showed a good functional outcome and better sexual function with favorable oncological outcome.<sup>9,16,17</sup> Ali-El-Dein B et.al reported that 3 from 15 women whose underwent internal genital organs-preserving radical cystectomy were able to give birth through caesarean section.<sup>9</sup>

#### REFERENCE

- Roy S, Parwani AV. Adenocarcinoma of the urinary bladder. *Arch Pathol Lab Med.* 2011; 135.
- Dahm P, Gschwend JE. Malignant non-urothelial neoplasms of the urinary bladder: a review. *European Urology* 2003;44:672-681.
- Dandekar NP, Dalal AV, Tongaonkar HB, Kamat MR. Adenocarcinoma of bladder. *European Journal of Surgical Oncology* 1997;23:157-160.
- Abol-Enein H, Kava BR, Carmack AJK. Nonurothelial cancer of the bladder. *J Urology* 2007;69:93-102.
- Zaghloul MS, Nouh A, Nazmy M, Ramzy S, Zaghloul AS, Sedira MA, Khalil E. Long-term results of primary adenocarcinoma of the urinary bladder: A report on 192 patients. *J Urologic Oncology* 2006; 24:13-20.
- Hinmann F. Atlas of urologic surgery. Philadelphia: WB Saunders Company. 2010.
- Mayor G, Zingg. Urologic Surgery: diagnosis, techniques, and postoperative treatment. Stuttgart: Georg Thieme Publishers. 1976.
- Salem H, El-Mazny A. A clinicopathologic study of gynecologic organ involvement at radical cystectomy for bladder cancer. *International Journal of Gynecology and Obstetric* 2011; 115:188-190.
- Ali-El-Dein B, Mosbah A, Osman Y, El-Tabey N, Abdel-latif M, Eraky I, Shaaban AA. Preservation of the internal genital organs during radical cystectomy in selected women with bladder cancer: a report on 15 cases with long-term follow-up. *EJSO* 2013; 39: 358-364.
- Lee SJ, Schover LR, Partridge AH, Patrizio P, Wallace WH, Hagerty K, et.al. American society of clinical oncology recommendations on fertility preservation in cancer patients. *Journal of Clinical Oncology* 2006;24:2917-2931.
- Rodriguez-Wallberg K, Oktay K. Options on fertility preservation in female cancer patients. *Cancer Treatment Review* 2012;38: 354-361.
- Ali-El-Dein B, Abdel-Latif M, Mosbah A, Eraky I, Shaaban AA, Taha NM, et.al. Secondary malignant involvement of gynecologic organs in radical cystectomy specimens in women: is it mandatory to remove these organs routinely. *The Journal of Urology* 2004; 172: 885-887.
- Chang SS, Cole E, Smith JA, Cookson MS. Pathological findings of gynecologic organs obtained at female radical cystectomy. *The Journal of Urology* 2002; 168: 147-149.
- Gupta NP, Ansari MS, Khaitan A, Dawar R. Fertility preserving radical cystectomy in a young female with malignant mesenchymal tumour of urinary bladder. *International Urology and Nephrology* 2003;35: 501-502.
- Kassouf W, Hautmann RE, Bochner BH, Lerner SP, Colombo R, Zlotta A, Studer UE. A critical analysis of orthotopic bladder substitutes in adult patients with bladder cancer: is there a perfect solution? *European Urology.* 2010;58: 374-383.
- Koie T, Hatakeyama S, Yoneyama T, Hashimoto Y, Kamimura N, Ohyama C. Uterus-, fallopian tube-, ovary-, and vagina-sparing cystectomy followed by U-shaped ileal neobladder construction for female bladder cancer patient: oncological and functional outcomes. *Urology* 2010; 75: 1499-1503.
- Horenblas S, Meinhardt W, Ijzerman W, Moonen LFM. Sexuality preserving cystectomy and neobladder: initial results. *The Journal of Urology* 2001; 166: 837-840.