

Case Report

Neoadjuvant chemotherapy with quick cisplatin-VP 16 followed by robotic radical trachelectomy in FIGO 2018 stage 1B2 cervical cancer

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Abstract

Background: The typical treatment of the International Federation of Gynecology and Obstetrics 2018 stage IB2 cervical cancer is radical hysterectomy. With the trend of delayed childbearing, the importance of fertility sparing in the treatment of women with cervical cancer has drawn attention. **Case:** We report a case of stage IB2 cervical cancer treated by neoadjuvant chemotherapy with quick cisplatin-VP 16 followed by robotic radical trachelectomy. **Conclusions:** Neoadjuvant chemotherapy (NACT) using platinum-based therapy with cisplatin and trachelectomy performed through the vagina or abdominal approach was used in most previous cases. We successfully performed NACT with quick cisplatin-VP 16, followed by robotic radical trachelectomy in stage IB2 cervical cancer. Further studies are needed to accumulate cases and outcomes of fertility-preserving treatment techniques.

Keywords: Cervical cancer IB2; Fertility sparing treatment; Neoadjuvant chemotherapy with quick cisplatin-VP 16; Robotic radical trachelectomy

1. Introduction

Cervical cancer is the fourth most common malignancy in women worldwide [1], and peak incidence is between ages 35 and 45 years [2]. With the trend of delayed childbearing, the importance of fertility sparing in the treatment of women with cervical cancer has drawn attention.

Although the typical treatment of the International Federation of Gynecology and Obstetrics (FIGO) 2018 stage IB2 cervical cancer is radical hysterectomy, neoadjuvant chemotherapy (NACT) can be performed for downstaging, followed by radical trachelectomy for fertility preservation. We report a case of cervical cancer stage IB2 successfully treated by a combination of quick cisplatin (90 mg/m²) and VP 16 (etoposide, 100 mg/m²) on day 1 and VP 16 50 mg/m² on day 2 at a 10 day interval of NACT and robotic radical trachelectomy.

2. Case report

A 29-year-old nulliparous single woman presented to a local clinic for national health checkup. She was taking immunosuppressants for Crohn's disease. She reported intermittent vaginal bleeding for a few months but did not seek medical advice. Her Papanicolaou test revealed atypical squamous cells that cannot be excluded as a high-grade squamous intraepithelial lesion (HSIL). She was referred to the Gynecologic Department of Saint Vincent's Hospital in January 2021.

Per speculum, she was found to have a 3 × 4 cm-sized, necrotic, cancerous mass on the right side of the cervix (Fig. 1). On transvaginal ultrasonography, the exophytic mass was detected from the cervix of the uterus with no parametrial or vaginal involvement.

A biopsy of the tumor showed moderately differentiated squamous cell carcinoma. On immunohistochemistry, the tumor cells were positive for P16, and Ki-67 was seen in 70%. Human papilloma virus (HPV) 16, 43, and 70 were detected on real-time PCR. She had not received HPV vaccination.

Extensive radiological investigations were performed in an attempt to clarify the penetration range and possible metastasis of the tumor. Pelvic magnetic resonance imaging (MRI) revealed the diameter of the tumor to be 3.7 × 3.0 cm with heterogeneous enhancement at the cervix without definite evidence of parametrial invasion (Fig. 2). There was no evidence of bladder, urethral, or rectal invasion by the tumor, and enlarged lymph nodes at both external iliac nodal chains were noted. Mammography, gastroscopy, colonoscopy, cystoscopy, and positron emission tomography-computed tomography (PET-CT) demonstrated no metastatic sites (Fig. 3). Serum CEA level was 0.7 ng/mL (normal <1~5), and serum SCC Ag level was 0.6 ng/mL (normal 0~1.5), neither of which exceeded the normal range.





Fig. 1. Per speculum examination of vagina showing the tumor mass (before the neoadjuvant chemotherapy).

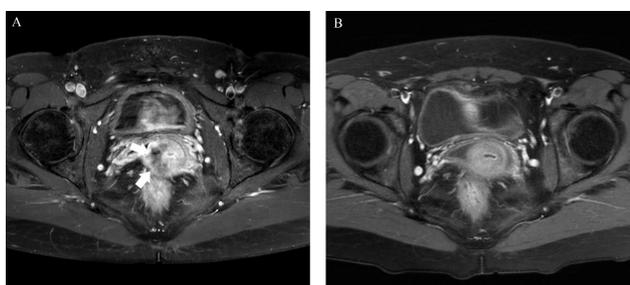


Fig. 2. Axial T1-weighted fat suppressed magnetic resonance imaging of the pelvis; before (left) and after (right) the NACT showing near complete resolution of the lesion.

Based on these clinical findings and investigations, the patient was diagnosed with cervical cancer, stage FIGO IB2. The patient desired preservation of her fertility, and primary neoadjuvant chemotherapy followed by radical robotic trachelectomy was decided after a multidisciplinary team meeting. Among the regimens allowed by the Korean insurance system, it was decided to use the quick cisplatin-VP 16 regimen because it has relatively tolerable ovarian toxicity. She received four cycles of NACT in total, and response evaluation was performed after every two administrations. The first two NACT were cisplatin 60 mg/m² and etoposide 100 mg/m² for 2 h on day 1, followed by etoposide 50 mg/m² for 2 h on day 2 at 10-day intervals. MRI, used to assess the response to treatment, revealed partial regression of the tumor with a decreased size of the uterine cervical mass to 1.7 × 1.3 cm. The dose for the following two administrations of NACT was reduced to 75% because the patient showed neutropenia. She tolerated four cycles of quick cis-VP 16 NACT. There was no evidence of the cervical tumor on pelvic MRI (Fig. 2), and FDG-avid malignant tumor in the uterine cervix and right external iliac chain reactive lymph nodes were regressed markedly on PET-CT (Fig. 3).

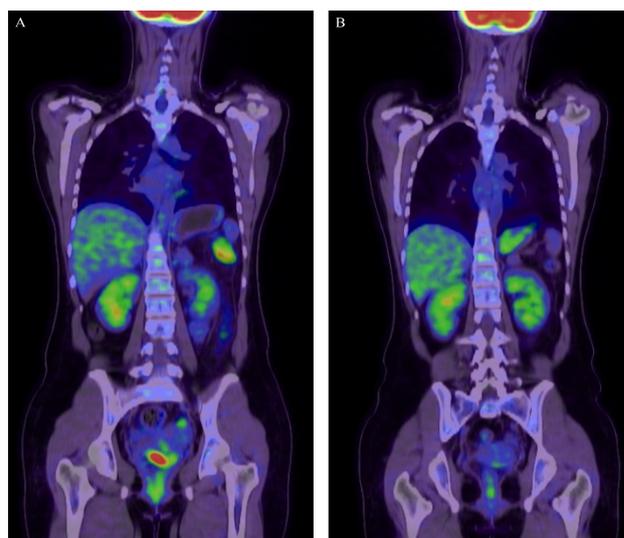


Fig. 3. Coronal fused fluorodeoxyglucose (FDG) positron emission tomography (PET)/computed tomography (CT) images. Before (left) and after (right) the NACT showing near complete resolution of the lesion. The focal FDG uptake of uterine cervix significantly decreased in intensity (SUV max: 11.34 → 3.13). The small lymph nodes of the right external iliac chain are indistinct due to a decreased in size.

She then underwent robotic-assisted laparoscopic radical trachelectomy and sentinel lymph node biopsy which has been recently reported to be reasonable in early stage cervical cancer [3]. The stiff trendelenburg down position was changed to supine position and vaginal cuff resection and repair was performed with vaginal approach. Irrigation of vagina and pelvic cavity was performed rigorously before repairing the vaginal stump. The use of uterine manipulator presents a theoretical possibility of tumor injuries and peritoneal seeding. Therefore, we used Bora's uterine manipulation instrument (BUMI) (Sejong medical, South Korea), to reduce the incidence of peritoneal seeding from broken tumor fragments [4]. The results from the LACC trial has questioned the safety of minimally invasive surgery (MIS) for early stage cervical cancer [5]. However, the LACC trial mainly explored conventional laparoscopy. The safety of robot assisted surgery in early cervical cancer is not yet established.

Five intraoperative frozen sections of the right internal iliac node, endocervical cut margin, parametrium, and vaginal wall were obtained, and no specimen revealed malignancy. Permanent pathological findings moderately differentiated squamous cell carcinoma confined to the transformation zone, with a width of 7 mm and a depth of 2.5 mm invasion (Fig. 4).

3. Discussion

Depending on a tumor's stage and histopathology, several fertility-sparing modalities are practiced today, and

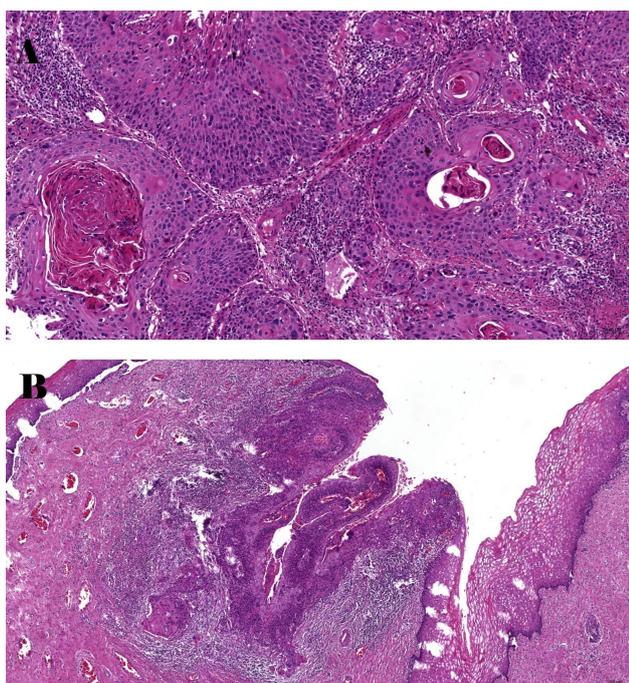


Fig. 4. Microscopic histology ($\times 100$); before (A) and after (B) the NACT. (A) Large nests of malignant squamous epithelium with central keratinization, confirming the diagnosis of squamous cell carcinoma ($\times 100$). (B) Peritumoral lymphocytic infiltration is noted.

one of the available options is NACT, followed by radical trachelectomy. Many studies have found this technique to be a safe, feasible, alternative approach to radical hysterectomy or concurrent chemoradiation therapy (CCRT) in properly selected early-stage patients seeking fertility preservation, with equal disease-free and overall survival rates [6–8].

NACT using platinum-based therapy with cisplatin and trachelectomy performed through the vagina or abdominal approach was used in most previous cases. We successfully performed NACT with quick cisplatin-VP 16, followed by robotic radical trachelectomy in stage 1B2 cervical cancer. Further studies are needed to accumulate cases and outcomes of fertility-preserving treatment techniques.

Author contributions

The design of study and Responsible Surgeon was done by JY. The reference collection and manuscript preparation was done by AL, SK, SO and JL. Description on pathological findings was prepared by SI and radiological findings and significance were described by HAK.

Ethics approval and consent to participate

Ethics committee approval was exempted due to the nature of the study (VC21ZISI0146).

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Conflict of interest

The authors declare no conflict of interest.

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