CASE REPORT

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Three-Month Follow-Up on Successful Treatment in a Cervical Cancer Patient with Chemoradiation Partial Response: A Case Report

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ABSTRACT

Introduction: The choice of therapy for cervical cancer strongly relies on the cancer stage. Stage IIB cervical cancer entails radiation therapy and chemotherapy, excluding surgery due to the risk of serious complications. This case is particularly interesting for discussion as the patient underwent a radical hysterectomy, bilateral salpingo-oophorectomy, and pelvic lymph node dissection following chemoradiation, resulting in a partial response.

Case Presentation: A 56-year-old woman presented with a complaint of continuous, progressive clear, and odorless fluid discharge from her birth canal, diagnosed with cervical cancer grade IIB. The patient underwent three cycles of cisplatin chemotherapy and radiation at a total dosage of 70.4 Gy over 38 sessions. Post-chemoradiation evaluation revealed a residual tumor with a diameter of 2 cm, and the patient underwent a radical hysterectomy, bilateral salpingo-oophorectomy, and pelvic lymph node dissection.

Conclusion: Surgery post-chemoradiation for cervical cancer in centers that don't have any brachytherapy can be considered as an option, yielding positive effects with minimal side effects. Healthcare centers with limitations in brachytherapy can utilize EBRT boosters, which may be continued with surgery depending on the patient's response to the earlier therapy.

INTRODUCTION

Cervical cancer is a leading cause of cancer-related deaths among women. Globally, there are more than 500,000 new cases of cervical cancer each year, with approximately 250,000 women succumbing to the disease annually [1]. The approach to treating cervical cancer depends on factors such as the cancer stage, involvement of lymph nodes, existing comorbidities in the patient, and the risk of recurrence. Treatment modalities may include surgical interventions, radiation therapy, chemotherapy, or a combination thereof. According to the 2023 guidelines from the National Comprehensive Cancer Network (NCCN) [2], the recommended treatment for stage IIB cervical cancer includes pelvic external beam radiation therapy (EBRT), chemotherapy incorporating platinum agents, and brachytherapy (BT). In locally advanced-stage disease, encompassing stage IIB and beyond, hysterectomy is typically not pursued, with definitive chemoradiation as the primary course of action.

It is important to note that individual responses to chemoradiation can vary. Furthermore, it is essential to acknowledge that these treatments may bring about a range of side effects, which can manifest differently depending on the specific area of the body being treated. Moreover, continuing with surgery interventions after chemoradiation can give rise to a range of serious complications that may adversely impact the patient's quality of life [3]. This case is particularly interesting for discussion as the patient underwent a radical hysterectomy (RH), bilateral salpingo-oophorectomy (BSO), and pelvic lymph node dissection (PLND) following chemoradiation, resulting in a partial response.

CASE PRESENTATION

A 56-year-old woman presented herself at the Gynecology Oncology Department of Abdoel Wahab Sjahranie General Hospital. She complained of continuous, progressive clear, and odorless fluid discharge from her birth canal for the past 7 months prior to admission. She had been married for the first time at the age of 16 and had a history of using contraceptive pills for approximately 20 years and an intrauterine device (IUD) for 6 years. Upon examination, a mass was found in the cervix that extended to the bilateral parametrium. Histopathological analysis of the biopsy specimen revealed non-keratinizing squamous cell carcinoma confirmed as cervical cancer grade IIB. Laboratory and radiologic findings showed no signs of metastasis. The ultrasound examination before chemoradiation is presented in **Figure 1**.

This patient underwent chemoradiation using EBRT at a total dosage of 70.4 Gy over 38 sessions with cisplatin 40 mg/m^2, without BT due to the lack of operational facilities. The radiation was administered using the 3-Dimensional Conformal Radiotherapy (3DCRT) technique (**Figure 2**). Post-radiation toxicity based on Radiation Therapy Oncology Group (RTOG) [4]: skin grade I, rectum grade I, and bladder grade I. After chemoradiation, the patient was evaluated by a residual tumor with a diameter of 2 cm and no lymph node involvement.

Subsequently, the patient underwent a surgical procedure comprising RH, BSO, and PLND. Pathologic findings comparisons were characterized as grade 3 non-keratinizing squamous cell carcinoma of the cervix uteri with lymphovascular space invasion (LVSI) (-) (**Figure 3**). Furthermore, no malignant cell infiltration was identified in the proximal vagina, endometrium, ovaries, or bilateral pelvic lymph nodes. The patient's therapy journey is summarized in **Figure 4**.

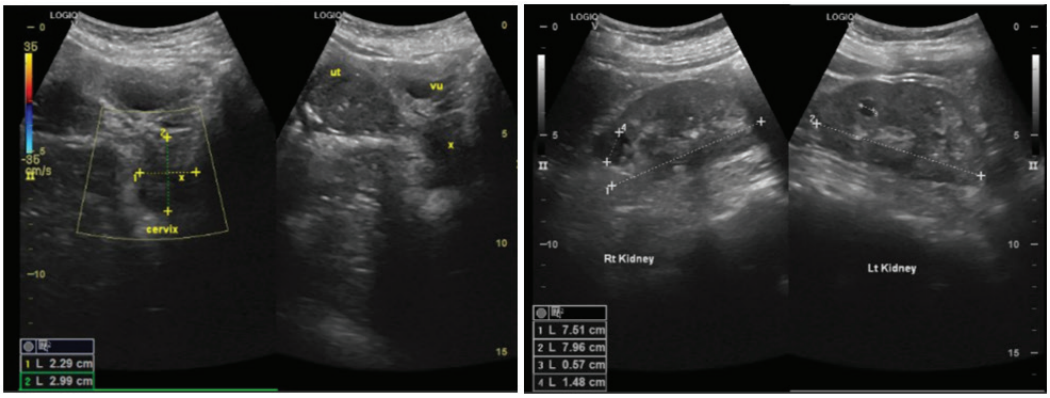

Figure 1. There appears to be an isoechoic lesion in the projection of the uterine cervix measuring 2.29 2.99 cm, and cysts in the right and left kidneys measuring 1.48 cm and 0.57 cm, respectively (Lt kidney: Left kidney; Rt kidney: Right kidney; Ut: Uterus; Vu: Vesica urinaria)

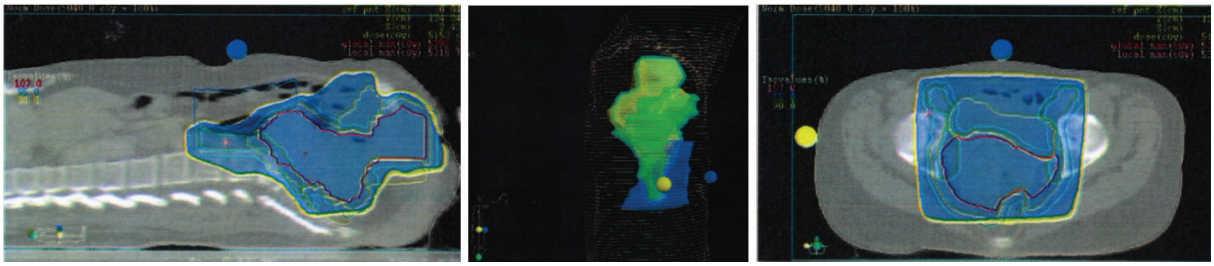

Figure 2. Patient's radiation plan

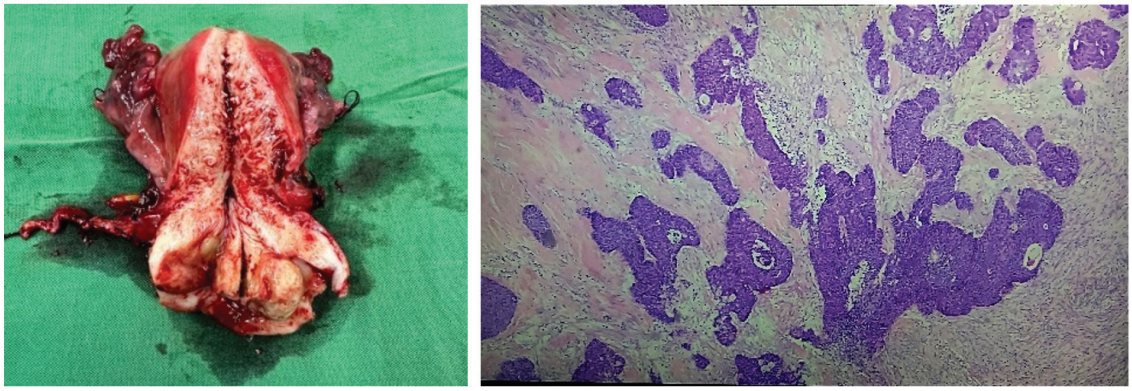

Figure 3. Organ specimens from the patient's surgery interventions

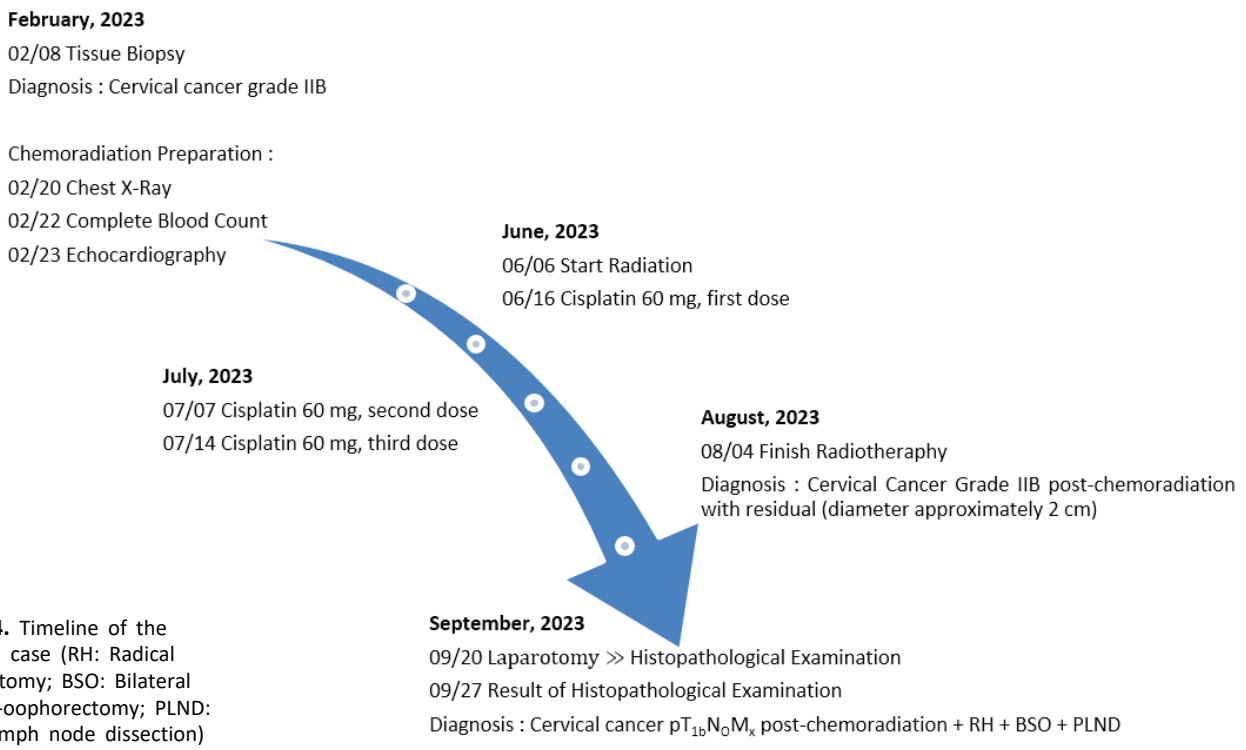

Figure 4. Timeline of the reported case (RH: Radical hysterectomy; BSO: Bilateral salpingo-oophorectomy; PLND: Pelvic lymph node dissection)

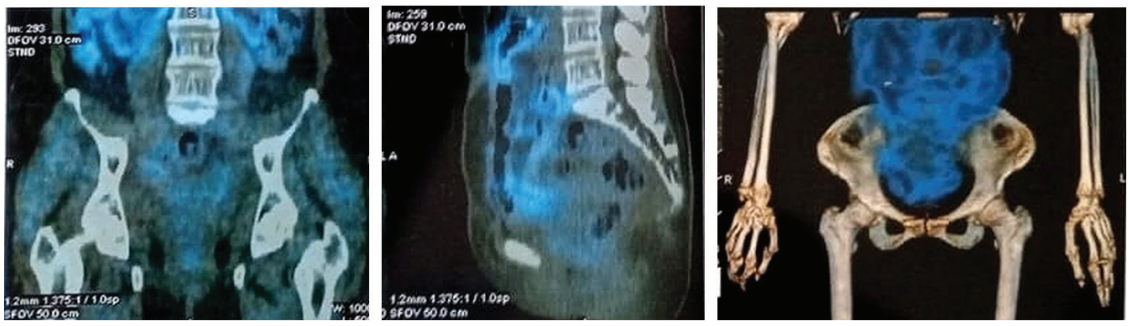

Figure 5. Results of 99mTc MIBI evaluation

Three months after the surgical intervention, the patient reported complaints of dysuria, constipation, and a decreased appetite. We evaluated the patient's quality of life using EORTC QLQ-C30 scoring, which had been translated and validated in the Indonesian language [5]. We obtained functional scale scores of 93.33, a global health status of 66.67, and a symptom scale of 5.13. No abnormalities were detected during vaginal and rectal examinations. Furthermore, the 99mTc-hexakis-2-methoxyisobutylisonitrile (99mTc MIBI) examination with a dosage of 20.8 mCi (**Figure 5**) revealed no residual malignancy, recurrence, or metastasis.

DISCUSSION

The choice of treatment options for cervical cancer depends on several factors, including the cancer's stage, the patient's overall health, and individual preferences. Various elements can impact how individuals respond to chemoradiation therapy. Research by Del Prete et al. [6] indicates that the response to chemoradiation is notably influenced by factors such as tumor shape, lumen involvement, tumor length, clinical stage, radiation dose, chemotherapy cycle, and the completion of chemotherapy. Additionally, patient conditions like anemia and hypoxia also play a role [7].

Radiation stands as the main treatment for locally advanced cervical cancer [8]. The recommended dosage for EBRT is 40–50 Gy, which can be enhanced through BT at a dose of 30–40 Gy. EBRT can also serve as a booster, with an additional dose of 10–15 Gy [2]. Other studies use a dose of 66–70 Gy in the management of cervical cancer [9]. Furthermore, the utilization of a BT boost resulted in significantly higher rates of cancer-specific survival (64% compared to 52%) and overall survival (58% compared to 46%) than an EBRT boost at the four-year mark [10].

The NCCN and the European Society of Gynecological Oncology (ESGO), in collaboration with the European Society for Radiotherapy and Oncology (ESTRO) and the

European Society of Pathology (ESP), do not recommend surgery for patients post-chemoradiation. Instead, it is advisable to further manage residual tumors using brachytherapy [2,11]. Another option the American Society for Radiation Oncology (ASTRO) still considers is surgery in the case of residual response when image-guided brachytherapy (IGBT) is not available [12]. The surgery is performed 6 weeks after chemoradiation [13]. Indeed, based on recommendations from the ESGO/ESTRO/ESP, if BT is unavailable, patients should be directed to a facility capable of conducting it.

IGBT is a crucial element of definitive radiotherapy and should not be substituted with an external boost. It is advisable to refrain from boosting the primary tumor and/or the parametria using EBRT [11]. However, the use of EBRT as a booster can still be considered, especially in cases of anatomical reasons or patient refusal, as well as cost considerations [14]. A study by Kim et al. [15] has shown that approximately 70% of cervical cancer patients can achieve local tumor control after receiving a booster using EBRT.

Prolonged inflammation resulting from ionizing radiation significantly contributes to the onset of fibrosis. In tissues and organs undergoing inflammation, a substantial influx of inflammatory cells occurs, releasing inflammatory factors (especially TGF-β) and triggering the activation of myofibroblasts. The highly activated TGF-β/Smad pathway and diminished levels of Smad7 lead to an upregulation of genes associated with fibrosis [16]. Therefore, pelvic radiation can lead to various side effects, including vaginal dryness and constriction, reduced libido, dyspareunia (pain during sexual intercourse), erectile dysfunction, diarrhea, hemorrhoids, and more. These side effects increase with higher dosage administration [1,16].

Also, patients undergoing chemoradiation followed by surgery (hysterectomy) may face serious urological complications, such as radiation-related cystitis, chronic kidney failure, ureteral obstruction, bowel obstruction, vesicovaginal fistula, or even rectovaginal fistula due to the weakened soft tissues and surrounding organ bones [3,17]. However, the overall survival of hysterectomy patients with chemoradiation yields minimal side effects after a 3-month evaluation [18]. Therefore, can surgery be an option for patients with the residual response when brachytherapy is not available?

CONCLUSIONS

Surgery post-chemoradiation for cervical cancer in centers that don't have any brachytherapy can be considered as an option, yielding positive effects with minimal side effects. Healthcare centers with limitations in brachytherapy can utilize EBRT boosters, which may be continued with surgery depending on the patient's response to the earlier therapy.

DECLARATIONS

Competing interest

The authors declare no competing interest in this study.

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