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Case Report

Neoadjuvant chemotherapy followed by radical surgery for Stage IB2 cervical cancer in pregnancy

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Summary

Background: Pregnancy with cervical cancer (CC) represents an important challenge. *Case Report*: The authors report a case of a 34-year old diagnosed with Stage IB_2 squamous cell cervical cancer at 24^{+}-week gestation who was then treated with neoadjuvant chemotherapy followed by cesarean section and radical hysterectomy with good outcome of both the mother and the baby. *Conclusion*: The results of this case study, combined with previous reports and the authors' clincal experience, support the combination of paclitaxel and cisplatin for neoadjuvant chemotherapy when treating FIGO Stage IB2 cervical cancer in pregnancy.

Key words: Cancer; Carcinoma; Chemotherapy; Gynecological cancers; Mid-trimester pregnancy.

Introduction

Cervical cancer (CC) is the most common solid tumor diagnosed in pregnancy, and it affects approximately 1–10 per 10,000 pregnancies [1]. In spite of potential adverse effects on fetal growth and health, neoadjuvant chemotherapy (NACT) offers potential for women who wish to continue the pregnancy by reducing tumor bulk, inhibiting micrometastases, and enabling time for fetal maturation. Though several case reports have reported positive outcomes with prenatal NACT with paclitaxel plus cisplatin for pregnant woman with cervical cancer [2-4], the evidence is still very limited.

Here the authors report a case of a woman with Stage IB2 cervical cancer diagnosed at 24^{+4} weeks gestation. She received a paclitaxel-cisplatin NACT during pregnancy followed by combined surgery with good outcome of both the mother and the baby.

Case Report

A 34-year old woman (gravid four, para two) was admitted to this department at 24 weeks plus 4 days of gestation with complaints of irregular vaginal bleeding for more than two months. A cervical mass had been detected at a local hospital and cytologic test showed atypical squamous cells of undetermined significance. No HPV was detected. Pelvic examination revealed an exophytic friable cervical mass of posterior lip without vaginal or parametrial involvement and with its largest diameter measuring 5 cm. A biopsy revealed CIN3 changes involving focuses of microinvasiveness. Thus, a clinical diagnosis of FIGO Stage IB_2 squamous cell cervical cancer was made.

The couple had a strong desire to continue the pregnancy. After comprehensive counselling by the relevant specialists outlining the potential consequences of deviating from normal practice, the couple decided to proceed with the pregnancy until the earliest possible delivery date. They signed the consent form for NACT as primary therapy. The pregnant woman received combination chemotherapy with paclitaxel 135 mg/m^2 and cisplatin 75 mg/m^2 every 21 days for two cycles. During this time, standard antiemetics were used including tropisetron and dexamethasone. She tolerated the treatment very well, while ultrasonographic evaluation showed no evidence of fetal abnormalities. Because of the Chinese Spring Festival, she was already at 34 weeks plus 3 days of gestation when she came to this department for the third time. Vaginal examination showed partial clinical response with a reduction in tumor size to about 3 cm in greatest diameter. The MRI showed a heterogeneous mass measuring almost the same size with no obvious enlarged lymph nodes. A repeat ultrasonographic evaluation showed no intrauterine growth retardation with the fetus. The authors performed a classical cesarean section at 35^{+2} weeks with radical hysterectomy plus bilateral pelvic lymphadenectomy, bilateral salpingectomy, and ovarian suspension after fetal pulmonary maturity with amniocentesis (Figure 1).

Histopathology demonstrated a moderate-high differentiated squamous cell cancer of cervix without deep stromal invasion. No evidence of either lymphovascular involvement nor infiltration of parametrial invasion was found, but one out of the 17 lymph nodes was positive. Subsequently, the patient received pelvic radiotherapy at a dose of 52 Gy and four cycles of adjuvant chemotherapy with the same regimen.

The patient had a baby boy with good Apgar score of 9 and 10 at one and five minutes, weighing 2,610 grams and measuring 48 cm in length. The physical examination,

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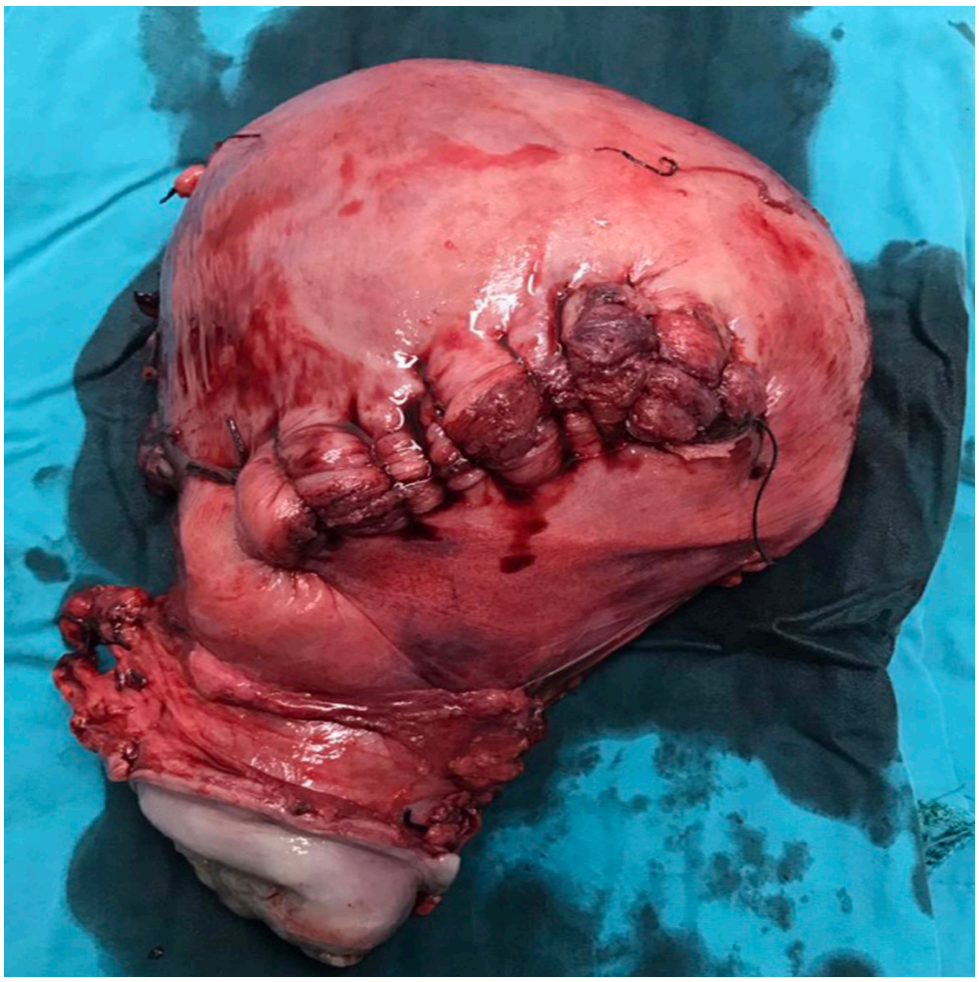

Figure 1. — Surgical specimen of uterus. The patient diagnosed with IB2 CC in midtrimester pregnancy received neoadjuvant chemotherapy followed caesarean section and radical surgery.

as well as a hearing test, revealed no abnormity. Blood investigations demonstrated normal results of the routine and biochemical tests, but an increased squamous cell carcinoma antigen concentration of 4.88 ng/ml. The mother is now in good condition and the infant demonstrates normal neuropsychomotor development at the 26th month after the operation.

Discussion

Though cervical cancer is one of the most common diagnosed malignancies in pregnancy, it is still very rare, meaning that definitive guidelines for these patients remain unavailable. This limits any evidence-based decisions for the management of cervical malignancy in pregnancy. Currently, management of an individual's cancer depends largely on the disease stage, gestation at diagnosis, and on the woman's personal preferences, with the final decisions considering optimal outcomes for both the mother and the unborn child.

Published reviews [2, 5] indicate that the oncologic outcomes and survival of pregnant women diagnosed with cervical cancer are similar to nonpregnant women of a similar age with a similar stage at diagnosis. The present authors report a middle-pregnant woman with squamous cell cervical cancer. Considering her strong desire to have a new baby and the previous success of treatments for FIGO Stage IB2 cervical cancer on nonpregnant women (refs needed), the authors decided to give her an NACT first. One of the greatest concerns of NACT for pregnant women may be the toxic effect on the baby. On the basis of previous studies [4, 6, 7], it seemed relatively safe to give chemotherapy during the second and third trimesters of pregnancy, especially single cisplatin chemotherapy. Though, based on available data, there is still a relatively high risk of premature rupture of membranes, intrauterine growth restriction, low birth weight, and premature labour [8, 9], neither teratogenic effects nor significant long-term complications in fetuses exposed to chemotherapy were seen. Moreover, doses of medications should not vary from those used outside pregnancy, despite the fact that pregnancy may change the pharmacokinetics of these agents [10]. Thus, the authors gave the patient two cycles of paclitaxel-cisplatin chemotherapy

with similar doses for nonpregnant cases, and she achieved a partial clinical response by the time her fetus had come to a relatively mature period.

The gestational age at delivery was 35^{+2}weeks, which is consistent with the published literature [3]. Considering the possibility of cervical laceration, which might cause tumor spread, the authors performed a classical cesarean section followed by radical surgery. The newborn boy was very healthy. However, he had an increased serum level of squamous cell carcinoma with unknown clinical significance, which required long-term follow-up.

In conclusion, the management of cervical malignancy in pregnancy remains a challenge to the patients. Based on previous publications and the authors' experience, the combination of paclitaxel and cisplatin could be considered as a reasonable NACT option for FIGO Stage IB2 cervical cancer in pregnancy. However, given its rarity, further cases studies are required to increase the evidence that this treatment is safe for both the mothers and the infants.

Author contributions

H. Z. and J. L. designed the study. X. X. prepared the manuscript. Q. L.and A. D. performed data collection. H. Z. and J. L. checked the manuscript. J. L. conceived and supervised the report.

Ethics approval and consent to participate

The institutional review board of the The Ethics Committee of Drum Tower Hospital Affifiliated to Nanjing University Medical School approved us to have this case reported. This report was obtained with the informed consent of the patient.

Acknowledgment

Thank numerous individuals participated in this study.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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