A rare case of abdominal radical trachelectomy following C-section for early-stage cervical cancer

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Background: Cervical cancer is the most frequent cancer type encountered during pregnancy, with an incidence of between 1.4–4.6 cases per 100,000 births. Although there are regulations regarding the correct therapeutic procedure to follow in such circumstances, their application is often hampered by the patient’s wishes. Case presentation: The authors describe the case of a pregnant patient (gestational age 25 weeks) who refused neoadjuvant chemotherapy for early-stage cervical cancer. She underwent a failed abdominal radical trachelectomy due to the large uterine volume and inadequate access to the parametria. The final surgical treatment was achieved at 32 gestational weeks when a C-section was performed. This was immediately followed by an abdominal radical trachelectomy with pelvic lymphadenectomy aimed at fertility preservation. Conclusions: The guidelines recommend neoadjuvant chemotherapy as the only pregnancy-preserving option for pregnancies past 22 gestational weeks. However, the patient in this case wished to protect the fetus from possible risks arising due to neoadjuvant chemotherapy. Hence, at the gestational age of 25 weeks she underwent a surgical procedure laden with many risks. The role of abdominal radical trachelectomy for early stage cervical cancer during pregnancy is still under debate due to the lack of multicenter randomized trials, despite its proven effectiveness in a relatively small number of cases.

Keywords
Abdominal radical trachelectomy; Pregnancy; Fertility preservation; Cervical cancer; C-section

1. Introduction

Cervical cancer is the most frequent cancer type encountered during pregnancy, with an incidence of between 1.4–4.6 cases per 100,000 births [1–3]. Cervical cancer during pregnancy is a dangerous condition that endangers the patient’s health, their fertility, and the ongoing pregnancy. Although there are published guidelines for the correct therapeutic procedure to follow in such circumstances [4], their application is often hampered by the patient’s wishes.

The authors present the case of a 32 gestational week pregnant patient with early-stage cervical cancer whose surgical treatment consisted of two steps. The first step consisted of a C-section. This was followed by abdominal radical trachelectomy with pelvic lymphadenectomy with the aim of preserving fertility.

2. Case presentation

The case was a 33-year-old G1, P1 patient who was consulted at the First Obstetrics and Gynecology Clinic of Târgu Mureș, Romania. The pregnancy was 24 gestational weeks and there was a previously established diagnosis of invasive squamous cell cervical cancer stage IB3 (FIGO 2018).

There was no relevant medical history or actual treatment apart from cholestasis of pregnancy which was treated with ursodeoxycholic acid. The blood sample was normal, except for hypertransaminasemia.

A clinical checkup revealed the existence of a 24 gestational week pregnant uterus, an exophytic cervical tumor mass of approximately 4 × 4 cm, and normal parameters. The obstetrical ultrasound confirmed the presence of a 24 week healthy pregnancy. Transrectal ultrasound confirmed the existence of a cervical tumor of 40 × 42 × 29 mm size with invasion of more than three quarters of the cervical length. There was seemingly healthy cervical tissue of approximately 1,3 cm between the tumor and the amniotic sac, with no parametrial, bladder or rectal invasion. The abdominal MRI ruled out the presence of enlarged extraperitoneal lymph nodes.

It was explained to the patient that the safest therapeutic choice was neoadjuvant chemotherapy. Despite this, she expressed her desire to preserve the pregnancy without risking exposure of the fetus to the potential side effects of neoadjuvant chemotherapy. Therefore, after adequate preoperative preparations and a detailed explanation of the risks, an abdominal radical trachelectomy was initiated at the gestational age of 25 weeks. However, this procedure was abandoned due to the large uterine volume and inadequate access to the parametria.
Following the above intervention, the patient was referred to an oncology service with the aim of starting neoadjuvant chemotherapy. However she was considered as not suitable for oncological therapy due to high levels of transaminase caused by cholestasis of pregnancy. Higher-than-normal transaminase is a sign of liver inflammation and therefore chemotherapy could limit the liver’s ability to function appropriately [5].

Consequently, all of the available therapeutic possibilities were presented to the patient, including the termination of pregnancy and the most appropriate surgical and oncological treatments. The patient expressed a strong desire to preserve the pregnancy and her fertility. She therefore opted for a C-section at the gestational age of 32 weeks, followed immediately by an abdominal radical trachelectomy for fertility preservation.

At 32 gestational weeks, the obstetrical ultrasound indicated a healthy pregnancy. The transrectal ultrasound depicted a cervical tumor with slightly increased dimensions of $42 \times 44 \times 30$ mm and without any parametrial, bladder, or rectal involvement. The abdominal MRI showed the same cervical lesion, with no extraperitoneal enlarged lymph nodes. Following consideration of the gestational age, the cervical cancer characteristics, and thorough explanation to the patient of the risks and benefits, an elective C-section was performed. A live fetus of 2,200 grams with an APGAR Score of 10 was extracted. Immediately after the C-section, the authors performed an abdominal radical trachelectomy with ligation of both uterine arteries and a C2 Querleu-Morrow parametrectomy with pelvic lymphadenectomy, as shown in Fig. 1. Analysis of frozen sections revealed tumor-free surgical margins. The intervention was uneventful and lasted almost 5 hours, with a blood loss of 900 mL requiring administration of one unit of red cell concentrate.

On the 12th postoperative day, the recovery was complicated by severe vaginal bleeding for which another unit of red cell concentrate was administered. The bacteriological vaginal examination revealed the presence of mixed bacteria: Enterococcus + Proteus + Klebsiella. Following appropriate antibiotic treatment, the recovery continued without any unpleasant events. The patient and her newborn were discharged on the 34th postoperative day.

3. Discussion

Over the past few decades, an increasing tendency to postpone childbirth has been observed. The mean age of women at childbirth is approximately 30 years, while 20.9% of women with cervical cancer are diagnosed under the age of 40 [6]. Almost 3% of women with cervical cancer are diagnosed during the first trimester of pregnancy or in the first months after delivery. In these circumstances, conservative surgery could play an important role. Radical trachelectomy is the basis for conservative surgery. Abdominal radical trachelectomy was first described by the Romanian gynecologist E. Aburel in 1956 [7] and vaginal radical trachelectomy by Daniel Dargent in 1994 [8].

Clinicians face a challenging situation when the aim is to conserve the ongoing pregnancy and retain fertility, while obtaining a good oncological result.

The Third International Consensus Meeting on Gynecologic Cancers in Pregnancy [4] recommended the use of neoadjuvant chemotherapy as the only pregnancy-preserving possibility for pregnancies over 22 gestational weeks and/or stage IB3 cervical cancer (FIGO 2018). The role of staging lymphadenectomy is still unclear. Follow-up without therapy in such conditions could compromise the prognosis and is not suggested.

The patient in this study wished to protect the fetus from adverse events that may occur with neoadjuvant chemotherapy, such as neonatal death, hematologic disorders and prematurity-related disturbances (sepsis, respiratory distress syndrome, metabolic disturbances, and necrotizing enterocolitis) [9]. At 25 gestational weeks, abdominal radical trachelectomy was performed in a gynecologic oncology department with experience in ultraradical surgery [10]. This was done after thorough explanation to the patient of the possible pregnancy complications such as chorioamnionitis, prematurity prelabour rupture of membranes, and preterm delivery. However, the procedure was abandoned shortly after commencement due to the large uterine volume and inadequate access to the parametria.

Given the stage of cancer and the improved neonatal care that now allows for prematurity delivery with satisfactory outcomes, it was decided together with the patient that definitive treatment should be given at 32 weeks of pregnancy.

Following the C-section at 32 gestational weeks, abdominal radical trachelectomy with pelvic lymphadenectomy was performed with the aim of preserving fertility. Guided by intraoperative ultrasound, the authors sought to preserve at

Fig. 1. Abdominal radical trachelectomy for cervical cancer following C-section.
least 1 cm of cervix length. This was because of the higher risk of premature prelabour rupture of membranes in patients with < 1 cm of remaining cervix [11]. Cervix cerclage was not performed.

The patient remained free of disease at the end of 18 months follow-up which included regular oncological evaluations.

4. Conclusions

This is an unusual case in which the patient refused neoadjuvant chemotherapy and wished instead to undergo a risk-laden procedure at the gestational age of 25 weeks. To our knowledge, this is the only reported case of abdominal radical trachelectomy with pelvic lymphadenectomy performed after a C-section in the third trimester of pregnancy.

The role of abdominal radical trachelectomy during pregnancy for cervical cancer is still uncertain due to the lack of multicenter randomized trials, despite its proven effectiveness in a relatively small number of cases. The most suitable time to perform abdominal radical trachelectomy during pregnancy appears to be the early second trimester [12].

Author contributions

Conceptualization, MS and MEC; Writing and editing, MS; Software and Investigation, VC, ALC, and KB; Methodology and visualization, MG and SLK; Resources, supervision, and validation, MEC.

Ethics approval and consent to participate

The study was approved by the Institutional Review Board (IRB) of our institute (ethical approval code: 34535), and written informed consent was obtained from the patient.

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