



CASE REPORT / ПРИКАЗ БОЛЕСНИКА

A case report of successful pregnancy after radical trachelectomy

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SUMMARY

Introduction Cervical cancer, as a global health problem, is most commonly associated with HPV infection. The incidence is rising among women of reproductive age. The challenge is that standard treatment is radical hysterectomy that remains a serious problem for women who still wish to conceive. Fertility-sparing surgery is possible in strictly controlled cases, but pregnancy afterwards is still an issue.

Case outline A 32-year-old, nulliparous patient with a diagnosis of early-stage invasive squamous cell cervical cancer is presented. After evaluation and only after selection criteria were met, radical abdominal trachelectomy with pelvic lymph node dissection was performed. Final histological diagnosis revealed that cancer infiltrated the entire depth of the specimen, with malignant cells present at the lateral resection margin. Radical hysterectomy was indicated, but the patient refused. After a year, the patient conceived spontaneously and had a successful pregnancy.

Conclusion The fertility-sparing treatment for early-stage cervical cancer is an oncologically safe option in carefully selected patients. The pregnancy afterwards remains high risk and needs close follow-up to optimize both maternal and fetal outcomes.

Keywords: cervical cancer; fertility-sparing treatment; pregnancy

INTRODUCTION

Cervical cancer is a global health problem, and although the incidence varies across the world, it is the most common cause of death in this part of Europe [1]. It is primarily associated with HPV infection and its global burden arises from differences in prevalence of oncogenic subtypes and inequalities in screening and treatment [2]. Standard treatment for early-stage disease is radical hysterectomy that remains a serious problem for women of reproductive age who still wish to conceive. Given the issues of rising incidence of cervical cancer among younger women, delayed childbearing, and declining quality of life after radical surgery, in recent years, a few fertility-sparing guidelines, by relevant gynecological and oncological societies, have been published [3, 4, 5]. Fertility-sparing treatments for gynecological malignancies are possible in selected cases, enabling women to keep reproductive organs and their function with no reduction in survival rate compared with standard radical treatment [3]. Depending on clinical and radiological staging, possible conservative options for cervical cancer treatment are cold-knife conization, simple and radical trachelectomy.

However, pregnancy afterwards is still an issue. The rate of successful pregnancies after fertility-sparing treatment is lower than in the general population [6]. Studies show promising rates of spontaneous conception, but due

to complications of surgical treatment, as well as patient's characteristics, assisted reproductive treatments may be indicated [7]. Even after successful conception, common adverse events after fertility-sparing treatment for cervical cancer are first- and second-trimester miscarriage, preterm labor and prematurity [8].

Managing malignancy while considering the patient's future reproductive wishes and possible pregnancy after cancer treatment requires a meticulous, multidisciplinary approach to provide comprehensive oncological, obstetric, neonatal, and psychological care.

CASE REPORT

A 32-year-old nulliparous patient was initially evaluated by the Clinic's Cancer Board with a diagnosis of squamous-cell invasive cervical cancer (G2, NG2, without lymphovascular invasion) after a cold-knife conization with a positive apical margin. Further standard evaluation for staging included abdominal and pelvic MRI and chest X-ray. Also, expert histological revision was performed, confirming the previous histological diagnosis. Based on the radiological imaging and histological report, the disease was staged IB1. Taking into consideration the young age of the patient, previous reproductive history, desire to conceive, and only after the selection criteria were met, the final decision of the Board was to perform radical abdominal trachelectomy

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with pelvic lymph node dissection. During the operation, so-called *ex tempore* biopsies of the apical portion of the cervix, a slice biopsy of the isthmic portion, and the pelvic lymph nodes had to be examined and found negative for malignancy before the operation could proceed. In this case, *ex tempore* analysis reported free margins, so radical trachelectomy with pelvic lymphadenectomy was done. However, final histological diagnosis revealed moderately differentiated (G2) squamous-cell cervical cancer with 10 mm of stromal infiltration and positive lymphovascular invasion. The final report stated that squamous-cell cervical cancer was present at the lateral resection margin of the cervix. There was no infiltration of the parametria and pelvic lymph nodes were negative. Considering the negative prognostic parameters (depth of infiltration, lymphovascular invasion, and positive resection margins), the Board suggested simple hysterectomy, which the patient refused. First pelvic MRI at six months after surgery did not show any signs of disease progression. The patient conceived spontaneously one year after the surgery. Except for gestational diabetes, the pregnancy was otherwise unremarkable. The patient delivered a healthy term infant weighing 3200 g by Cesarean section, with an Apgar score of 9/10. At one and six months after delivery, no progression of disease was noted.

Ethics: According to the journal's position on issues involving ethical publication, the written consent for publication of this article has been obtained from the patient.

DISCUSSION

Fertility-sparing surgery is nowadays an important strategy in cancer treatment because an increasing number of women under 45 years of age survive malignancy [9]. One-fifth of diagnosed cases occur among young adults under 39 years [10]. This case of a 32-year-old nulliparous woman draws attention to the rising incidence of cervical cancer among young women who have not completed childbearing. Hence, regular Papanicolaou screening gives the opportunity to diagnose the disease in early stages when fertility-sparing treatment is possible. According to the guidelines, preserving fertility is recommended in young patients up to 45 years of age and up to the FIGO stage IB1 [5]. Certain selection criteria are to be fulfilled for fertility-sparing management, including tumor size, depth of invasion, distance between cranial edge of tumor and internal cervical orifice, as well as local spread and lymph node involvement [3].

Only stage IA1 is treated with less invasive surgery – conization of the cervix. Radical trachelectomy, which includes removal of the cervix with surrounding parametrium and upper vagina, as well as pelvic lymphadenectomy, is reserved for FIGO stages IA2–IB1 [3]. Fertility-sparing treatment could be considered in stage IB2 in selected cases [4]. The reason why trachelectomy is acceptable in young women under strict conditions is because it is oncologically safe, meaning that the oncological outcome is similar to the standard radical treatment in which the entire uterus is

removed [3, 4]. Results from the study by Siegler et al. [11] that analyzed 36 patients after simple trachelectomy showed no recurrence of disease after a mean follow-up of 7.5 years. The systematic review by Morice et al. [12] showed that the recurrence rate after abdominal radical trachelectomy was 2.4%. Another systematic review including 29 studies on cervical cancer involving 2432 patients showed that 28 (3.6%) patients had recurrent disease and six (0.8%) died of disease during a median follow-up of 53 months [9]. More recurrences occurred in patients with FIGO stage IB1 (3.1%) and IB2 (5.6%) disease than in patients with FIGO stage IA1 (0.2%) and IA2 (0.7%) disease [9]. In stage IB2 disease, the lower rate of recurrence is observed after radical trachelectomy via an abdominal approach and the highest recurrence rate is observed after neoadjuvant chemotherapy and conservative surgery [12]. These promising results in terms of disease-free survival rates are shifting the perspective from oncologic treatment toward quality of life and pregnancy [9, 13]. The short follow-up period represents a limitation of this case, as longer surveillance is required for definitive evaluation of oncological outcome.

Oncological outcomes are well reported, and fertility-sparing surgery is clearly recommended in selected patients, but the data on pregnancy outcomes are limited and inconsistently reported [9]. This highlights the importance of reporting a term pregnancy after trachelectomy.

As mentioned, the reason why trachelectomy is performed in the first place is to preserve the uterus and reproductive function in order to enable an uncomplicated term pregnancy [14]. Unfortunately, the rate of pregnancy is lower than in the general population. A possible medical reason is that the procedure can leave scarring in the uterine isthmus, which may impede sperm passage into the uterine cavity. In addition, malignancy may affect the woman's mental health, her fertility and desire for offspring. Moreover, adjuvant chemotherapy and radiotherapy affect ovarian reserve. Most studies show that few patients attempted to conceive [15].

An additional reason for the lower rate of pregnancy could be the age of these patients. The fertility rate declines with age, especially after the age of 35. One systematic review showed that 45.4% required infertility treatment after surgery, emphasizing the importance of IVF procedures [15]. The reported pregnancy rates after ART ranged 36–42% [15]. According to Okugawa et al. [16], 49% (112/230) of the patients attempted to conceive after trachelectomy, with a pregnancy rate of 41%. Twenty percent of those patients conceived spontaneously [16]. In the study analyzing oncological and reproductive outcomes in 471 patients with radical vaginal trachelectomy, the fertility rate was higher, at 73% [17]. In our case, the 32-year-old patient conceived spontaneously only one year after the operation.

After successful conception, these pregnancies are at risk of miscarriage and second-trimester pregnancy loss [18]. According to data, the incidence of first-trimester miscarriage, which is 16%, is no different from that in the general population. In contrast, second-trimester pregnancy loss is almost twice as high as in the general population, 7% vs. 4%, due to incompetence of the lower uterine

segment, infection, and premature prelabor rupture of membranes. The difference in risk between the trimesters could be explained by the fact that second-trimester loss is more strongly influenced by cervical factors and infection than first-trimester loss.

Preterm labor and intensive care unit stays are also more frequent among pregnant women with previous trachelectomy [19]. Even in the study by Kohler et al. [18], which reported a high pregnancy rate, 43% of pregnancies were preterm. On the other hand, some studies show an exceptional term-pregnancy rate, such as the results from two oncological centers where 16/36 (44.5%) patients achieved pregnancy and all pregnancies reached term [11]. Prematurity is a major problem mainly because of sequelae that can lead to lifelong disability. There is no strict recommendation in terms of prevention of infection and preterm delivery. In this case, the patient delivered a healthy term infant.

According to the Serbian national guideline for normal pregnancy, urinalysis is routinely performed in each

trimester, and urine culture is done at the first visit to screen for asymptomatic bacteriuria [20]. A vaginal swab is taken at the first visit in the first trimester and again in the second trimester, and a cervical swab is recommended in the third trimester with GBS screening [20]. Since the permanent cervical cerclage placed during trachelectomy could be a source of infection, pregnancies after fertility-sparing treatment are high risk, and these patients require closer follow-up and infection screening to avoid complications.

This case demonstrates an example of successful term pregnancy after radical trachelectomy with a favorable outcome. Fertility-sparing treatment for early-stage cervical cancer is an oncologically safe option in carefully selected patients. Pregnancy afterwards remains high risk, and management in specialized tertiary centers with close follow-up is crucial. A multidisciplinary approach optimizes both maternal and fetal outcomes.

Conflict of interest: None to declare.

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Трудноћа након радикалне трахелектомије – приказ болесника

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САЖЕТАК

Увод Карцином грлића материце, као глобални здравствени проблем, најчешће је повезан са инфекцијом хуманим папилома вирусом (ХПВ). С обзиром на то да његова учесталост расте међу женама репродуктивног доба, проблем представља стандардни вид лечења који подразумева радикалну хистеректомију. То остаје озбиљан проблем за жене које и даље желе да остваре трудноћу. Поштедно хируршко лечење је могуће у строго контролисаним условима, али трудноћа након тога и даље представља изазов.

Приказ болесника Представљен је случај 32-годишње болеснице, која до тада није рађала, са дијагнозом инвазивног сквамозелуларног карцинома грлића материце. Након пажљиве евалуације испуњени су критеријуми за поштедни третман те је урађена радикална абдоминална

трахелектомија са пелвичном лимфодектомијом. Коначна хистолошка дијагноза је показала да је карцином инфилтрисао целу дебљину грлића и да су малигне ћелије присутне на латералној ивици ресекције, те је индикована радикална хистеректомија, коју је болесница одбила. Након годину дана, болесница је спонтано затруднела и уследила је успешна трудноћа.

Закључак Лечење карцинома грлића материце у раном стадијуму уз очување плодности представља онколошки безбедну опцију код пажљиво одабраних болесница. Трудноћа након тога остаје високог ризика и захтева пажљиво праћење како би се оптимизовали исходи и за мајку и за фетус.

Кључне речи: рак грлића материце; лечење које штеди плодност; трудноћа