

Ovarian transposition in order to preserve fertility before irradiation in a young patient with cervical cancer

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ABSTRACT

Ovarian transposition has been imagined for young women diagnosed with pelvic malignancies who are submitted to surgery, who are further candidates for irradiation and who deserve fertility preservation. The most commonly indication for this procedure are represented by rectal and hematological malignancies; in certain cases diagnosed with gynecological malignancies in early stages such as cervical cancer ovarian preservation can be also taken in consideration in order to preserve fertility; however, ovarian transposition should be taken in consideration in order to remove the ovaries from the radiation field. The aim of the current paper is to report the case of a 31 year old patient diagnosed with a stage IIA cervical cancer in whom a total radical hysterectomy en bloc with right adnexectomy and pelvic lymph node dissection was performed; meanwhile the left ovary was transposed at the level of the left lumbar area, 2 cm above the left iliac crest and metallic clips were placed at the inferior margins in order to be easily identified when performing adjuvant radiation therapy.

Keywords: ovarian transposition, fertility preservation, cervical cancer, irradiation

INTRODUCTION

Although screening tests for early detection of preneoplastic lesions of the uterine cervix have been widely implemented, in Romania a significant number of patients are diagnosed when tumoral transformation already occurs and therefore radical surgery is needed. Unfortunately, such cases are also encountered in very young patients, who did not fulfil their family plan and therefore deserve to

preserve fertility [1,2]. Therefore, whenever the extent of the malignant process allows it, ovarian preservation should be tempted. Moreover, in order to maintain the perfect functionality of the ovaries, they should be routinely transposed out the pelvic area, which will be probably submitted to radiation therapy [3-6]. The aim of the current paper is to report the case of a 31 year old patient diagnosed with a stage IIA cervical cancer in which successful preservation of the left ovary was performed.

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FIGURE 1. Large, hemorrhagic cervical tumor apparently with no local extension besides the uterine cervix

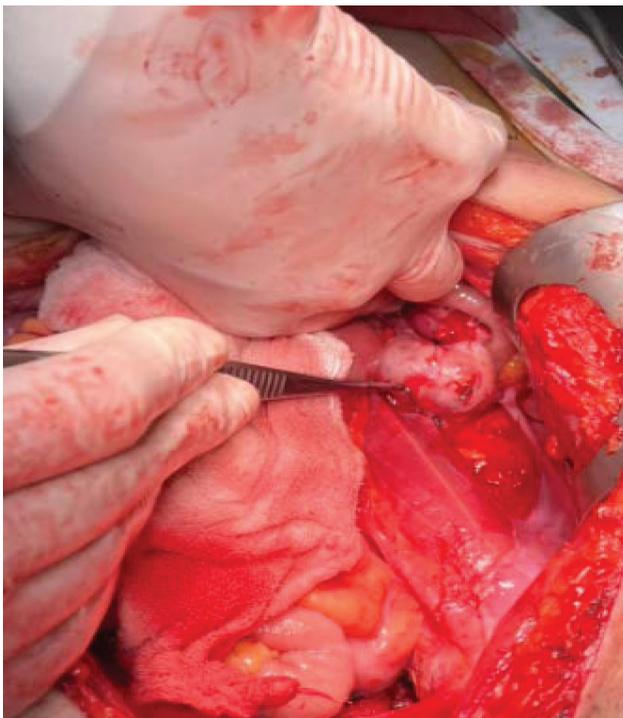


FIGURE 2. Transposition of the left ovary at the level of the left psoas muscle, and fixed at this level with three separate stiches. Meanwhile titanium clips were placed at the level of the inferior border of the ovary in order to facilitate the delimitation of the radiation field

CASE REPORT

The 31 year old patient with no significant medical history was investigated for menometrorrhagias and diffuse abdominal pain and was diagnosed with a large uterine cervix tumor (Figure 1). The pelvic

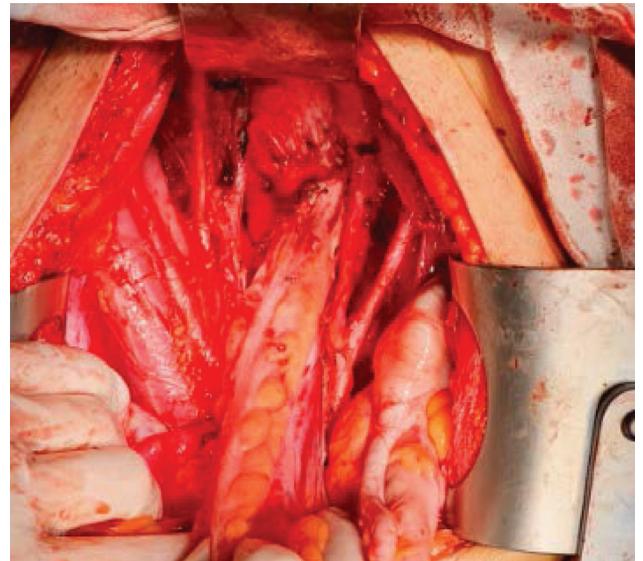


FIGURE 3. The final aspect after total radical hysterectomy en bloc with right adnexectomy and pelvic lymph node dissection. The left ovary was placed at the left of the lumbar muscle, above the iliac crest



FIGURA E. The final aspect of the specimen – total radical hysterectomy with right adnexectomy; as it can be observed on the specimen, the cervical tumor seems to be limited at this level while the vagina was transected at the level of the middle – lower third for oncological issues

magnetic resonance imaging demonstrated the absence of local extension at the parametrial level, local invasion of the surrounding viscera or the presence of pelvic or para-aortic adenopathies. Due to the young age of the patient, due to the absence of local extension and due to the desire of the patient to preserve fertility, the final decision was to perform a total radical hysterectomy en bloc with bilateral salpingectomy and right ovariectomy (due to the presence of a 4 cm cyst at this level) while the left ovary was transposed at the level of the left psoas muscle and fixed at this level and at three level of the parietal peritoneum with 3 separate stiches (Figures 2-4). Meanwhile, titanium clips were placed at the level of the inferior

border of the left ovary in order to mark it and to make it visible when performing the computed tomography plan for further irradiation. Furthermore the ovary was covered by the left sigmoidian loop. The postoperative course was uneventful, the patient being discharged in the fifth postoperative day and deferred to the radiotherapy service.

DISCUSSIONS

Radiotherapy is well known for their gonadocidal effect on the ovarian parenchyma and therefore, whenever fertility preservation is tempted, the ovaries should be removed out of the radiation field. Initially the method was proposed in women submitted to pelvic irradiation for Hodgkin's disease. Later on, the method has been proposed for patients with pelvic malignancies such as rectal carcinoma and cervical carcinoma if the local extent of the disease allows it [3-6].

When it comes to the technical details, ovarian transposition usually is performed at the level of the paracolic gutters, in an angle which is sufficiently wide in order to maintain an adequate blood supply; most commonly, the ovaries are fixed 4 cm outside of the radiation field, and at more than 1,5 cm above the iliac crest [7,8]. Meanwhile, certain authors propose placing titanium clips at the level of the inferior border of the ovary in order to make them visible when establishing the borders of the irradiation plan.

However, the rates of ovarian failure after transposition range between 17 and 88% after adjuvant radiation therapy when lateral transposition is performed, other factors influencing the success of the procedure being related to patients' age, distance from the iliac crest, uni versus bilateral transposition [9-12]. Although the ovaries are placed out of the radiation field, it seems that an important key point regards the distance between the limit of the radiation field and the situs in which the ovaries are transposed.

An interesting study which was conducted on the issue of fertility preservation in young women was conducted on Yin et al and was published in 2019; the study included 105 females diagnosed with cervical cancer and who necessitated ovarian transposition. The authors demonstrated that patients younger the 38 year of age have a higher chance to preserve a

normal ovarian function after transposition; as expected, cases in which bilateral ovarian transposition was feasible the percent of cases with normal ovarian function was higher among those in whom bilateral ovarian transposition had been performed [13].

Another issue which should be discussed in such cases is the fertility outcomes after ovarian transposition. Therefore, in a study conducted on 37 consecutive cases submitted to surgery for different malignancies in which ovarian preservation and transposition was performed among these cases there were 27 patients with clear cell adenocarcinoma of the vagina and/or of the cervix, nine cases diagnosed with ovarian dysgerminoma and one paruterine sarcoma. After irradiation the pregnancy rate in the first group was of 15% and respectively 80% in the second group, therefore demonstrating that the rates of pregnancy after surgery and pelvic irradiation can reach significant values [14]. However, the case that we came to present referred to patients in whom the uterus was also removed and therefore, a surrogate pregnancy after retrieving oocytes after ovarian stimulation os planned. Such cases have been already reported so far, especially in young women diagnosed with cervical cancer; in such cases a similar surgical approach as in our case was performed, followed by pelvic irradiation. After a certain period of time the patient was submitted to ovarian stimulation, transcutaneous and abdominal oocyte retrieval. Following in vitro fertilization, the embryo is transferred to the gestational surrogate and, in certain cases, successful deliver at term is obtained [15-18].

CONCLUSIONS

Fertility preservation after radical hysterectomy for cervical cancer followed by ovarian transposition out of the radiation field seems to be an effective method in order to increase the chances for fertility and for obtaining a previous pregnancy. In regard to the sites in which the ovaries should be transposed, most often, they are placed at 1,5-3 cm above the iliac crests, are covered by the peritonem and colon and their inferior borders are marked by placing titanium clips in order to minimize the risks of deposition. Meanwhile, in cases in which the oncological process is limited, the long term outcomes are nor precluded.

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