

Letter to the Editor

Ovarian transposition in young women and fertility sparing

Dear Editor,

Pelvic irradiation causes iatrogenic ovarian failure with infertility and premature menopause in a consistent proportion of young patients. Ovarian transposition is considered an effective method to preserve ovarian function and fertility after irradiation, but few data are available about its real efficacy, the rate of possible complications and the risk of metastases. Based on 32 articles and 1189 women who underwent the procedure, Mossa et al¹ state that the procedure is effective in 69% and conclude that ovarian transposition is associated with a low frequency of complications as cysts and metastasis, thus recommending ovarian transposition in all young women who are candidate for subsequent pelvic irradiation.

We have reviewed the published evidence about ovarian transposition in PubMed and have found 1077 articles (PubMed accessed on October 26, 2015). Primordial follicles are more radio-resistant than maturing follicles, so procedures like GnRH analogues suppression² could be proposed, but there are no data in our knowledge. Combined approaches using oocyte cryopreservation prior to ovarian transposition or the combination of ovarian cryopreservation and ovarian transposition could represent much more reliable strategies for fertility preservation, maximizing future fertility options for women facing pelvic irradiation^{3,4}.

While both GnRH analogues during gonadotoxic therapies and ovarian tissue cryopreservation are still considered experimental techniques, ovarian transposition is an established strategy of fertility preservation according to ASRM⁵ and a failure rate of 31% can be considered good. According to Mossa et al¹, even if the efficacy depends on the way transposition is performed and there are some risks that cannot be ignored.

The optimal technical procedure⁶ should be ideally performed by laparoscopy, in order to minimize the surgical stress and to reduce the recovery time. The ovaries should be moved outside the pelvis and anchored as high as possible above the pelvic brim either in the paracolic gutter or the anterior abdominal wall by cutting the uterus-ovarian ligaments. Lateral transposition is preferable to medial transposition. Attention should be paid to avoid torsion and tension of the ovarian vessels, which may reduce blood supply to the ovaries. Titanium clips should be placed on the two opposite borders of the ovaries for radiological identification and to contour the radiotherapy field accordingly.

In the paper by Ronn and Holzer⁷, the overall success rate (defined by continued menses or ovarian function, or both) ranges from 65% to 89%, in line with the results reported by Mossa et al¹.

As for the risk of gynecological complications after ovarian transposition, Mahajan et al⁸ warn about the increased occurrence of ovarian cyst formation, post-operative adhesions, chronic pelvic pain, migration of the ovaries back to their native position and premature ovarian failure. About 14% of patients developed ovarian cysts in the Mossa et al paper¹. Most of these cysts are dysfunctional and possibly due to lower ovarian vascularization and ovarian stress induced by the procedure. A close surveillance of the transposed ovaries is needed to identify ovarian dysfunctions. In the systematic review and meta-analysis by Gubbala et al⁹, transposition to the subcutaneous tissue is associated with higher ovarian cyst formation rate compared to the "traditional" transposition.

The main concern remains the risk of metastatic disease to the ovaries. The data published by Mossa et al¹ are confirmed in another paper, which reports a risk of ovarian involvement in about 1% of cases, suggesting a possible role of transposition in facilitating the spread of disease¹⁰.

Gonadal shielding should be always used in patients undergoing irradiation. Shielding does not protect the gonads completely, but significant radiation dose reductions may be achieved¹¹.

About 14% of patients develop ovarian cysts¹ that need a close surveillance due to the risk of metastasis and to the more difficult or impossible transvaginal ultrasound diagnosis. In the systematic review and meta-analysis by Gubbala et al⁹ transposition to the subcutaneous tissue is associated with higher ovarian cyst formation rate compared to the "traditional" abdominal transposition.

Damaged or dysfunctional fallopian tubes may also preclude a spontaneous pregnancy. Transvaginal oocyte recovery becomes difficult because of ovarian transposition, and transabdominal OR may be required for in vitro fertilization.

Since ovarian transposition does not prevent ovarian damage by cytotoxic drugs, it should be avoided if the patient has to undergo both chemo and radiotherapy.

Further studies and longer follow-up are needed to evaluate¹² the long-term efficacy of ovarian transposition, particularly in order to delay the onset of menopause. In the article by Mossa et al¹, the median follow-up is 48 months and the patients' median age is 32.5 years. Most of the young cancer patients are older and we do not have enough data to counsel them about its efficacy.

In conclusion, we agree that ovarian transposition should be discussed at the time of cancer diagnosis in every woman in the fertile age requiring pelvic radiotherapy¹³.

Patients should be warned that almost 1/3 of ovarian transposition procedures can fail and it should be stressed, and documented in the consent, that in 1-2% of cases this procedure might be associated with an unnoticed metastatic disease, that cannot be identified by macroscopic examination only. This risk, in our opinion, is not "negligible" as concluded by Mossa et al¹ and further studies are needed to help to identify patients at higher risk of ovarian metastases.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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