
CHAPTER 17

Preservation of Fertility

In women of childbearing age, a circumstance that this disease unfortunately forces us to confront frequently, it is necessary to consider fertility preservation strategies. Unlike other tumors in which drugs toxic to the ovarian germinal cells are administered, this does not occur in rectal cancer, so ovarian transposition appears as option or complement to cryopreservation. Therefore, using a simple and feasible laparoscopic surgical technique, before initiating neoadjuvant RT, it is possible to transpose the ovaries to protect them from RT. Cryopreservation is known to be a method that is not always available or accessible. But even if it is, the supplementation of both methods opens the spectrum for the large number of young patients who suffer from these types of tumors at an age when fertility is a concern.¹⁴⁴ Even more so, with the improved prognosis of the disease achieved in recent years.

Preservation of ovarian function by laparoscopic transposition prior to pelvic irradiation has been shown to be a safe and effective procedure for patients with Hodgkin's disease, as well as in the treatment of a variety of gynecologic malignancies.¹⁵⁴ Historically, surgical exploration of the abdomen or pelvis as part of the resection procedures has allowed access to the ovaries for transposition. As laparoscopic techniques have improved, the consideration of ovarian transposition in other clinical settings has become more attractive. In many fixed rectal tumors, treatment may require APR and, on the other hand, combined neoadjuvant treatment would result in ovarian ablation. In these cases, laparoscopic bilateral ovarian transposition before RT allows preservation of ovarian function. The laparoscopic approach facilitates the initiation of RT a few days after the procedure.

Different laparoscopic ovarian transposition techniques have been described that vary according to the shape, size and location of the radiation field. Tinga et al.²²³ have described the transposition of the ovaries to a fixed position behind the uterus in the midline, as well as a superior transposition to the level of the iliac crest. These authors argue that the disadvantage of pexy in the midline is the higher level of scattering of internal radiation, since the area is surrounded by the radiation field. Morice et al.¹⁵⁴ published a series of 24 patients who underwent ovarian transposition to the paracolic gutters before radiation for gynecological malignancies and concluded that this procedure is a safe and effective method to preserve ovarian function. Marking the ovaries with clips is a useful adjunct

to facilitate treatment planning and help ensure that radiation dose is kept to a minimum.

In the era of reproductive technology, the ovaries can also be stimulated to produce numerous ova that are later retrieved under ultrasound guidance from the relocation in the paracolic gutters. These ova can be fertilized with the sperm and the embryo reimplanted in the uterus. However, the patient should be warned that her uterus may be unfit for pregnancy due to the same effect of RT. In this case, the only option would be to resort to a surrogate uterus.

The outcome measure used after post RT ovarian transposition is ovarian function. It is often measured by quantitative analysis of ovarian stimulating hormones (FSH), as well as fertility results.⁴³ A success rate close to 90% has been reported in preserving hormonal function.²

Spontaneous pregnancies are even possible if tubal function is preserved as part of oophorectomy. Morice et al.¹⁵⁴ reported 37 consecutive cases of ovarian transposition. In these cases, 16 pregnancies occurred spontaneously, 12 of which did not have repositioned ovaries. Treissman et al.²²⁴ reported on a patient in whom laparoscopic ovarian transposition was performed before definitive treatment for anal carcinoma. Tulandi et al.²²⁶ reported the return of normal menstruation in a 34-year-old woman who underwent laparoscopic ovarian transposition prior to RT for the treatment of rectal carcinoma. Although they initially had ovarian failure, postmenopausal symptoms, and elevated serum gonadotropins, normal menstruation restarted and correlated with normal FSH levels eight months after treatment. A later report on this patient documented a spontaneous pregnancy. Another benefit of ovarian transposition, in addition to the preservation of fertility, is the prevention or delay of premature menopause.⁵³

In fact, with doses in the 8,500 cGy range, the resulting damage to the endometrium essentially prevents successful spontaneous or in vitro pregnancy. However, these are not common doses in the treatment of rectal cancer.

In our experience, we resorted to this technique in 4 patients who succeeded in continuing their normal hormonal function and menstrual cycle.

The TDI should always consider ovarian transposition when deciding on RT treatment for a woman of childbearing age who wishes to have children.