LAPAROSCOPIC OVARIAN TRANSPOSITION PRIOR TO PELVIC RADIATION IN YOUNG FEMALE PATIENTS WITH GASTROINTESTINAL MALIGNANCIES: A SYSTEMATIC REVIEW

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BACKGROUND

Young women undergoing radiation therapy (RT) for pelvic malignancies are at risk of developing premature ovarian insufficiency (POI).[1-2] This results in infertility and premature menopause.[3-5]

One strategy to preserve ovarian function in these patients is ovarian transposition (OT). This involves relocation of the ovaries out of the planned radiation field. Laparoscopic OT has been well studied in gynecologic malignancies and Hodgkin's lymphoma.[6-12] However, its role in anorectal malignancies has yet to be firmly established.

OBJECTIVES

To determine the effectiveness of laparoscopic OT in preserving ovarian function in premenopausal women undergoing neoadjuvant pelvic RT for anorectal malignancies.

METHODS

Outcomes

- **Ovarian function**. Definitions included clinical variables (e.g., menses, pregnancy) and biochemical variables (e.g., estradiol and follicle stimulating hormone).
- **30-day postoperative morbidity**.

Statistical analysis

- Risk of bias was assessed using the MINORS tool.
- DerSimonian and Laird inverse variance random-effects meta-analysis
- Assessment of heterogeneity with the inconsistency (I2) statistic.

RESULTS

Study characteristics

- **10 studies** with 133 patients met the inclusion criteria
- Three patients (2.3%) underwent pelvic radiation for **anal squamous cell carcinoma**
- 103 patients (97.7%) underwent pelvic radiation for **rectal cancer**

Surgical procedure

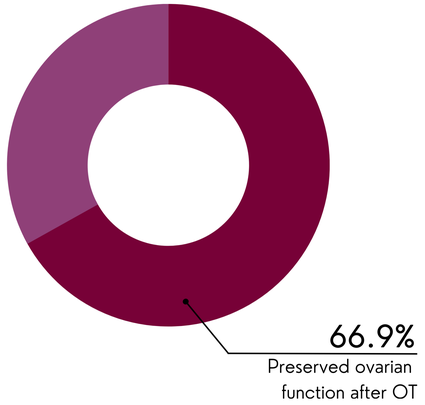
1) Diagnostic laparoscopy

2) Identification and protection of major neurovascular retroperitoneal structures and ureters

3) Division of the utero-ovarian ligament and the meso-salpinx to the level of the infundibulopelvic (IP) ligament

4) Preservation of the IP ligament and transposition of the ovaries superiorly and apposition to the anterior abdominal wall (at or above the level of the anterior superior iliac spines)

5) Marking the level of the ovaries with intra-peritoneal metal device (clip, tack).



Outcomes

Incidence of **preserved ovarian function** was 66.9% (95%CI 55.0-79.0%, I2=43%)

One patient (1.2%) that experienced a postoperative complication (aspiration pneumonia)

CONCLUSIONS

OT in premenopausal patients undergoing pelvic radiation for anorectal malignancies may be a safe and effective way to reduce ovarian exposure to radiotherapy and may contribute to to preserved ovarian function in up to two thirds (66.9%) of patients.

NEXT STEPS

RCTs with standardized interventions and objective measurements of ovarian function with long-term follow-up are warranted. Future studies should also compare the effectiveness of OT and other fertility-preserving options (e.g. cryopreservation) for patients desiring future pregnancies.

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