

TRANSPLANTATION OF REFROZEN OVARIAN CORTICAL STRIPS RETRIEVED FROM A CRYOPRESERVED WHOLE OVARY: PROOF OF FEASIBILITY

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Abstract Body

Objective: To report outcomes of transplanting refrozen-rethawed cortical strips from a cryopreserved whole ovary.

Design: Case report.

Setting: Gynecology department in a tertiary care hospital.

Patient: A 25-year-old woman diagnosed with stage IIIb rectal adenocarcinoma in whom whole ovary cryopreservation and contralateral ovarian transposition were performed as fertility preservation options prior to radiotherapy, chemotherapy and oncological surgery.

Intervention: The whole ovary was thawed and dissected into cortical strips to screen for minimal residual disease prior to reimplantation. While awaiting the screening results, the thawed cortical strips were refrozen. There was no sign of malignant infiltration in any of the thawed pieces, so refrozen-rethawed cortical strips were laparoscopically grafted to 2 sites: the previously irradiated pelvic cavity and the non-irradiated extrapelvic cavity.

Main Outcome Measures: Ovarian function resumption was assessed by recovery of menses, hormone levels, ultrasound and oocyte pick-up following controlled ovarian stimulation (COS).

Results: Restoration of ovarian function occurred 6 months after reimplantation, as witnessed by recovery of menses and estradiol secretion. A second reimplantation was required 1.5 years later, since the grafts were found to have stopped functioning for >3 consecutive months. COS was applied in 9 cycles and resulted in transabdominal retrieval of 3 fertilizable oocytes from the extrapelvic graft, yielding 2 embryos and culminating in one fresh embryo transfer, but no pregnancy. Concerning the reimplantation site, no ovarian activity was detected in the graft placed in the previously irradiated pelvic cavity. Indeed, only fibrotic-looking tissue was encountered in the pelvic site at second laparoscopy 1.5 years later, while ovarian activity was clearly identified in the extrapelvic graft, showing a large antral follicle.

Conclusions: Human ovarian tissue can withstand double freezing and lead to ovarian function restoration and embryo development if grafted to a non-irradiated field.