65th Annual Meeting of the ASRM

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Contact/Presenting Author: Amr Kader

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Data are submitted for a separate scientific abstract and video presentation: Yes

Awards:
In-Training Awards for Research
SRS In-Training Award for Research
IRB Approval: No human subjects or human tissue was utilized in the studies described in the abstract.
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Six Author Rule: All authors named in this abstract have agreed to its submission for presentation at the 65th Annual Meeting of the American Society for Reproductive Medicine and are familiar with the 6-author rule.
Accept Complete Responsibility: I accept complete responsibility for the data at the time of submission.

Title: LAPAROSCOPIC ASSISTED INJECTION TRANSPLANTATION OF VITRIFIED OVARIAN TISSUE IN SHEEP MODEL

1Women's Health Institute/ Center for Surgical Innovation Technology and Education, Cleveland Clinic, 9500 Euclid Avenue Cleveland, Ohio, United States, 44195; 2Center for Reproductive Medicine, Cleveland Clinic, 9500 Euclid Avenue Cleveland, Ohio, United States, 44195 and 3Department of Obstetrics and Gynecology, Alexandria University, ElShatby, ElGeish St. Alexandria, Alexandria, Egypt, 0000.

Objective: We hypothesized that transplanting fragmented ovarian tissue might improve revascularization and vitrification may be a better approach for the ovarian fragments preservation. The objective of this pilot was to evaluate the techniques of laparoscopic assisted injection transplantation of vitrified warmed ovarian tissue fragments in sheep model.

Design: Prospective in vivo animal study.

Materials and Methods: Five Merino sheep were used in the study. After laparoscopic bilateral oophorectomy, the ovarian cortices were fragmented into 0.125mm3 cubes
using a tissue chopper. Cortical fragments were then vitrified in the Ohio-Cryo. After 2 weeks, the ovarian tissue fragments were warmed then suspended in MEM containing 20% platelet rich sheep serum. Laparoscopic assisted transplantation was carried out by laparoscopically pulling the fallopian tubes extracorporeally and gradual injection of the ovarian tissue in the broad ligament. After injection, the tubes were brought back into the pelvis. Four to 6 months after the transplant procedure and in an indoor setting, the sheep were simulated by feeding them MGA 0.25 mg per day for 2 cycles for either 7 or 12 days followed by injection of 500IU after 7 days or 750 IU after 12 days of PMSG. The sheep were monitored during the simulated cycles by FSH and progesterone measurements and rectal U/S.

**Results:** Following castration, FSH rose to castration levels, whereas progesterone levels became non detectable. During stimulation, 3 out of 5 sheep showed slightly positive response to stimulation showing a variable rise in serum progesterone levels, as well as endometrial thickening and follicular growth by rectal U/S follow up.

**Conclusions:** This pilot demonstrates the possibility of vitrifying ovarian fragments in the Ohio-Cryo and their transplantation by a minimally invasive technique. However the ovarian reserve was severely compromised. Limitations include: 1- Retroperitoneal transplant site, 2- Clumping or dispersion of the grafted tissue

**Support:** RPC and Csite/ Cleveland Clinic

**Author:** Amr Kader1,2,3  
**Member #:**  
**Phone:** 216-444-4402 **Cell Phone:** Fax: 216-636-3100 **E-mail:** kadera@ccf.org

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**Author:** Nisarg Desai2  
**Member #:**  
**Phone:** Cell Phone: Fax: **E-mail:** nisargdesai@hotmail.com

**Yes -** Neither I nor my spouse/partner have a commercial or financial interest or relationship with manufacturers of pharmaceuticals, laboratory supplies and/or medical devices.

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**Author:** Tommaso Falcone1,2  
**Member #:**  
**Phone:** 216-444-1758 **Cell Phone:** Fax: **E-mail:** falcont@ccf.org

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