**THE FIRST CASE REPORT OF THE EUPLOID BLASTOCYSTS CRYOPRESERVATION OBTAINED AFTER FERTILIZATION OF IN VITRO MATURED OVARIAN TISSUE OOCYTES IN A CANCER PATIENT.**

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**Abstract Body**

With the increased rate of stable remission after gonadotoxic cancer treatment, new methods of fertility preservation are required in order to provide the best possible care for oncological patients. It was shown that oocytes obtained from ovaries *ex vivo* have the potential for maturation (Revel 2003; Park et.al. 2016;). However, little is known about the competence of such oocytes to development and viable euploid embryos formation. Only three pregnancies have been reported after this procedure, two of which resulted in live births (Prasath et.al. 2014; Segers et.al. 2015; Uzelac et.al. 2015); and nothing is known about the molecular karyotype of these children. Our case for the first time, demonstrates that euploid blastocysts can be obtained in these programs.

We preformed the fertility preservation program for a 30-year-old patient diagnosed with T1N1M0 breast cancer. After unilateral ovariectomy, we cryopreserved the ovarian cortex and identified 33 COCs in the medulla. 6 out of 12 matured oocytes fertilized successfully and 3 blastocysts were formed (5AA; 5BB; 3CC). Genetic investigation for mutations associated with breast cancer using the custom panel of genes (TP53, MLH1, MSH2,MSH6, PMS2, EPCAM, APC, MUTYH, CDKN2A, CDK4, ATM, KIT, PDGFRA, CDH1, CTNNA1, PRSS1,SPINK1, BRCA1, CH, CP, CHF1, CPSS, PDHF1, CDH1, CTNNA1, PRSS1, SPINK1, BRCA1, mar, mar, CP, CHF1, CPNF1 FANCL, PALB2, RAD51B, RAD51C, RAD54L, RAD51D, CHEK1, CHEK2, BRIP1, PPP2R2A,BARD1, PARP1, STK11, XRCC3) found that patient is not a carrier. Though, preimplantation genetic testing was performed only for anneuploidies and found all 3 blastocysts to be euploid (seq(1-22)x2,(X,Y)x1; seq(1-22)x2,(X,Y)x1; seq(1-22,X)x2) and suitable for embryo transfer.

Our study showed that the ovarian tissue oocytes matured *in vitro* have the potential for blastocyst formation after ICSI. These embryos could be screened for aneuploidies and inherited mutations and then be vitrified in order to provide the best fertility preservation strategy for women with cancer.