

## Ovarian tissue transplantation: the 8 case experiences of single fertility preservation center in Japan



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### Background

Ovarian tissue cryopreservation / transplantation (OTC/OTT) has been widespread globally, and more than 130 live births have been reported so far. However, it is still in the experimental status even though it is the only fertility-preserving therapy for prepubertal pediatric patients, and it is also indicated for hormonally sensitive cancer types and diseases that cannot be delayed. Here we summarized 8 cases of OTT in our center.

### Purpose/Method

To evaluate the outcome of cryopreserved-thawed ovarian tissue transplantation for 8 patients in a single Japanese center, we conducted a retrospective study using data of 8 female patients who underwent OTT and summarized the result with primary disease, menstrual cycle before and after OTT, the result of COS, the transplantation site and the cancer recurrence.

### Result

case	1	2	3	4	5	6	7	8
Primary dis.	MMK	MMK	MMK	MMK	MMK	MMK	MMK	MMK
Age of OTC (AMH (ng/ml))	33 (5.31)	39 (28.4pM/ml)	41 (0.72)	36 (3.82)	29 (41.6pM/ml)	38 (0.52)	34 (4.20)	34 (0.01)
Mens. Cycle before OTT	Reg.	Irreg.	none	none	Reg.	Irreg.	Reg.	Reg.
Age of OTT (AMH (ng/ml))	36 (0.01)	44 (<0.01)	46 (0.02)	41 (0.16)	36 (0.02)	43 (0.04)	41 (0.21)	38 (0.90)
Treatment	CT+HT	CT+HT	CT+RT+HT	CT+RT+HT	CT+RT+HT	CT+RT+HT	CT+RT+HT	CT+RT+HT
No. of cryopreserved/ transplanted cortex pieces	17/6 (35.3%)	14/14 (100%)	9/6 (66.7%)	14/9 (64.3%)	26/17 (65.4%)	8/8 (100%)	18/18 (100%)	13/13 (100%)
Implantation site	hetero- + orthotopic	hetero- + orthotopic	hetero- + orthotopic	hetero- + orthotopic	hetero- + orthotopic	hetero- + orthotopic	orthotopic	orthotopic
AMH (ng/ml) after OTT	0.02 (40month)	0.02 (12month)	0.02 (13month)	0.03 (4month)	0.71 (16month)	-	0.09 (1month)	-
Follicle development after OTT	+	+	+	+	+	+	+	+
recurrence	-	-	-	-	-	-	-	-
pregnancy	+	-	-	-	+	-	-	-
	(spontaneous- ongoing)				(spontaneous -abortion)			

Out of 113 cases of OTC (vitrification method) performed in our center from 2010 to August 2019, 8 cases(7%) underwent OTT. OTT was performed on average 5.6 years after OTC.

### Discussion/Conclusion

Without serum AMH level increasing, OTT showed resumption and improvement of menstrual cycle and follicular development by COS even in the patients with amenorrhea/irregular menstruation, suggesting the positive effectiveness of OTC/OTT. Although the slow freezing protocol for OTC is the global standard, we experienced cases that improvement of ovarian function through OTT with tissues cryopreserved using vitrification protocol. Also we confirmed follicle growth from ovarian tissue in the omentum, in spite of that 90% of Live birth was born in orthotopic transplantation (Ladanyi C. et al, JARG,2017).

To assess the effectiveness of our procedure, it is considered necessary to accumulate more cases.

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