Purpose

• Ovarian tissue cryopreservation (OTC) is the only available fertility preservation method for prepubertal patients and patients who cannot delay treatment.
• Research is limited regarding offering OTC in setting of primary ovarian tumor or ovarian metastasis.
• Cryopreserved ovarian tissue may pose some risk of reseeding malignancy, however, there is demonstrated patient interest in fertility preservation in cases of ovarian tumor.
• These cases describe OTC in setting of pediatric ovarian tumor and metastasis.

Methods

• Laparoscopic right oophorectomy performed in 4-year-old prepubertal girl with primary ovarian Sertoli-Leydig cell tumor and DICER1 variant and 13-year-old prepubertal girl with metastatic ovarian rhabdomyosarcoma following appropriate fertility preservation counseling.
• Bisected ovary section of 4-year-old girl and punch biopsy of ovary of 13-year-old girl examined by pathology and processed for cryopreservation.

Results

Case One: Primary Ovarian Sertoli-Leydig Tumor

• No residual tumor identified on bisected ovary specimen in 4-year-old patient.
• After extensive discussion, family opted to store cryopreserved tissue for future use knowing risks and options for use of tissue.

Case Two: Ovarian Metastasis in Rhabdomyosarcoma

• Germ cell-containing follicles and unknown metastasis of rhabdomyosarcoma identified on 4-mm punch biopsy in 13-year-old patient.
• After extensive discussion, family opted to store cryopreserved tissue knowing risks and potential future fertility preservation technologies to safely utilize tissue.

Discussion

• Individual diagnoses determined size of sufficient tissue for histologic evaluation (Figure 2).
• For presumed normal ovaries, punch biopsy recommended for pathology prior to OTC processing in case of discovery of metastasis.
• For primary ovarian tumors, bisected ovary recommended for pathology prior to OTC processing to decrease likelihood of using malignant tissue in future.
• Both patients chose cryopreservation of tissue.

Advancements in re-implantation of ovarian tissue, in vitro maturation, or in vitro fertilization indicate viability of future tissue usage even with ovarian malignancy.

Conclusion

• Incorporating OTC alongside standard of care for all patients with fertility-threatening diagnoses, including ovarian tumor.
• Routine pathology alongside oophorectomy to identify ovarian metastasis and inform future tissue use.
• Thorough discussions with patients and families required prior to decision of long-term storage, especially in diagnoses involving ovary.
• Necessity and importance of OTC and flexibility of multidisciplinary team in setting of fertility preservation.

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