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T-SHAPED UTERINE CAVITY MORPHOLOGY AS ASSESSED BY THREE-DIMENSIONAL ULTRASOUND (3D US) IS ASSOCIATED WITH LOWER SUSTAINED IMPLANTATION RATES AND HIGHER CLINICAL LOSS RATES FOLLOWING FROZEN EMBRYO TRANSFER.

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OBJECTIVE: T-shaped uterine cavity morphology has been associated with poor reproductive performance in the general obstetric population. The objective of this study is to determine if there is an association between uterine cavity morphology as diagnosed by 3D US and pregnancy outcomes following frozen embryo transfer (FET).

DESIGN: Prospective observational study

MATERIALS AND METHODS: Between April and December 2017, patients planning to undergo FET of a single euploid embryo were recruited to undergo a 3D US examination on the day prior to scheduled embryo transfer. 3D US images were independently reviewed by five physicians and assigned a uterine cavity morphology based upon an established classification system 1: 1) normal triangular morphology, 2) intermediate morphology, defined as moderate distortion of the cavity due to narrowing of the lateral walls, or 3) T-shaped morphology. Fleiss's k statistic was used to determine the degree of inter-observer agreement. Pregnancy outcomes were recorded prospectively and compared on the basis of uterine cavity morphology using chi square analysis or Fisher exact test as appropriate.

RESULTS: Six-hundred-ninety-nine patients were enrolled in the study. Forty-eight were excluded on the basis of poor quality 3D US images, leaving 651 for analysis. The prevalence of a T-shaped cavity morphology was 1.5% (k $\frac{1}{4}$ 0.24). Nine patients who did not have an embryo transfer due to suboptimal endometrial thickness (n $\frac{1}{4}$ 2) or failure of the embryo to survive the warming process (n $\frac{1}{4}$ 7) were excluded from analysis. Patients with a T-shaped uterus had a lower sustained implantation rate and higher clinical loss rate compared to those with normal or intermediate uterine cavity morphology. There were no differences in pregnancy outcomes between patients with normal and intermediate uterine cavity morphology.

CONCLUSIONS: T-shaped uterine cavity morphology is associated with lower sustained implantation and higher clinical loss rates following FET. Given its success in improving pregnancy outcomes for other patients with a T-shaped uterus², hysteroscopic metroplasty warrants further consideration in the IVF patient population. References: 1. Puente JM, Fabris A, Patel J, et al. Adenomyosis in infertile women: prevalence and the role of 3D ultrasound as a marker of severity of the disease. *Reprod Biol Endocrinol* 2016;14(1). 2. Di Spiezio Sardo A, Florio P, Nazzaro G, et al. Hysteroscopic outpatient metroplasty to

expand dysmorphic uteri (HOME-DU technique): a pilot study. *Reprod Biomed Online* 2015;30:166-74.