IMPACT OF ENDOMETRIAL CAVITY FLUID ASPIRATION ON LIVE BIRTH RATES IN FROZEN EMBRYO TRANSFER CYCLES AS COMPARED TO SPONTANEOUS FLUID RESOLUTION: A RETROSPECTIVE COHORT STUDY

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Background:
The presence of endometrial cavity fluid (ECF) near or at the time of embryo transfer (ET) is associated with detrimental effects on embryo implantation, decreased clinical pregnancy rates, and increased assisted reproductive technology cycle cancellation rates[1]. ECF is related to tubal factor infertility (hydrosalpinx), subclinical uterine infection, cervical canal obstruction, polycystic ovarian syndrome, endometriosis, and physiological ECF due to ovarian stimulation[1]. ECF detection occurs by ultrasonography, and several treatment modalities are utilized depending on the nature of the ECF. For transient ECF, treatment is expectant management[2]. For persistent ECF, postponement of ET, endometrial cavity optimization via medical and surgical management, and modification of frozen embryo transfer (FET) protocols are utilized[2]. While studies have demonstrated no significant reduction in embryo implantation rates after ECF aspiration in fresh embryo transfer, it remains unknown what impact aspiration has on live birth rates in FETs.

Objective:
To compare the effect of ECF aspiration versus spontaneous resolution on live birth rate (LBR) in FET cycles.

Materials And Methods:
This single academic center, IRB-approved, retrospective cohort study was conducted on patients with ECF present on transvaginal ultrasound evaluation within five days preceding FET from March 2020-December 2022. Exclusion criteria included absence of ECF during FET cycle, >1 embryo transferred, and persistent ECF at time of transfer. In patients where ECF was identified and aspirated prior to FET, ultrasound-guided aspiration was performed using an embryo transfer catheter or intrauterine insemination catheter, based on provider preferences. The primary outcome was to determine if LBR was statistically different ($p<0.05$) in those with spontaneous resolution versus aspiration. Statistical analysis utilized Mann-Whitney and Fisher's Exact tests.

Results:
1,148 FET cycles occurred during the study period with 43 cycles found to have ECF present prior to FET. Of the 43 patients with ECF, 10 (23.3%) patients underwent aspiration, while 33 (76.7%) patients experienced spontaneous resolution. LBR was 30% (3/10) in the aspiration group and 39% (13/33) in the spontaneous resolution group. No significant differences in LBR were found between the two cohorts ($p=0.72$). Among patients where no ECF was detected, LBR in women <35 years old, ages 35-37, and ages 38-40 were 46.9%, 47.9%, and 17.2% respectively.

Conclusions:
Our findings indicate that live birth rates are not statistically different whether ECF resolves spontaneously or through aspiration prior to ET. Notably, when compared to cycles with no ECF present on ultrasound, live birth rates are lower in both spontaneous resolution and aspirated groups. Regardless, aspiration is a technique that can be considered for resolving persistent ECF prior to transfer. To substantiate these results, larger-scale prospective studies are warranted.

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