BROUGHT TO YOU BY
YTP CHAIRPERSON
Dr. Neharika M Bora
MD(obgyn), DRM Germany
Rainbow IVF, Agra

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Author - Dr. Reema Sircar
M.D. (obgyn), MRM (London)
Senior IVF Consultant and
Obstetrician Gynaecologist
Indira IVF Hospital, Prayagraj

Fluid in Endometrial Cavity

Introduction

Presence of fluid in the endometrial cavity at the time of embryo transfer has gained attention as a potential marker of embryo implantation and has been shown to be associated with poorer implantation rates as well as clinical pregnancy rates in many studies.
(Figure 1)

Figure 1

Incidence

of fluid in endometrial cavity (FIC) in IVF cycles ranges from 3-8%.

Etiology

Broadly, the causes can be divided into tubal and non-tubal factors
(Figure 2)

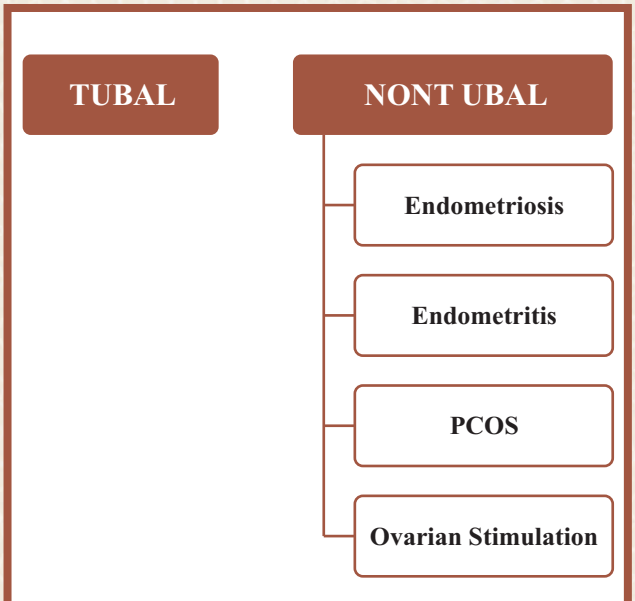
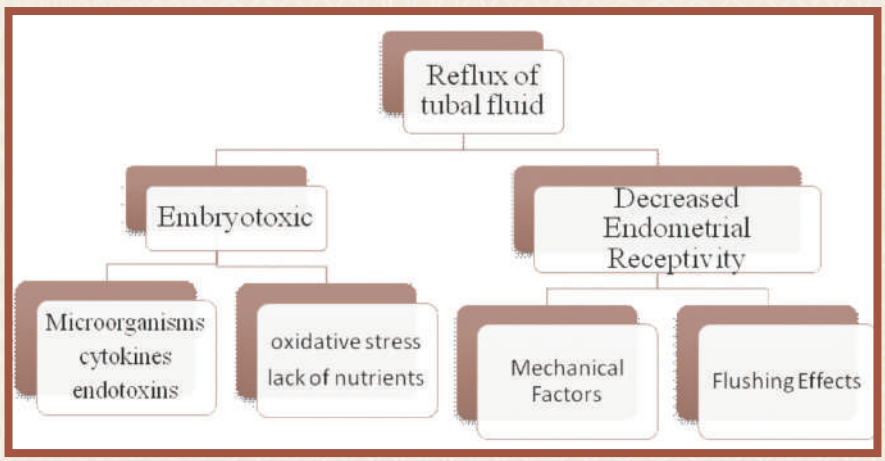


Figure 2

How Fluid in Endometrial Cavity Affects Implantation

Presence of fluid inside endometrial cavity is detrimental to embryo implantation. Various explanations for the deleterious effects of fluid include :

- It interferes with the attachment of the embryo to the endometrial surface and thus adversely affects the early stages of embryo implantation such as "apposition" and "attachment."
- Tubal fluid also Impairs endometrial receptivity due to decreased expression of $\alpha v\beta_3$ integrin.
- Release of intrauterine cytokines, prostaglandins, and other inflammatory compounds directly into the endometrium.
- There might be some embryotoxic substances existing in the fluid, as in hydrosalpinx fluid but this mechanism is still controversial.



Management will depend upon :

1. Etiology
2. Amount of fluid collection
3. Timing of development of the collection

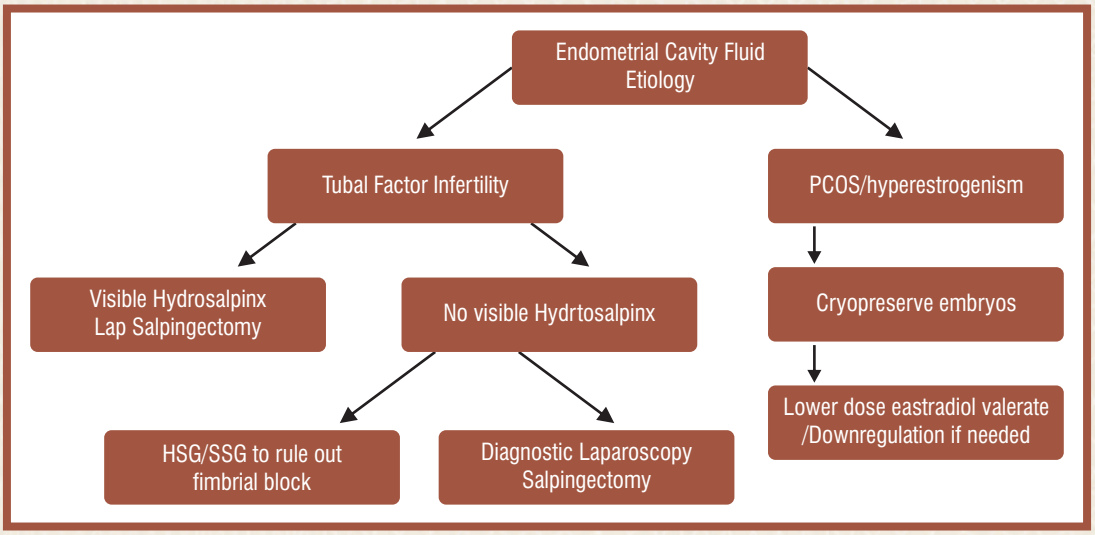
1. Etiology- Correct the factors that lead to fluid accumulation:

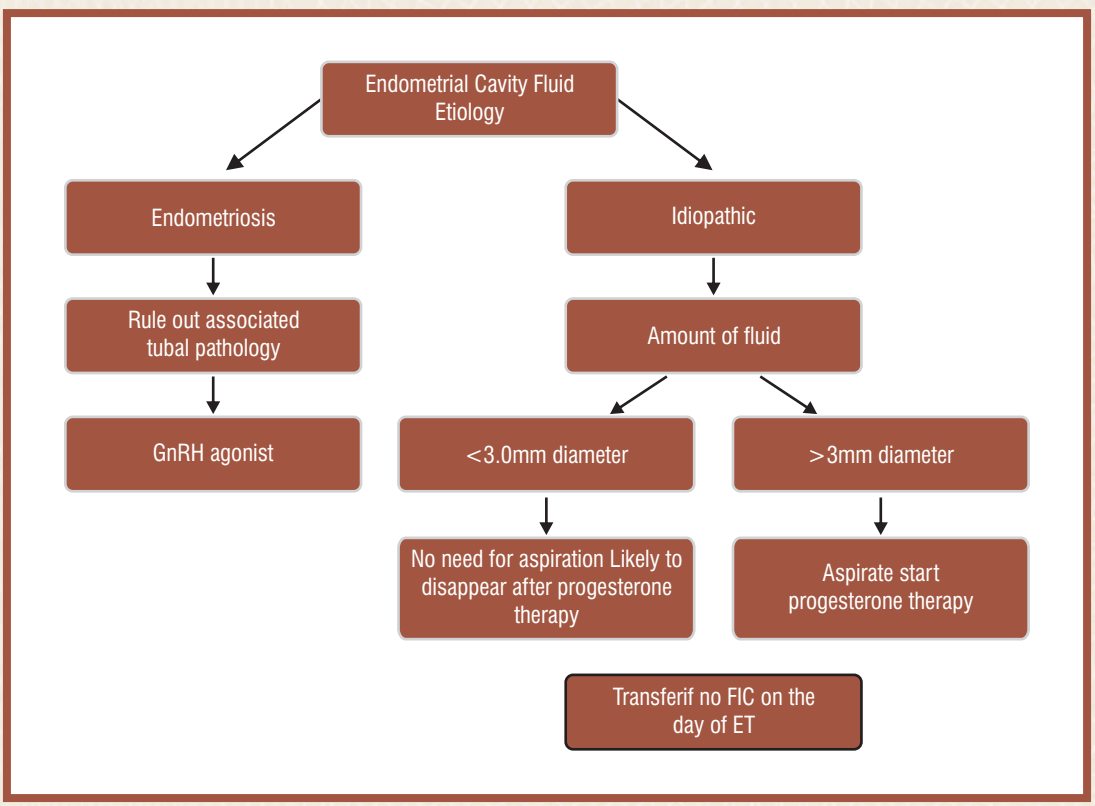
- Rule out hydrosalpinx in baseline TVS prior to initiation of IVF cycle. Salpingectomy or proximal tubal interruption(Tubal Clipping) has been found useful.
- Cervical dilatation and trial embryo transfer recommended for women with cervical stenosis and a history of difficult embryo transfer.
- In patients with fluid accumulation in the previous cycles but without any pelvic pathology, fluid may be sent for culture sensitivity and antibiotics given accordingly. Endometrial biopsy may be done to rule out genital tuberculosis.

2. Amount of fluid collected:
   AP diameter of the collected fluid > 3mm - Aspirate by using a soft transfer catheter under ultrasound guidance and progesterone started the same day.
   AP diameter of the fluid collection <3mm - No need to aspirate.The fluid is likely to disappear with the start of progesterone therapy and embryo transfer may be carried out as scheduled if there is no fluid on the day of ET.

3. Timing of development:

- fluid accumulation found before HCG administration -Cancel cycle, cryopreserve embryos until a favourable cycle.
- fluid accumulation found after HCG administration – Aspirate
  When fluid accumulation is noted before embryo transfer, transmyometrial embryo transfer may be analternative method, yet the effectiveness is unproven.





Conclusion

Fluid accumulation within the uterine cavity during IVF treatment mainly occurred in patients with tubal infertility but can also be observed in patients with non-tubal factors. Although not a common complication, the presence of uterine fluid is detrimental to embryo implantation. Serial transvaginal ultrasonography evaluation of both the endometrium and uterine cavity is necessary during the entire treatment cycle to avoid transferring embryos into an unfavourable uterus.