



**ORIGINAL RESEARCH PAPER**

**Gynaecology**

**THIN ENDOMETRIUM AND PREGNANCY OUTCOME**

**KEY WORDS:** Thin endometrium, PRP, Pregnancy

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**ABSTRACT**

**SUMMARY:** Platelet rich plasma (PRP) helps in regenerating endometrium by regulating certain cellular processes. Therefore, subendometrial platelet rich plasma therapy is widely used for the treatment of thin endometrium. Despite thin endometrium, receptivity of endometrium plays a vital role in giving us a hope for successful pregnancy in these patients. Hence, a molecular diagnostic test called endometrial receptivity array (ERA) is used to analyse the endometrium receptivity. The combination of PRP and ERA increases the rate of implantation and thereby increasing pregnancy rate. **BACKGROUND:** Pregnancy in IVF cycles is possible only with the availability of good-quality embryos and a healthy receptive endometrium. In case of IVF treatment, lower pregnancy rates were associated with thin endometrium. When the endometrium thickness is found to be "thin", decision has to be made by the physician/patients in proceeding the cycle for transfer. Different factors lead to decreased endometrial thickness. They are classified as inflammatory, iatrogenic and idiopathic. Despite the variability of causes, the outcomes of this state are similar: decreased implantation & pregnancy rates and increased miscarriage frequency. However, despite thin endometrium, receptivity of endometrium plays a vital role in giving us a hope for successful pregnancy in these patients.

**CASE PRESENTATION**

A 41-year-old patient reported to ARC International Fertility Centre in January 2020 with history of infertility for 14 years. She was a diabetic and hypothyroid patient on medications. She had regular menstrual cycles. She also gave a history of 3 IUI failures and 1 ICSI failure with own gametes outside. She also gave a history of anterior wall 4x5 cm fibroid (myomectomy) surgery 3 years back. On clinical examination, she was obese with BMI of 28 kg/m<sup>2</sup>. On basic evaluation, her sugars, thyroid and serum prolactin were normal. On baseline pelvic examination, her uterus was adenomyotic and her antral follicles were 2. Her AMH was 0.1. After giving her a good pre-IVF counselling, she opted for oocyte donation program. The partner's semen analysis had teratozoospermia with low DFI. Hence ICSI was proceeded and she had 2 grade A blastocysts. Then she underwent diagnostic hystero laproscopy and had left tubal ligation done for gross hydrosalpinx. Her endometrial preparation was started by giving luperide 3.75mg in luteal phase of previous cycle in view of her adenomyotic uterus. With gradual titration of progynova tablets, we could reach an endometrial thickness of only 4.7mm on 15 days of starting the cycle. Cancellation of the cycle was done. In the next cycle, we tried with direct hormone replacement therapy with maximum dose of progynova up to 16mg/day. 3 doses of granulocyte colony stimulating factor (GCSF) had been given to the patient during her endo preparation. Her endometrium reached around 5mm thickness after 18 days of progynova. Having doubts on her endometrial receptivity with such thin endometrium, she was offered endometrial receptivity array. Her endometrium was found to be receptive on (P+7). She was also given sub-endometrial platelet rich plasma therapy on her endometrium. Her endometrial TB-PCR was also negative. After explaining her that she has been given all the best possible treatment for thin endometrium, we proceeded with transfer of 2 Blasts on (P+7). Her endometrial thickness was 4.2 to 4.3 mm on the day of transfer. The transfer was smooth. The catheter was clean. The embryos were placed in upper cavity of 24 sec. Adequate Luteal phase support was given. βHCG was found to be 1500 after 15 days of post transfer. At 6+5 days, we are happy to find a twin gestation with good fetal cardiac activities. She was followed carefully throughout her pregnancy.



**Gross hydrosalpinx**

**OUTCOME AND FOLLOW-UP**

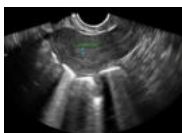
Post embryo transfer, luteal support had been given for 14 days. Beta HCG was taken on d15 and value was found to be >1500. The ultrasound showed twin gestations. Successfully after completing the treatment, the patient delivered twin male babies at 36 weeks of gestation each weighed 1.89 and 1.49 kgs respectively. The babies are under exclusive breastfeeding and their health is fine.

**DISCUSSION**

A thin endometrium is encountered infrequently (2.4%) in assisted reproductive technology cycles. A thin endometrium is seen more often in older women probably because of decreased vascularity. An incidence of 5% has been reported in women <40 years and 25% beyond age forty. Probability of pregnancy is reduced with an endometrial thickness below 6mm. The reasons for low implantation could be a high impedance blood flow of the radial arteries leading to poor endometrial glandular growth and poor angiogenesis subsequent to decreased VEGF secretion. In addition to lower implantation, the process of invasion may be hindered due to the lack of an adequate endometrial bed. Application of ERA revealed that 75% of them had displaced window of implantation. By going ahead with personalized ET in patients with persistently thin endometrium, the pregnancy rate of 66.7% will be achieved in this group. In our case, we had taken all measures and added all adjuvants to improve the endometrial thickness. As a final resort, PRP injection into the subendometrial region was instilled hoping for the regeneration of the endometrium from the endomyometrial junction with close and vigilant monitoring, we were able to achieve a successful pregnancy.

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**Scan of thin endometrium**

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