

Novel Intraovarian Platelet Rich Plasma Therapy in a patient with failed IVF

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Case Report:

- A 36-year-old married lady P0A1 with secondary infertility with low egg reserve (AMH :0.4ng/ml Poseidon group 4) with 3 unsuccessful cycles of IVF underwent *a novel ultrasound-guided autologous Intraovarian Platelet Rich Plasma Therapy (PRP)* for ovarian rejuvenation before her 4th IVF cycle that resulted in a successful pregnancy.
- First IVF (December 2022), Controlled Ovarian Simulation (COS) was done using conventional flexible antagonist protocol where 5 eggs were retrieved and subsequently Frozen Embryo transfer of one grade 3AA and one grade 2BB blastocyst (European embryo grading system ESHRE) was done. However, that resulted in a negative cycle.
- In March 2024, in her second attempt, COS was done using the Stop Protocol :4 eggs were formed and fresh transfer of two blastocysts of grade 3AA and 3AB was done, which resulted in another unsuccessful cycle.
- In her 3rd IVF (May 2024), COS was again done using the conventional flexible antagonist protocol and there was a suboptimal response -2 eggs were retrieved. However, no blastocysts formed. Subsequently, all options, including a novel ultrasound-guided autologous Intraovarian PRP therapy, were discussed as an adjunct to improving outcomes using her own eggs as she was not keen on opting for a donor egg cycle.
- In August 2024, six weeks prior to her 4th IVF, she underwent Ultrasound-guided autologous Intraovarian PRP under short general anesthesia, injecting 2-4ml of prepared solution into the ovarian cortex and medulla of both ovaries at multiple sites using a 35cm 17 G double lumen needle in the follicular phase of her cycle.
- In October 2024, her 4th IVF cycle COS was done with STOP Protocol, which resulted in improved embryo quality, and she underwent a fresh day 3 embryo transfer of three Grade 1 embryos, which led to a successful ongoing pregnancy.

Conclusions:

- This approach highlights the expanding horizons of autologous Intraovarian PRP therapy in women with low ovarian reserves and suboptimal responses in IVF who desire own genetic parenthood.
- This **promising therapy** in our case resulted in improved embryo quality and **a successful ongoing pregnancy** after **multiple failed IVF attempts**. However, further robust studies are needed to confirm this emerging therapy.

Discussion:

- The incidence of women with diminished ovarian reserve presenting in IVF clinics is on the rise posing significant management challenges-particularly amongst those seeking to achieve self genetic parenthood.^{1,2}
- Autologous Intraovarian Platelet-rich plasma (PRP) therapy has been proposed as a new **innovative add-on therapy** to potentially **delay ovarian senescence** in women with **low ovarian reserve**.
- PRP therapy exerts its regenerative effects primarily via growth factors like transforming growth factor- β and insulin-like growth factors 1 and 2 (IGF-1 and IGF-2) among others that stimulate cell differentiation, proliferation, migration, and angiogenesis,thereby promoting tissue regeneration^{1,2}
- Several studies have demonstrated that intra ovarian PRP injection in women with low egg reserves/ poor ovarian responses can lead to increased number of retrieved oocytes, improved embryo quality, and has promise to enhance the prospect of pregnancy as seen in our case.³

Reference:

- 1.<https://doi.org/10.18203/2320-1770.ijrcog20250037>
- 2.<https://www.cureus.com/articles/226205-enhancement-of-ovarian-reserve-and-oocyte-quality-after-platelet-rich-plasma-instillation-in-a-woman-with-diminished-anti-mllerian-hormone#!/>
- 3.Yu, TN., Chen, MJ., Lee, TH. et al. Intraovarian platelet-rich plasma injection significantly improves blastocyst yield and quality in IVF patients. Sci Rep 15, 1301 (2025).
<https://doi.org/10.1038/s41598-024-82630-1>