

CASE REPORT: SUCCESSFUL OOCYTE MATURATION WITH IN VITRO MATURATION (IVM) AND FERTILIZATION WITH ARTIFICIAL OOCYTE ACTIVATION (AOA) AFTER REPEATED FAILURES IN STANDARD IN VITRO FERTILIZATION TREATMENT

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Abstract Body

Introduction:

Deficiencies in gametes and their supporting cells can cause increased incidence of fertilization failure and immature oocytes resulting in poor IVF cycle outcomes. AOA is used to overcome fertilization failure through initiation of intracellular calcium ion oscillations. IVM is utilized for patients with resistant ovary syndrome, high antral follicle counts, fertility preservation and deficient oocyte maturation.

Case presentation:

Here, we present a case of a couple with repeated stimulated cycles of poor oocyte maturation, fertilization and subsequent embryo development. IVF treatment with IVM and AOA was performed.

In the first cycle, 6 oocytes were retrieved. 1 metaphase II (MII) oocyte was subjected to intracytoplasmic sperm injection (ICSI) but failed fertilization. The remaining germinal vesicle (GV) oocytes remained immature after overnight culture. In the second cycle, 7 oocytes were retrieved. 1 MII oocyte was injected and placed in GM508 CultActive (Gynemed) to initiate AOA. The remaining GV oocytes remained immature after overnight culture. Fertilization was achieved and a Day 2 embryo transfer was performed with no resultant pregnancy. In the third cycle, 11 oocytes were retrieved. 1 MII oocyte was injected and resulted in fertilization failure. The immature oocytes were cultured in Medicult IVM System (Cooper Surgical). 4 oocytes matured at 24 hours; 1 oocyte matured at 48 hours and were injected and placed in CultActive. Fertilization was achieved with 2 oocytes, resulting in usable cleavage stage embryos that arrested upon further culture. Hence, no freezing was performed.

Conclusion:

This case, is the first to our knowledge, which illustrates that IVM and AOA can be utilized together to overcome recurrent failure of oocyte maturation and fertilization in stimulated cycles. Further investigation would shed light on the reasons of embryo development arrest.