

**Original Articles*****Reproductive Biology Section***

# A case whose outcome is consistent with the possibility that if slow embryo cleavage is related to a male factor the prognosis is far greater than if it was related to an egg factor

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**Summary**

**Purpose:** To determine if the male partner's sperm can be the cause of embryos with slow cleavage. **Methods:** Retrospective evaluation of shared donor oocyte pairs where two women shared one pool of oocytes from an oocyte donor. **Results:** Only one woman formed embryos that were all < 6 blastomeres in 376 paired cycles (total 752). With one previous IVF cycle where she formed only two embryos (5-cell and 4-cell) this woman had in five embryos formed all < 6-cells and four of five only 4-cells on day 3. In contrast, the woman who was donating half of the oocytes but had her half fertilized by her own male partner's sperm had only one of three with < 6-cells. **Conclusions:** This study suggests that rarely the sperm may be the reason for slow cleaving embryos.

**Key words:** Slow embryo cleavage; High implantation rates; Sperm.

**Introduction**

When women despite in vitro fertilization-embryo transfer (IVF-ET) produce embryos of poor quality on day 3 as evidenced by slow cleavage or a high degree of fragmentation the etiology is generally considered to be related to poor egg quality.

There is evidence that in some instances the etiologic factor in women who repeatedly make very fragmented embryos may be the sperm [1]. The way this was determined was evaluating a woman who consistently made high fragmented embryos when she was undergoing multiple cycles of IVF-ET. To test if the problem was the sperm or egg she donated half of the eggs retrieved to another woman for free; the embryos formed from the egg recipients' male partner showed very little fragmentation whereas once again the embryos formed from the aforementioned woman and her husband were highly fragmented [1]. Interestingly despite repeated failures to conceive by the couple who donated the eggs, the three embryos transferred to the recipient resulted in live healthy triplets and the three frozen embryos transferred anonymously to another woman (she donated her embryos) resulted in live healthy twins [1].

A recent publication of a single embryo transfer in women with diminished egg reserve showed that slow cleavage was a much better prediction of low pregnancy rates than degree of fragmentation [2]. A search of 376 paired donor egg cycles, where one harvest of donor oocytes was shared by two different women with two dif-

ferent male partners was made and only one male partner was found that could fulfill the criteria where one could state that possibly a male factor was responsible for slow cleavage of embryos. This case is described herein.

**Case Report**

A 43-year-old woman married to a 43-year-old male had one cycle of IVF-ET because of blocked fallopian tubes. She only had two embryos that cleaved to only 5- and 4-cells each, on day 3. They transferred these embryos and a pregnancy was achieved. However, she miscarried a trisomy 13 fetus.

The couple decided that because of her age and high risk of miscarriage and lower chance of conception even with IVF-ET that they would opt for donor eggs. They chose an infertile donor [3].

The infertile donor transferred three embryos with 4-, 6-, and 8-cells, respectively on day 3. However, this 43-year-old recipient's embryos only cleaved to a 4-cell stage and transferred these 4-cell embryos. The recipient conceived and delivered healthy twins.

**Discussion**

Thirty-five percent of single embryo transfers in the aforementioned study had embryos with 4- or 5-cells [2]. Thus the odds of all five embryos having 4- or 5-cells is only about 0.4%. Thus finding one case in 752 evaluated cycles could be related to chance alone.

Certainly by the number of pairs evaluated, and only finding one possible case where all embryos had slow cleavage in one woman sharing the eggs but not the other, would suggest that if a male factor can be a cause of slow cleavage of embryos, it is not common.

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Nevertheless, though unusual, this case is consistent with the possibility that sperm can sometimes (but rarely) be the cause of slow embryo cleavage. If this is so then the fact that the woman had an implantation rate of 60%, suggests that if slow cleavage is related to the sperm rather than the egg, the prognosis for conception may be much better than when the cause is the oocyte.

## References

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