

A second successful pregnancy using oocytes from a woman with premature ovarian failure with embryos transferred to a gestational carrier

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Summary

Purpose: To describe a second successful pregnancy in a woman with premature ovarian failure who was successfully able to induce ovulation by restoring down-regulated follicle stimulating hormone (FSH) receptors, by lowering elevated FSH by inhibiting FSH release from the pituitary, by using ethinyl estradiol with subsequent stockpiling of embryos following in vitro fertilization (IVF) for subsequent future transfer to a gestational carrier. **Materials and Methods:** A day 3 eight-cell embryo obtained from a fertilized oocyte 10.5 years before was transferred to a gestational carrier. **Results:** The gestational carrier conceived and she successfully carried to six months to date. **Conclusions:** This is the first case of two successful pregnancies from the same woman with premature ovarian failure. Also, this is the longest an embryo derived from a woman in ovarian failure has been frozen leading to a successful pregnancy.

Key words: Premature ovarian failure; Ethinyl estradiol; Gestational carrier; Frozen embryo transfer; Down-regulated FSH receptors.

Introduction

In 1984 a technique was described in which estrogen, especially ethinyl estradiol, could be used to restore down-regulated follicle stimulating hormone (FSH) receptors by suppressing high serum FSH, thus restoring follicular sensitivity and leading to ovulation and even pregnancies [1]. By 1990 results of 100 consecutive cycles using this technique was reviewed in women with ovarian failure (not all premature) and successful pregnancies were reported [2]. The advantage of ethinyl estradiol (usually starting at 20 mcg/day) in that it is a potent estrogen able to suppress FSH release from the pituitary with just one pill, and even more important, it does not contribute to the serum estradiol enabling proper follicular maturation [3, 4].

In 2009 a case report was published about a successful delivery from the transfer of frozen-thawed embryos obtained from a woman in premature ovarian failure (POF) into a gestational carrier because the woman with POF was taking cyclophosphamide for Crohn's disease [5]. The authors report a second successful pregnancy following a frozen embryo transfer again using oocytes obtained from the same woman in ovarian failure [5]. The gestational car-

rier successfully achieved a pregnancy following the transfer of an eight-cell embryo on day 3 created from the woman with POF when she was 38-years-old.

Case Report

As previously reported, the woman obtained an oocyte in 15 of 19 oocyte retrievals [5]. The same gestational carrier was used for this next transfer. The embryos had been frozen 9.5 and 10.5 years before. A single embryo was thawed and an eight-cell embryo was transferred. She delivered a full term healthy baby.

Discussion

A review of methods to reverse ovarian failure and pregnancy success has been recently published [6]. Even more recently a review of outcome of in vitro fertilization-embryo transfer from women in POF was published [7].

This case has several unique features. This is the longest that an embryo has been frozen from a woman with POF that resulted in successful pregnancy. This is believed to be the first case of two successful pregnancies from a woman with POF. There have been two case reports of three babies born eight years apart in women with elevated day 3 serum

FSH, but these women had diminished oocyte reserve, but they were not in ovarian failure [8,9].

The woman with POF was willing to undergo 19 oocyte retrievals to obtain her dream of children with her own genetic constitution [5]. In fact, because her ovaries were out of position for transvaginal oocyte retrieval, she had 19 abdominal oocyte retrievals [5]. Prior to consulting the present group, all other infertility consultations advised her that her only chance for success would be with donor oocytes. This case exemplifies that “physicians should be more open-minded about performing IVF-embryo transfer in women with diminished oocyte reserve and consider the couples wishes and desires” [10]. One could question how she could afford 19 oocyte retrievals. Interestingly, a barter was made – unlimited IVF cycles in exchange for the use of 29 leukemia cell lines for cancer research from her father who was a Ph.D. studying protein synthesis of leukemia cell lines. This “trade” has not only led to two successful pregnancies but an important discovery in cancer research [11].

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