

Spontaneous pregnancy occurring in a donor oocyte cycle: A case report

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Introduction

Oocyte donation has been widely applied to achieve pregnancy in women with low ovarian reserves since the early report by Trounson *et al.* [1]. The endometrium can be well prepared by exogenous hormones, sometimes even better than endogenous ones when their levels are inadequate to accept and support a growing embryo [2]. In this report we present an infertile patient, with documented low ovarian reserves, who got pregnant spontaneously while having a donor egg cycle with embryo transfer.

Case report

G.A. is a 43-year-old woman who was referred to the oocyte donation program of the IVF unit at the American University of Beirut – Medical Center with the following history: primary infertility of three years duration with normal semen analysis, normal hysterosalpingogram and normal laparoscopy findings. A clomiphene citrate challenge test showed FSH = 15.3 mIU/ml on day three and FSH = 23.3 mIU/ml on day 10.

Two controlled ovarian hyperstimulation attempts, requested by the patient in spite of counseling her about the poor prognosis, performed for IVF ended in cancellation due to a very poor response with only one follicle developing in each attempt. Mid-luteal GnRH agonist with 600 IU/day of human menopausal gonadotropin (Pergonal, Serono, Rome, Italy) were given in the first attempt, and flare-up GnRH agonist with 600 IU/day of pure FSH (Metrodin, Serono, Rome, Italy) were given in the second one.

The patient was prepared for oocyte donation according to the following protocol: a menstrual cycle was initiated by progestins and then starting the first day of menses one tablet of conjugated estrogen of 1.25 mg (Pregmarin, Wyeth-Ayrest Laboratories, Montreal, Canada) was given daily for seven days, followed by two tablets daily taken for five days and three tablets/day thereafter were given continuously till the availability of the donated eggs which were provided anonymously by a patient who herself was undergoing an IVF procedure.

Donor eggs were available day 20 of the patient's cycle and after fertilizing them with her husband's sperm three embryos were transferred into the uterine cavity. Then the patient was maintained daily on three tablets of Pregmarin and six tablets of

micronized progesterone (Utrogestan, Beins-Iscovesco laboratories, Paris, France). Twelve days after the embryo transfer, β -HCG blood levels turned out to be 1720 mIU/ml. After confirming this high level, an ultrasound done 10 days later, i.e. at 5 weeks, 3 days gestation, showed fetal heart activity and a fetal pole commensurate with 7 weeks gestation. The daily Pregmarin dose was decreased to one tablet and the pregnancy went on with a smooth course. The patient was told that her pregnancy resulted from spontaneous ovulation, coitus and conception and not from the transferred embryos. Later amniocentesis was performed at 16 weeks gestation showing a normal fetus and the pregnancy ended in the birth of a healthy female newborn at 37 weeks gestation.

Discussion

The pregnancy in this donor egg cycle resulted, no doubt, from spontaneous ovulation (possibly between days 10 and 12 of the cycle) and conception. Two unexpected events occurred in this cycle: first, spontaneous ovulation although the patient was having anovulatory cycles over the past few years; second, conception i.e. implantation although the patient previously had several cycles of ovulation induction with or without intrauterine insemination to no avail.

We believe that exogenous estrogen given to prepare the endometrium for the donor egg cycle helped in achieving this spontaneous pregnancy. It is well known that estrogen plays a key role in regulating the menstrual cycle and in achieving ovulation; First, it increases the estrogen FSH receptors on the granulosa cells which helps in the growth of the graafian follicle and the emergence of the dominant follicle. Second, it potentiates the pituitary response to GnRH pulses [3], and third, by its positive feedback, it causes the LH surge which is a prerequisite for ovulation [4]. In addition, estrogen given exogenously helps in improving cervical mucus and in preparing the endometrial lining to become more receptive to embryos than when it is prepared by inadequately produced endogenous estrogen alone [2].

A solid conclusion cannot be drawn from very rare case reports. However, the benefit of exogenous estrogens can be assessed by studying the outcome of assisted reproductive technological cycles in poor responders when these patients are given exogenous estrogens starting very early during controlled ovarian hyperstimulation.

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