

# First Birth Following Natural IVF/ICSI Treatment in Ireland

## Abstract:

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## Abstract

The first reported delivery following a natural cycle ICSI in Ireland is described. This technique has the potential to provide successful treatment for a selected group of patients.

## Introduction

The first successful IVF pregnancy and live birth resulted from an unstimulated, natural cycle(ncIVF)<sup>1</sup>, but soon afterwards this method was replaced by stimulated IVF<sup>2,3</sup>. Controlled ovarian stimulation has potential negative consequences such as ovarian hyperstimulation syndrome(OHSS) and multiple pregnancy. To maximize the chances of pregnancy, multiple embryos are often transferred, resulting in 20-30% multiple pregnancy rates<sup>4</sup>. In IVF<sup>4</sup> the risk of twins is increased 20 fold, and higher-order multiples by about 400-fold compared to natural conceptions. In high risk patients up to 20% of stimulated treatments lead to OHSS.

Although current data are reassuring, the possibility of increased ovarian cancer risk after repeated stimulation remains a concern. Furthermore, the creation of spare embryos from stimulated cycles causes ethical and religious dilemmas. Mild stimulation regimes have been proposed as patient-friendly approaches with a reduced risk of OHSS and pregnancy rates of 17-33% per oocyte retrieval, yet still with multiple pregnancy rates of 5-14%. Additional strategies to restrict the incidence of multiple pregnancy include increased use of elective single embryo transfer and the use of antagonist protocols to significantly decrease the incidence of severe OHSS, yet neither strategy eliminates the risk. In contrast, ncIVF is associated with a negligible multiple pregnancy rate and no risk of OHSS. Natural cycle treatment is not without clinical risks, including exposure to potential surgical complications of oocyte retrieval for unifollicular aspiration, failure to retrieve an oocyte, and no embryo for transfer. The lower pregnancy rate per cycle and the reasons mentioned above could explain why ncIVF has not been accepted widely by reproductive medicine practitioners. We present the first delivery in Ireland following a ncIVF treatment.

## Case Report

A couple with a 2.5 year history of primary subfertility attended for discussion of ART options. The female partner was 36 years old, nulliparous, with a regular cycle (3-4/28-30days). Anti-Mullerian hormone (24.21pmol/L) and day 3 hormone profile were normal. Laparoscopy revealed stage I endometriosis, treated by Argon endocoagulation, and bilateral patent tubes. Her partner had no significant medical problems. Semen analysis showed oligoasthenozoospermia (count 11mil/ml, 40% motility) on the neat sample but an excellent final preparation (9mil/ml, 99% motility) confirming suitability for IUI or IVF. Before commencing IVF they had two unsuccessful intra-uterine insemination (IUI) attempts. The couple were counselled regarding ART options and decided to proceed with a natural cycle treatment. On day 7 a 17mm follicle was evident in the left ovary and endometrial thickness measured 8mm with a triple line appearance. Hormonal profile showed LH=5.3U/L, E2=563pmol/L.

Chorionadotropin-a (Ovitrelle, Merck Serono) 6500IU was administered 32hrs before egg collection and one mature oocyte was retrieved. To reduce the risk of failure to fertilise, ICSI was used rather than IVF as the method of fertilisation. The metaphase II oocyte was injected and cultured in Sage fertilization and cleavage media until day 2 of development. A 4 cells grade 2a embryo was transferred. Luteal support was given for 15 days (Crinone gel 8% b.d., Merck Serono, UK). A positive urinary pregnancy test was noted 16 days post transfer and ultrasound 3 weeks later demonstrated an intrauterine gestational sac with a single fetus (CRL 11.2mm, 7+2/40) with cardiac activity present. Pregnancy progressed uneventfully and a healthy female infant was delivered by vacuum delivery at 39 weeks weighing 8.3 lbs.

## Discussion

Natural cycle IVF is an effective treatment for ovulatory women undergoing assisted conception. Cumulative live birth rates after four cycles can reach 32%, comparable with 34% for conventional IVF<sup>5</sup>. Yet, ncIVF is cheaper, less time consuming requires less medication, and with costs per cycle 20-23% of stimulated IVF<sup>6</sup>. A potential downside of ncIVF is cancellation due to a spontaneous LH surge. Planning oocyte retrieval based on an LH rise requires intense monitoring and potential availability which most laboratories cannot provide. Solutions include the use of indomethacin or GnRH antagonists which may postpone follicular rupture<sup>8</sup>. To date, most ncIVF data is based on treatments offered to poor responders, where the chance of success will be low. The lack of data on younger patients with good ovarian reserve needs to be explored further as high cumulative pregnancy rates should be achievable.

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