Case Report

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Pregnancy after Intraperitoneal Insemination during a Natural Cycle

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Key Words

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Abstract

The success rate after intraperitoneal insemination is also imputed to superovulation protocols. We report here the first case, to our knowledge, of pregnancy following intraperitoneal insemination during a natural cycle.

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Introduction

Intraperitoneal insemination (IPI) has been proposed by various investigators [1–4] as an effective approach to treat sterile couples when the sterility is either of unknown etiology or is due to a male factor or cervical factor. IPI is usually combined with superovulation protocols. It is still uncertain how much the rate of success is attributable to the insemination itself and how much is specifically due to the multiple ovulation induced in the treatment cycle. To our knowledge this is the first report of a pregnancy following IPI carried out during a natural cycle.

Case Report

The patient, aged 28 years, had been sterile for 6 years. Her hysterosalpingography was normal: menstrual cycles regular, between 28 and 30 days; and the postcoital test (repeated 3 times) was negative (0 mobile sperm at the outer uterine orifice, OUO, and at the inner uterine orifice, IUO) 3.5 h after intercourse; the cervical scores according to Moghissi were 15 for OUO and 15 for IUO.

The characteristics of the partner's seminal fluid were normal (1.8 ml, 188×10^6 spermatozoa/ml, lively progressive motility of 50%, eosin test 63%, normal forms 50%). We did an in vitro penetration test according to Kreiner with a negative result (at 3 cm the patient's cervical mucus (score 12) contained three immobile spermatozoa from the partner and 0 donor spermatozoa; the donor's cervical mucus (score 10) contained 50 mobile spermatozoa from the partner at 4 cm).

We postulated sterility due to a female immune factor, and this was supported by the presence of antibodies to sperm in the patient's plasma (Kibrick test).

The couple entered an IPI program during the natural cycle. Follicular and endometrial growth were monitored daily by ultrasound (5 MHz vaginal probe, Kretz Combison 320), and insemination was timed within 24 h of the LH surge, detected with the urinary stick. Intercourse was avoided for 10 days, starting from a follicular diameter of 12 mm. The partner's seminal fluid was treated by the swim-up technique, using Earl's medium with 10% donor's serum added.

On the 15th day of the natural cycle, the patient was inseminated with a total of 7.1×10^6 spermatozoa, with posttreatment progressive motility of 65 and 50% of normal forms. Ten days after IPI the patient's plasma β -HCG started to rise (11.5 mIU/ml on day 10 and 57 mIU/ml on day 12). The patient is currently in the 24th week of pregnancy and the course is apparently normal.

Discussion

IPI programs include superovulation protocols to have a better chance of ovulation and to increase the number of fertilizable oocytes. The main indication for IPI is, in fact, unexplained infertility which probably includes many cases of defective ovulation or lack of release of oocytes. In addition, superovulation plays an important role in IPI because the high estrogen levels result in an increased volume of peritoneal fluid, a condition which appears to facilitate transport and survival of the spermatozoa [5,6]. For these reasons, it is difficult

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to know whether the success of IPI is due to insemination per se or to superovulation.

The present case indicates that intraperitoneal insemination is by itself an efficient method to promote pregnancy. The case also confirms two important points of the physiology of fertilization during a spontaneous cycle: (1) the ability of fallopian tube to pick up gametes from the cul de sac of Douglas in a normal cycle [6], and (2) the survival of spermatozoa capacitated in vitro and the ability to fertilize in natural peritoneal fluid.

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