

A second case of successful conception in a natural cycle despite a maximum endometrial thickness in the follicular phase of four mm

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Summary

Purpose: To report the second case of successful conception in a natural cycle despite a maximum endometrial thickness in the late follicular phase of four mm. **Materials and Methods:** A 31-year-old woman with short term infertility was evaluated for follicular endometrial maturation with pelvic sonography. **Results:** She was treated with progesterone in the luteal phase. Despite attaining a very good serum estradiol and having a longer follicular phase (with then more time of estrogen exposure to increase the endometrial thickness) she conceived in this cycle of investigation. **Conclusions:** Reporting a successful second case makes it less likely that the first case was a miracle. The odds are that there have been other pregnancies with four-mm endometrial thickness in natural cycles without follicle maturing drugs that have either not been reported, or more likely, not evaluated.

Key words: Endometrial thickness; Thin endometrium; Natural cycle; Luteal phase support.

Introduction

A very thin endometrium, e.g., four mm or less, has been associated with very poor pregnancy rates. Thus when pregnancies are achieved with a four-mm thickness generally case reports are written. The first successful case of a pregnancy with embryo transfer with a maximum endometrial thickness of four mm was reported by Sundstrom in 1998 [1]. Subsequently successful viable twins occurred in a donor oocyte recipient with a maximal endometrial thickness in the late follicular phase of four mm [2]. The thinnest endometrium to date following embryo transfer was in a woman with diminished oocyte reserve whose maximal endometrial thickness was 3.7 mm [3]. The anecdotal cases are important because a review of the literature published in 1996 concluded that there were no successful pregnancies with a pre-ovulatory endometrium of only 4mm [4].

In non-IVF cases, one early study suggested no pregnancies had occurred in women with a peak endometrial thickness of < seven mm [5]. However a successful pregnancy had been reported subsequent to the study by Isaacs *et al.* in 2003 [6]. This woman took no follicle maturing drugs but was treated in the luteal phase with supplemental progesterone.

The authors report, herein, a second case of a successful pregnancy in a woman whose maximal endometrial thickness was four mm who also was treated solely with luteal phase progesterone.

Case Report

After a few months of trying to conceive for the first time, a 31-year-old female came in for infertility investigation. She was evaluated for follicular maturation and on day 13 her endometrial thickness was only two mm. However she did not have a dominant follicle but showed multiple follicles on both ovaries about eight mm. She finally showed a normal sized dominant follicle on day 23 associated with a serum estradiol (E2) of 376 pg/ml, a progesterone level of one ng/ml, and an LH surge of 37 mIU/ml (was seven mIU/ml on day 21). However her peak endometrial thickness was four mm. The post-coital test was normal and she subsequently demonstrated release of the oocyte by collapse of the follicle to 11.6 mm on day 25. She was started on progesterone vaginal tablets 100 mg 3x/day. Her mid-luteal phase endometrial echo pattern converted to a homogeneous hyperechogenic pattern. She conceived this cycle. Her only medications were mesalamine which she has been taking for very mild Crohn's disease for 23 years and 50 mcg of L-thyroxine. She has completed 20 weeks of gestation and remains on oral micronized P 200 mg at bedtime.

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Discussion

A search of the literature could not produce any other case reports of natural successful conception without follicle maturing drugs since the case report of 2003 [6]. The probability is that there have probably been other successful pregnancies achieved with such a thin endometrium but probably most of them never had their endometrial thickness measured.

The possibility exists that the pregnancy rate with thin endometria is not as decreased in natural cycles as when controlled ovarian hyperstimulation is used. Nevertheless, there could be some physicians unaware of the original report, or even if aware of the original report may recommend in vitro fertilization (IVF) with embryo transfer to a gestational carrier (which could cost 100,000 USD) not aware of any precedents or just aware of the one "miracle" case reported over ten years ago. Thus reporting this case lends more credence to the possibility of successful conception with thin endometrial especially in natural cycles without follicle maturing drugs. Hopefully this second case report may help prevent patients being steered immediately into IVF with a gestational carrier.

Though both women were treated with progesterone in the luteal phase, it cannot be proven that the use of progesterone was needed for the successful outcome [7, 8]. It is not clear how often an endometrial thickness in natural cycles with normal serum E2 is associated with failure to increase endometrial thickness past four mm. It is also unclear to what degree, if any, does the thin endometrium impair successful conception.

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