

Research Letter

## Hysteroscopic surgery can be performed around the day of ovulation without affecting implantation

Yu-Hung Lin<sup>a,b,c,d</sup>, Lee-Wen Huang<sup>a,b</sup>, Kok-Min Seow<sup>a,e</sup>, Jiann-Loung Hwang<sup>a,c,\*</sup>

<sup>a</sup> Department of Obstetrics and Gynecology, Shin Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan

<sup>b</sup> School of Medicine, Fu Jen Catholic University, Taipei, Taiwan

<sup>c</sup> School of Medicine, Taipei Medical University, Taipei, Taiwan

<sup>d</sup> Department of Obstetrics and Gynecology, National Taiwan University Hospital, Taipei, Taiwan

<sup>e</sup> Department of Obstetrics and Gynecology, National Yang-Ming University, Taipei, Taiwan

Accepted 16 January 2012

Endometrial lesions such as polyps or submucosal leiomyomas can affect fertility [1]. Endometrial polyps have been reported in 14.9% to 26.5% of infertile women [2,3]. Leiomyomas can be easily detected by ultrasound scan, but small endometrial polyps may be missed by conventional ultrasound scanning techniques. Occasionally, an endometrial polyp is detected during ovarian stimulation during *in vitro* fertilization (IVF) treatment. This presents physicians with a dilemma as to whether to continue the IVF treatment or to remove the polyp and freeze the embryos. Although endometrial polyps can be removed easily with a hysteroscope, it is unknown how long the endometrium will take to recover following hysteroscopic surgery. We report on 2 women who underwent hysteroscopic surgery around the day of ovulation but still became pregnant. Because implantation occurs 7 to 10 days after ovulation, these 2 cases imply that endometrial recovery following hysteroscopic surgery occurs faster than is generally believed.

A 30-year-old nulliparous woman was admitted to our hospital because of menorrhagia and infertility. An ultrasound scan revealed a 2.6 × 1.4 cm submucosal leiomyoma. An office hysteroscopy scan revealed a submucosal leiomyoma on the left wall, and hysteroscopic myomectomy was performed uneventfully within 20 minutes. The woman returned to the hospital 3 weeks later because of a missed menstruation. The urine pregnancy test was positive, and a transvaginal ultrasound scan showed a 1.62 cm gestational sac indicative of a 5-week embryo. From the size of the gestational sac and the woman's basal body temperature chart, we concluded that the woman had ovulated on the day of surgery. The course of

pregnancy was uneventful until 38 weeks when she developed mild hypertension. She was recommended labor induction at 40 weeks and delivered a 2600 g boy one day after induction.

A 30-year-old woman had suffered from secondary infertility for 2 years after undergoing 6 dilatation and curettage procedures. An office hysteroscopy scan revealed fibrosis in the upper uterine wall compatible with the American Fertility Society's classification of moderate intrauterine adhesion [4]. She then underwent an operative hysteroscopy, which lasted 15 minutes.

She returned to the hospital after 4 weeks because she felt nauseous and had missed a menstrual period. The urine pregnancy test was positive, and an ultrasound scan revealed a 6-week embryo. The basal body temperature of the woman was not recorded, but from the size of the embryo, it was likely that the surgery was performed around the day of ovulation.

Controversy still surrounds the management of endometrial polyps identified during IVF. Most physicians suggest canceling the cycle, performing polypectomy, cryopreserving the embryos, and transferring the embryos in the future [5], but this strategy causes more problems for patients and increases costs. However, some physicians have reported pregnancies following hysteroscopic polypectomy during ovarian stimulation without canceling the cycle [6]. Moreover, some evidence suggests that the endometrium is resistant to minor trauma. Berkkanoglu et al showed that flushing the endometrium before embryo transfer did not affect pregnancy rate [7]. Kolibianakis found no differences in pregnancy rates between patients who received endometrial sampling on the day of oocyte retrieval and the control group [8].

By contrast, it has been reported that endometrial injury increased implantation and pregnancy rates [9], possibly due to the upregulation of certain genes [10]. Therefore, hysteroscopic surgery in our 2 cases may have enhanced implantation.

\* Corresponding author. Department of Obstetrics and Gynecology, Shin-Kong Wu Ho-Su Memorial Hospital, No. 95, Wen Chang Road, Shih Lin District, Taipei, Taiwan.

E-mail address: [M002179@ms.skh.org.tw](mailto:M002179@ms.skh.org.tw) (J.-L. Hwang).

In conclusion, these 2 cases demonstrate that hysteroscopic surgery performed around the day of ovulation may not affect implantation. The endometrium recovers rapidly after hysteroscopic surgery. Therefore, if an endometrial polyp is found during ovarian stimulation in an IVF cycle, hysteroscopic polypectomy can be performed without canceling the cycle.

## References

- [1] Bosteels J, Weyers S, Puttemans P, Panayotidis C, van Herendael B, Gomel V, et al. The effectiveness of hysteroscopy in improving pregnancy rates in subfertile women without other gynaecological symptoms: a systematic review. *Hum Reprod Update* 2010;16:1–11.
- [2] Shokeir TA, Shalan HM, El-Shafei MM. Significance of endometrial polyps detected hysteroscopically in eumenorrheic infertile women. *J Obstet Gynaecol Res* 2004;30:84–9.
- [3] de Sá Rosa e de Silva AC, Rosa e Silva JC, Cândido dos Reis FJ, Nogueira AA, Ferriani RA. Routine office hysteroscopy in the investigation of infertile couples before assisted reproduction. *J Reprod Med* 2005;50:501–6.
- [4] The American Fertility Society. Classifications of adnexal adhesions, distal tubal occlusion, tubal occlusion secondary to tubal ligation, tubal pregnancies, mullerian anomalies and intrauterine adhesions. *Fertil Steril* 1988;49:944–5.
- [5] Lass A, Williams G, Abusheikha N, Brinsden P. The effect of endometrial polyps on outcomes of *in vitro* fertilization (IVF) cycles. *J Assist Reprod Genet* 1999;16:410–5.
- [6] Batioglu S, Kaymak O. Does hysteroscopic polypectomy without cycle cancellation affect IVF? *Reprod Biomed Online* 2005;10:767–9.
- [7] Berkkanoglu M, Isikoglu M, Seleker M, Ozgur K. Flushing the endometrium prior to the embryo transfer does not affect the pregnancy rate. *Reprod Biomed Online* 2006;13:268–71.
- [8] Kolibianakis E, Bourgain C, Albano C, Osmanagaoglu K, Smitz J, Van Steirteghem A, et al. Effect of ovarian stimulation with recombinant follicle-stimulating hormone, gonadotropin releasing hormone antagonists, and human chorionic gonadotropin on endometrial maturation on the day of oocyte pick-up. *Fertil Steril* 2002;78:1025–9.
- [9] Barash A, Dekel N, Fieldust S, Segal I, Schechtman E, Granot I. Local injury to the endometrium doubles the incidence of successful pregnancies in patients undergoing *in vitro* fertilization. *Fertil Steril* 2003;79:1317–22.
- [10] Kalma Y, Granot I, Gnainsky Y, Or Y, Czernobilsky B, Dekel N, et al. Endometrial biopsy-induced gene modulation: first evidence for the expression of bladder-transmembrane uroplakin Ib in human endometrium. *Fertil Steril* 2009;91:1042–9.