

# Twin pregnancy after *in vitro* fertilization in a woman with a unicornuate uterus

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## Summary

A unicornuate uterus is a rare congenital uterovaginal anomaly. A unicornuate uterus is associated with infertility, cervical incompetence, and premature labor. A case of a 32-year-old null gravid female with a unicornuate uterus who had wished to bear a child for five years is reported. After undergoing insemination treatment with the husband's semen, *in vitro* fertilization was performed and a twin pregnancy occurred. A successful outcome was achieved with the delivery of viable infants following intensive obstetric management.

**Key words:** Unicornuate uterus; *In vitro* fertilization; Twin pregnancy.

## Introduction

A unicornuate uterus is a rare congenital anomaly which is observed in only 4.4% of uterine anomalies [1]. This condition is associated with a high rate of primary infertility and poor fetal survival [2]. This study describes the successful outcome of a twin gestation following *in vitro* fertilization in a woman with a unicornuate uterus.

## Case Report

The patient was a 32-year-old null gravid female with a 5-year history of primary infertility. She was diagnosed with a unicornuate uterus with a non-communicating right rudimentary horn, and thereafter underwent a resection of the right horn at 23 years of age to treat dysmenorrhea. She first presented at the Niigata Workmen's Accident Hospital in May 2003.

Her menstrual cycles were regular and her hormonal testing was normal. The husband's sperm test findings were also normal. Magnetic resonance imaging (MRI) of the pelvis showed a small uterine body with a decreased muscular mass (Figure 1). A left ovarian endometrial cyst was also noted on pelvic MRI. Hysterosalpingography showed a banana-shaped uterine cavity (Figure 2). The tubal passage of the left side was normal.

The patient underwent ovarian stimulation with 100 mg clomiphene citrate on days 4-8 of her menstrual cycle and four rounds of intrauterine insemination. Thereafter she elected to undergo *in vitro* fertilization. The patient received 900 µg of buserelin acetate (Suprecur; Aventis Pharma Inc.) daily, starting at the midluteal phase of the pretreatment cycle and ending at the time of hCG injection. The patient received 150 IU of hMG (HMG NIKKEN; NIKKEN CHEMICALS CO., LTD. Japan) daily from day 3 of the treatment cycle until the day before the administration of 10,000 IU of hCG (HCG Mochida; Mochida Pharmaceutical Co., Ltd., Tokyo, Japan). HCG was administered when at least two follicles reached a diameter of ≥ 18 mm. Transvaginal follicular aspiration was performed approximately 34 hr after hCG injection. Five oocytes were retrieved.

Conventional insemination was performed. Three oocytes were fertilized. Embryo transfer was performed on day 3 of culture. Two good quality embryos were then transferred. A twin pregnancy was identified in the uterus at six weeks' gestation. A prophylactic Shirodkar cervical cerclage was put in place at 14 weeks' gestation.

The woman was hospitalized for premature labor and a shortened cervical length at 22 weeks' gestation. Intravenous tocolysis with a β-sympathomimetic agent and bed rest were initiated. Intravenous tocolysis was continued until delivery.

A spontaneous rupture of the membrane and labor occurred at 36 1/7 weeks' gestation. An emergency cesarean section was performed due to the twin gestation. A low transverse cesarean section resulted in the delivery of 2,002 g and 2,164 g infants in cephalic-cephalic presentation. No uterine atony occurred. The subsequent postoperative course was unremarkable.

## Discussion

A unicornuate uterus is associated with a poor reproductive outcome [3]. There is a spontaneous abortion rate of 37.1%, a preterm delivery rate of 16.4%, and a live birth rate of 55.1% in patients with this condition [4]. The reproductive success rate depends on variations in the vascular contribution of a uterus, the extent of the reduction of muscular mass of a uterus, and the degree of cervical incompetence [3]. Women presenting with this anomaly should therefore be considered high-risk obstetrical patients.

A decision regarding the number of embryos transferred was necessary in the present case, since there was concern that the patient's condition would preclude a successful outcome if a twin pregnancy occurred.

To reduce the number of multiple pregnancies, single embryo transfer has become the standard in the Nordic countries using IVF treatment. Sweden at present has 70% single embryo transfer, with 5% twins and a pregnancy rate per transfer remaining constant at 30% [5].

Van Montfoort *et al.* [6] reported that the ongoing pregnancy rates after an elective single embryo transfer in an unselected group of patients to be significantly lower in

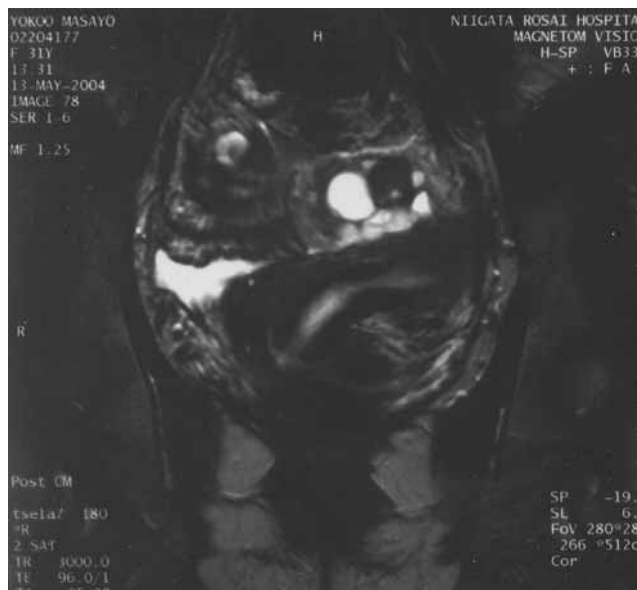


Fig. 1

Figure 1. — Magnetic resonance imaging of the pelvis. A small uterine body with a decreased muscular mass and a left ovarian endometrial cyst were noted.

Figure 2. — Hysterosalpingogram showing a banana-shaped uterine cavity.



Fig. 2

comparison to double embryo transfer (21.4% vs 40.3%). In contrast, the ongoing pregnancy rates in selected groups of patients did not differ between elective single embryo transfer and double embryo transfer. They concluded that the pregnancy rates after single embryo transfer in all patients would therefore decrease two-fold in comparison to double embryo transfer.

Two-embryo transfer was therefore selected in the current patient in order to increase the pregnancy rate and, as a result, a twin gestation occurred. In this case, prophylactic cervical cerclage was performed at 14 weeks' gestation to prevent to a preterm delivery. A successful outcome was achieved with the delivery of viable infants following intensive obstetric management. The presence of a unicornuate uterus is therefore not considered to be an absolute contraindication for two-embryo transfer following *in vitro* fertilization.

## Conclusion

A successful outcome was achieved in a patient with a unicornuate uterus and twin gestation. Two-embryo transfer is therefore not considered to be contraindicated in such patients.

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