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Sextuplet Gestation Following an *In Vitro* Fertilization Pregnancy in a Surrogate Mother: A Case Report

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Abstract

Background: Sextuplet gestation is a high-order multiple pregnancy that is extremely rare and carries significant risks for both the mother and the fetuses. The aim of this report was to document a case of sextuplet gestation following an *in vitro* fertilization (IVF) pregnancy in a surrogate mother. **Case Presentation:** She is a 26-year-old P 3 + 0 who presented to St Elizabeth Hospital and Fertility Centre Limited for the purpose of surrogacy. She is a twin and both parents are twins. She subsequently started the in-vitro fertilization procedure and 3 embryos were transferred. Pregnancy was confirmed 2 weeks post-transfer. However, an ultrasound scan done 7 weeks after transfer showed 6 fetuses with cardiac activity. Pregnancy was uneventful until 25 weeks of gestation, when she started having preterm contractions and was placed on permanent hospital admission. She was given antenatal steroids at 28 weeks of gestation. She had an emergency caesarean section at 29 weeks + 2 days gestation following placental abruption and had 4 female neonates and 2 male neonates. **Conclusion:** Sextuplet gestations are uncommon higher order multiples that are associated with maternal and perinatal morbidity and mortality, as well as preterm contractions, preterm prelabour rupture of membrane and preterm delivery.

Keywords

Sextuplet, *In Vitro*-Fertilization, Surrogate

1. Introduction

The presence of more than one fetus in the uterus is referred to as multiple births [1]. Sextuplet gestation is the presence of six fetuses in the uterus. A major procedure in which an egg is fertilized by sperm outside the body is called *in vitro* fertilization (IVF) [2]. Surrogacy is a key technique of assisted reproductive technology in which a woman carries a pregnancy for another couple [3]. Since ovulation induction therapy, *in vitro* fertilization (IVF) and embryo transfer techniques were introduced, the incidence of multi-fetal gestations has dramatically increased [4]. Higher perinatal morbidity and mortality as well as a greater frequency of maternal complications are linked to multi-fetal gestation [4]. The duration of gestation and birth weight decrease as the number of fetuses increases [4]. The aim of this report was to document a case of sextuplet gestation following an *In Vitro* fertilization (IVF) pregnancy in a surrogate mother.

2. Case Presentation

She was a 26-year-old P 3 + 0 who presented for the purpose of surrogacy. All previous pregnancies were spontaneous and uneventful. She had spontaneous vaginal deliveries and a normal puerperium. She attained menarche at the age of 13 years; She has a 5-day flow in a 28-day cycle. She had no known comorbidities. Examination revealed no abnormalities. Investigations done were all within normal ranges (**Figure 1**).

Figure 1. Picture showing the sextuplets inside incubators.

IVF process: She was commenced on oral contraceptive pills (OCP) for 3 weeks and was also down-regulated. She experienced a withdrawal bleed for 5 days following the withdrawal of OCP. She was subsequently commenced on estradiol valerate and had serial transvaginal ultrasound scans. Embryo transfer was later done with 3 expanded blasts.

Post-IVF: Pregnancy was confirmed via blood and urine pregnancy test. Abdominopelvic scan done 4 weeks post-transfer showed 5 gestational sacs. A second ultrasound scan was done 7 weeks post-transfer showing 6 fetuses with cardiac activity which implies that the finding of six fetuses from three transferred embryos indicates monozygotic twinning of all three embryos that were transferred.

Antenatal care: Pregnancy was uneventful until 16 weeks of gestation when she started having episodes of preterm contractions. Following the worsening uterine contractions, she was admitted and placed on bed rest from 25 weeks of gestation onwards. She had steroid therapy at 28 weeks of gestation.

Delivery: There was placenta abruption at 29 w + 2 d (22/06/2025). She subsequently had an emergency caesarean section and delivered 6 live neonates (4 females and 2 males). They were all in good clinical condition post-delivery.

3. Discussion

Pregnancies that are quadruple, quintuple, or sextuple are all considered "high order pregnancies" [1]. Sextuplet birth is still very rare, occurring in an estimated one in 4.7 billion deliveries [1]. Adamson, D *et al.* (2004) reported in their study that the rate of high-order multiple pregnancy (HOMP) is fifty times higher now than the usual 0.18% [5]. Ugwu G *et al.* said in their work that the documented global rate of high-order multiple pregnancy (HOMP) ranges from 0.13% to 1.48% [6].

The causes of multiple gestations include instances of reproductive treatments such as ovulation induction medications, embryo splitting, and *in vitro* fertilization [7].

By fertilizing the embryos outside of the human body and transferring the desired number of embryos to the patient, *in vitro* fertilization can result in multiple gestation. In the index case three embryos were transferred, which resulted in six embryos. This further supports embryo splitting as a source of multiple gestation.

The index patient had preterm labour and the fetuses had low birth weight. Statistically, Ugwu G. *et al.* reported in their study that 21.7% of patients with high-order multiple pregnancy had preterm labor and 17.4% gave birth at 28 - 31 weeks. He also stated that 65.2% of the neonates were admitted into the newborn special unit [6].

The index case had placental abruptio, preterm birth and low birth weight which is part of the maternal and fetal morbidity associated with high order multiple pregnancy. More maternal and neonatal morbidity and mortality are linked to multiple pregnancies than to singleton gestations. This was supported by a study that was done by Botting *et al.* (1987) where perinatal mortality rate per

1000 births for twins, triplets, quadruplets, quintuplets and sextuplets were 63, 164,200, 214 and 416 respectively [8]. With the exception of macrosomia and post-term delivery, they can result in nearly every possible pregnancy complication such as extreme nausea and vomiting, anemia, gestational diabetes, placenta abruptio, placenta previa and increased incidence of caesarean delivery. The fetal complications include: low birth weight, preterm birth, premature membrane rupture, intrauterine growth restriction, congenital defects, neonatal and infant mortality, and cerebral palsy.

During antenatal care, our patient was adequately monitored especially when she started having episodes of preterm contraction as it has been noted that high order pregnancies come with preterm contractions and intrauterine growth restriction. Following the worsening uterine contractions, she was admitted and placed on bed rest from 25 weeks of gestation onwards. She had steroid therapy at 28 weeks of gestation in preparation for delivery. Our index patient was delivered by caesarean section which was supported by the study done by Ugwu G *et al.* (2018) which stated that the commonest mode of delivery for HOMP was caesarean section [6].

Patients requesting the transfer of multiple embryos should be adequately counseled on the fact that some embryos can split resulting in a higher number of fetuses than was transferred and also they should be informed on the adverse consequences of high order multiple pregnancy which can be life-threatening to both the mother and the fetuses. The option of multifetal pregnancy reduction which is a medical procedure used to reduce the number of fetuses in multiple pregnancy to decrease risks such as premature birth, skeletal deformities, and cerebral palsy can be given to these patients.

4. Conclusion

Women in whom sextuplet gestation has been sonographically confirmed should be adequately counseled as sextuplet gestation is a very high-risk pregnancy that comes with many complications for both the mother and the fetuses such as was seen in the index patient who had placental abruptio, preterm birth and low birth weight. They should be closely monitored to ensure a good feto-maternal outcome.

Consent

Written informed consent was obtained from the surrogate mother (patient) involved in this case report for publication of anonymized information.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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