

## A series of fetal reductions and their outcomes at a tertiary care center in North Karnataka: Fetal reduction series: A boon?

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### ABSTRACT

Fetal reduction is a novel method that aims to reduce a higher-order gestation to lower-order pregnancy to reduce both maternal and perinatal adverse outcomes. One of the methods of fetal reduction is by intracardiac injection of KCl under ultrasound guidance. Here, we present a case series of eight women who had undergone fetal reduction. All of them were trichorionic triamniotic triplets at the time of reduction. In seven women, the reduction was done to twin gestation, whereas one reduction was to singleton pregnancy. Out of eight cases, only one carried to full term and underwent vaginal delivery. One case was lost to follow-up and 2 women underwent expulsion. A total of nine live births were reported with 8 babies going to the neonatal intensive care unit for low birth weight and preterm care. Fetal reduction is an important method that needs to be widely practiced and reported to improve maternal and perinatal outcomes in multifetal gestation.

**Key words:** Fetal medicine, Fetal reduction, Triplets, Twins

Fetal reduction is a procedure performed under the guidance of imaging where the multifetal gestation (of higher order) is reduced to preferably twin gestation or a singleton pregnancy, so as to reduce the maternal and perinatal adverse effects of multifetal gestation. The American College of Obstetricians and Gynecologists defines multifetal reduction as a first-trimester or early second-trimester procedure for reducing the total number of fetuses in a multifetal pregnancy by one or more [1]. The higher incidences of multifetal gestation in this era are mainly influenced by increased maternal age at the time of conception and also due to the advent of *in vitro* fertilization (IVF) methods and others that are included in the assisted reproductive technology (ART) techniques. Transfer of multiple embryos to have better chances of live birth has been a known entity in many of the studies [2]. Higher-order pregnancies usually have been associated with the use of gonadotrophins as a method of ovulation induction.


### CASE SERIES

Eight women underwent a fetal reduction in the first trimester. The method of fetal reduction followed was the intracardiac

KCl injection. Under transabdominal ultrasound guidance, with written informed consent taken, under aseptic precautions, a 22 gauge spinal needle was inserted intracardiac into the fetus that was closest to the transducer and 2 ampules of undiluted KCl (2 mEq) was injected. The cardiac activity of the targeted fetus was then monitored till it was absent and again checked the next day. All throughout the procedure, the vitals of the mother were monitored. Post-procedure, the women received 10 mg of tab isoxsuprine and also an antibiotic course of azithromycin 500 mg OD for 5 days. These women were then followed up.

The mean age of these women was 25.75 years (maximum – 36 years and minimum 19 years). Out of the eight women, seven women were trichorionic triamniotic twins gestation reduced to twin gestation, while one of them was triplet gestation reduced to singleton pregnancy. Two patients had conceived after ovulation induction, whereas one patient was that of IVF conception. The other five patients had conceived spontaneously. The mean gestational age at which the fetal reduction was done was 13+1 weeks. The mean gestational age to which the pregnancies were carried was 28+2 weeks, 38 weeks, and 13+1 week gestational ages being the outliers (Fig. 1).

Out of the eight cases, only one patient carried the pregnancy up to term gestation (38 weeks) and delivered vaginally, a healthy baby of 2.5 kg, and she was the patient whose fetal

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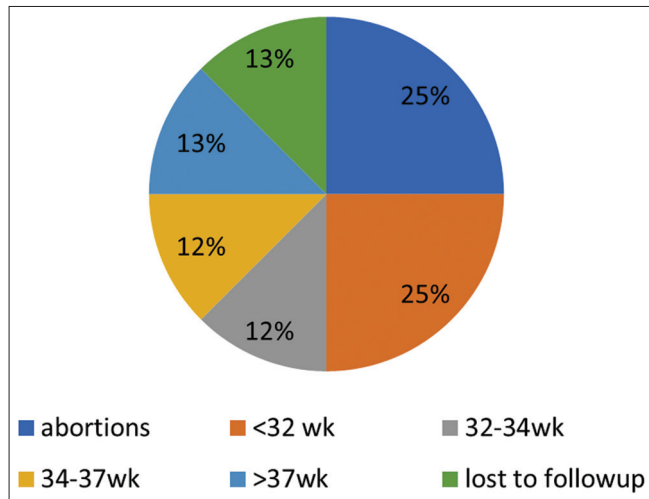


Figure 1: Gestational age at delivery

reduction was done from triplets to singleton pregnancy. A fetus papyraceous was found during the delivery. One patient underwent emergency lower segment cesarean section (LSCS) at 29+2 weeks i/v/o pulmonary edema, whereas two patients underwent emergency LSCS at 31+6 and 32+2 weeks as they presented with preterm premature rupture of membranes with both twins breech presentation. One patient underwent elective LSCS at 36+2 weeks and had postpartum hemorrhage intraoperatively which needed bilateral uterine artery ligation for management. Two patients underwent miscarriages at 13+4 and 18+1 weeks and required manual removal of the placenta post-procedure, which constituted an abortion rate of 25% in the study. One patient was lost to follow-up.

The mean birth weight of the babies that were carried to viability was 1.755 kg, with all the babies being shifted to neonatal intensive care unit (NICU) immediately post-delivery, for low birth weight, and preterm care (Table 1).

## DISCUSSION

Multifetal pregnancy has its own maternal adverse effects such as the increased risk of abortions, early onset preeclampsia, gestational diabetes mellitus, preterm labor, operative delivery, postpartum hemorrhage, and their complications. The known adverse perinatal outcomes associated include prematurity, respiratory distress syndrome, NICU admission, necrotizing enterocolitis, delayed developmental milestones, cerebral palsy, morbidity, and mortality. The incidence of pregnancy loss is higher for multifetal gestations, with it being 25% for quadruplets, 15% for triplets, and 8% for twins [3].

As and when the adverse effects of multifetal gestation came to light, the need for fetal reduction also grew and as the era of fetal reduction expanded, two terminologies came into light-multifetal reduction - where fetal reduction was done on the basis of accessibility criteria and selective fetal reduction - where fetal reduction was done on the basis of health status of the fetus. The earliest methods of fetal reduction included, inserting needles into the fetal thorax, followed by the development of fetal intracardiac

Table 1: Perinatal outcomes of the study

Birth weight	Number (%)
500–1.5 kg	2 (22.22)
1.5–2.5 kg	6 (66.66)
>2.5 kg	1 (11.11)

This table is excluding the patient that was lost to follow-up

KCl injection. Other methods of fetal reduction include laser ablation and electrocautery [4].

In our case series, the mean maternal age was 25.75 years which was much lower than the mean maternal age in the studies conducted by 33.68±3.09 years [5] and Chaudhury and Mukherjee (31.90±4.11 years) who conducted a retrospective study of 32 triplet pregnancies that had undergone fetal reduction with KCl and their maternal and perinatal outcomes [6]. The mean gestational age at which the fetal reduction was done was 13+1 weeks, after a detailed nuchal translucency scan, to rule out gross congenital anomalies. This was higher than the gestational age at which the fetal reductions were done in the study by Chaudhury and Mukherjee [6], Antsaklis *et al.* [7], and Boulot *et al.* [8] where the fetal reductions were done between 10 and 11 weeks. They had not included the patients who underwent a reduction of triplets to singleton pregnancies. The mean gestational age to which the women carried to live birth was 28+2 weeks which was less compared to the mean gestational ages in the studies by Kumawat *et al.* [5], Chaudhury and Mukherjee [6], Antsaklis *et al.* [7], and Boulot *et al.* [8].

Only three patients conceived with ART (37.45%) which was considerably less compared to the ART rates in the studies conducted by Kumawat *et al.* (80%) [5] and Chaudhury and Mukherjee where 34.37% had conceived with ovulation induction and 65.63% had conceived with IVF [6].

## CONCLUSION

Fetal reduction is an uncommon procedure done in North Karnataka, India. It is an upcoming novelty that is being adopted to improve maternal and perinatal outcomes. The main purpose of this article was to throw light on the methodology of the procedure done and to trace the outcomes of the process in a tertiary care hospital in North Karnataka so as to encourage the procedure and improve the outcomes.

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## REFERENCES

1. Berkowitz RL, Lynch L. Selective reduction: An unfortunate misnomer. *Obstet Gynecol* 1990;75:873-4.

2. Ombelet W, De Sutter P, Van der Elst J, Martens G. Multiple gestation and infertility treatment: Registration, reflection and reaction--the Belgian project. *Hum Reprod Update* 2005;11:3-14.
3. Evans MI, Britt DW. Multifetal pregnancy reduction: Evolution of the ethical arguments. *Semin Reprod Med* 2010;28:295-302.
4. Evans MI, Andriole S, Britt DW. Fetal reduction: 25 Years' experience. *Fetal Diagn Ther* 2014;35:69-82.
5. Kumawat U, Thakur RM, Bhandari S. A selective fetal reduction in triplet pregnancy at saims, Indore. *Int J Clin Obstet Gynaecol* 2019;3:98-100.
6. Chaudhury K, Mukherjee K. Selective fetal reduction in triplet pregnancy: Indian experience- a retrospective review of 32 cases. *J South Asian Feder Obst Gynae* 2014;6:144-50.
7. Antsaklis A, Souka AP, Daskalakis G, Papantoniou N, Koutra P, Kavalakis Y, *et al.* Embryo reduction versus expectant management in triplet pregnancies. *J Maternal Fetal Neonatal Med* 2004;16:219-22.
8. Boulot P, Vignal J, Vergnes C, Dechaud H, Faure JM, Hedon B. Multifetal reduction of triplets to twins: A prospective comparison of pregnancy outcome. *Hum Reprod* 2000;15:1619-23.

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