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Case Report

Monochorionic Diamniotic Triplets and Role of Obstetric Ultrasound

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Abstract

Introduction: Multiple pregnancies still constitutes a difficult therapeutic problem in perinatology. Among complications observed in multiple pregnancies intrauterine death of one or more foetuses is not rare. Due to progressive disturbance in haemostasis the risk for a mother and remaining live foetus increases with gestation. The aim of this case report is to share a prenatally undiagnosed triplets pregnancies complicated by intrauterine death of two fetuses and role of proper obstetric ultrasound assessment for the management of such a high risk pregnancies.

Case Report: A 25 years old primigravid patient referred from a rural hospital and admitted into a tertiary hospital. On admission, she was at her 34+5 weeks twin pregnancy with breech presentation with single fetal death. Emergency caesarean section was arranged due to fetal distress of the alive fetus and patient transferred to the operation theatre. However, before the procedure, no audible fetal heart rate was detected by Doppler and a portable sonographic machine was arranged for further confirmation. Unfortunately, there was absent fetal heart of two fetuses but surprisingly, there was a viable fetus at the fundal area which was in transverse lie. Successful delivery was done by caesarean section of the viable fetus of undiagnosed triplet pregnancies without any complications of the mother and the fetus.

Conclusion: Early ultrasound diagnosis and evaluation of multiple pregnancies is an integral part of management of such high risk pregnancy. Proper antenatal care, supervision and guidelines by an expert obstetrician are mandatory for the successful perinatal outcome of such cases.

Keywords: *Monochorionic Diamniotic Triplets; Obstetric Ultrasound*

Introduction

Multiple pregnancies occur when two or more ova are fertilized to form dizygotic (nonidentical) twins or a single fertilized egg divides to form monozygotic (identical) twins. In dizygotic multiple pregnancies, each fetus has its own placenta (either separate or fused), amnion and chorion. Identical triplets come from a monozygotic pregnancy, three fetuses from one egg. The most common set, strictly fraternal triplets, comes from a polyzygotic pregnancy of three eggs. Between these types, triplets that include an identical (monozygotic) pair of siblings plus a fraternal sibling are the result of a dizygotic pregnancy, where one zygote divides into two fetuses and the other does not [1]. Triplet pregnancies can be monochorionic, dichorionic or trichorionic. Chorionicity and amnionicity in multiple pregnancies affect the management plan of pregnancy and delivery, so early sonographic assessment is necessary [2].

The rate of triplet and higher-order multiple births are higher than the naturally-occurring rate due to medically assisted conception. In developing country setup sometimes these drugs are using injudiciously even without any appropriate indications. Subsequent development of multiple pregnancies and complications related to such a high risk pregnancy are increasing. We share a rare case of undiagnosed triplet pregnancies complicated by death of the two fetuses in utero and survivor of the rest fetus without any sequel.

Case Report

A 25 years old primigravid patient was referred from a rural clinic to a tertiary hospital as a diagnosed case of 34 weeks 5 days twin pregnancy with breech presentation with single fetal demise. Patient stated that she became pregnant after taking some drugs during her cycle which was prescribed by a village doctor. She took antenatal checkup irregularly from local Upazilla health complex. However, she had two antenatal USG reports which showed twin pregnancy with appropriate growth of two fetuses according to the gestational age. There was no comment about the chorionicity or amnionicity of her reports done at her 24, 28 and 32 weeks gestation. She experienced generalized weakness and respiratory distress through her pregnancy but could not checkup routinely as there was no cooperation from her husband or family. The day before her referral she was investigated by a local sonologist and reported as 34+ week's twin pregnancy with intrauterine death of a single fetus with breech presentation. So, she got admitted to a local clinic for her delivery; however the attending doctor counsel her husband about the risk of delivery of the living fetus at this level and chance of survival of living fetus in tertiary setup. So, he referred her to a tertiary hospital where neonatal intensive care unit is available. By the time the patient reached to the tertiary facility, clinical monitoring showed there was fetal distress, so arrangement of emergency caesarean section was done and she transferred to the operation theatre. Before introduction of anaesthesia again fetal heart rate was checked by Doppler and there was absence of both fetal heart beats. So, decision for caesarean section changed. At that moment the patient noticed that, she felt the fetal movement at her epigastric region and request for early operation. Upon the request of the mother a portable USG machine was arranged and sonographic evaluation was done by the obstetrician in the OT table. Surprisingly there was a triplet fetus which was viable, weighing about 1.6 kg, placed transversely at the fundal area. So, immediate caesarean section was done and after delivery of the two dead fetuses from the same amniotic cavity, the viable fetus was delivered from another amniotic sac by vertex. The baby was a male, 1.5 kg, immediately cried after delivery without any asphyxia. There was single placenta with two separate amniotic membranes and three umbilical cords delivered. Bleeding was average and controlled. Dead babies were female which weighing about 1.3 Kg and 1.4 Kg without any gross fetal anomalies. The viable baby managed by the neonatologist and kept in NICU for further 48 hours under close monitoring. As the baby developed no further complications and considering their financial constrains patient discharged on her 4th postoperative day with proper advices. Before discharged baby was checked for proper breast feeding, attachment and the mother was trained on Kangaroo-Mother care to her baby.

Figure 1 and 2: *Showing the viable male fetus weighing 1.5 kg, and the two female dead fetus in monochorionic diamniotic triplet pregnancies.*

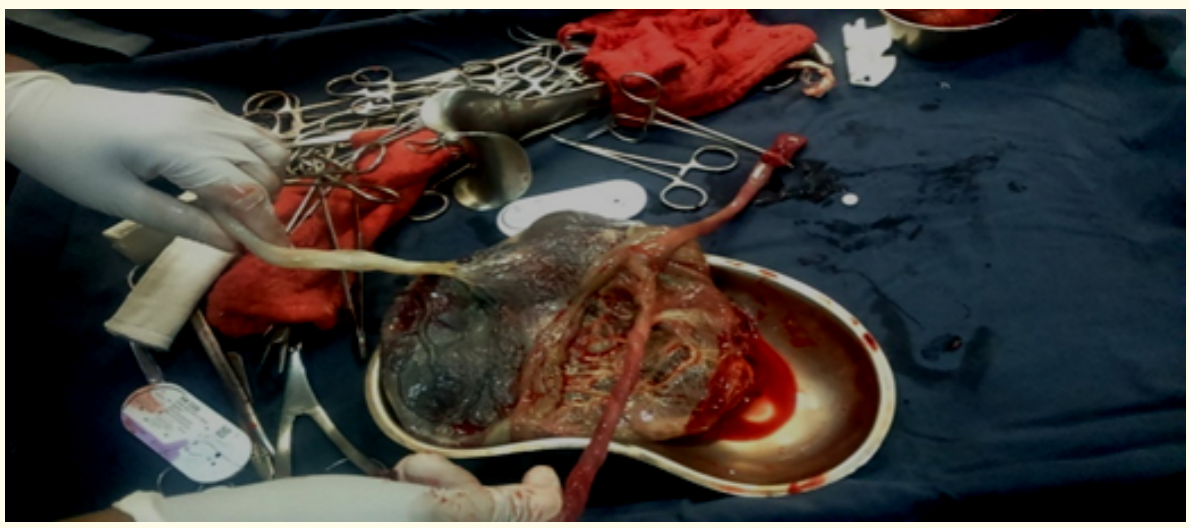

Figure 3: *The placenta with two amniotic membranes and three umbilical cords.*

Discussion

Triplet and higher-order births accounted for 103.6 per 100,000 births in the United States in 2015 [3] but only 32.3 per 100,000 births in 1977 (before *in vitro* fertilization) [4]. The natural incidence of spontaneous triplet pregnancy conception is estimated to be approximately 1 per 6,000 - 8,000 births and the remainders are attributable to childbearing at older ages and availability of fertility therapies and assisted reproductive techniques (ART) [5]. Triplets are far less common than twins, according to the U.S. Centers for Disease Control and Prevention, accounting for only about 4300 sets in 3.9 million births, just a little more than 0.1%, or 1 in 1000 [10]. According to the American Society of Reproductive Medicine, only about 10% of these are identical triplets: about 1 in ten thousand. Nevertheless, only 4 sets of identical triplets were reported in the U.S. during 2015, about one in a million [6].

Triplet pregnancies are diagnosed prenatally with ultrasound and majorities are diagnosed in the first trimester particularly due to the close surveillance of pregnancies conceived using fertility treatments. Other features that may prompt early sonographic examination include hyperemesis graviderum or uterine fundus size-date discrepancy. Women known to be carrying triplets should be offered first trimester ultrasound when the crown-rump length measures from 45 mm to 84 mm (at approximately 11 weeks 0 days to 13 weeks 6 days) to estimate gestational age, determine chorionicity and screen for aneuploidy. Screening involves nuchal translucency (NT) thickness measurement alone, as serum analyte levels are not applicable in a triplet pregnancy [7].

Early assignment of nomenclature to each fetus should be documented clearly to ensure consistency throughout the pregnancy. Although most triplet pregnancies arise from three different oocytes, monozygotic gestations can also occur. Identification of a monochorionic triplet gestation or a monochorionic pair within a triplet gestation is essential due to the associated additional risk of this type of placentation. There is an increased risk of aneuploidy in triplet pregnancy especially in the setting of multizygotic gestations. However, diagnostic testing can be performed if there is concern for aneuploidy based on other factors such as family or genetic history or sonographic findings such as thickened nuchal translucency (NT). CVS is challenging; however, this technique can provide early diagnosis to high risk patients who are planning multifetal pregnancy reduction based on karyotype results. Amniocentesis is another option for diagnostic testing. There is a dearth of evidence regarding pregnancy loss rates following diagnostic testing in triplet pregnancies; however, logically the risk is expected to be greater than in singleton pregnancies [8]. Generally antenatal surveillance of a triplet pregnancy involves serial sonographic growth evaluations. If the pregnancy is further complicated by a monochorionic pair, weekly surveillance for twin to twin transfusion syndrome is advised from 15 - 16 weeks gestation. Women with uncomplicated trichorionic triamniotic triplet pregnancies should be scanned at 20, 24, 28, 32 and 34 weeks. If there is a 25% or greater difference in size between twins or triplets, this is a clinically important indicator of IUGR. A referral to a tertiary level fetal medicine centre should be offered [9,10].

Higher-order multiple gestations are associated with significantly increased risks of maternal and neonatal morbidity compared with twin and singleton gestations, primarily because almost all triplets are born preterm and at an earlier mean gestational age (mean gestational age of delivery for triplets, twins, and singletons: 31.9, 35.3, and 38.7 weeks, respectively [11].

Women with triplet pregnancies should be counseled about the specific issues and risks associated with these pregnancies, management of complications, and the high probability of cesarean birth. An ultrasound is performed in the first or early second trimester to ascertain if the type of triplet pregnancy to help guide counseling and management. In the second half of pregnancy, these pregnancies are at increased risk for preterm delivery, preeclampsia, and fetal growth discordance when compared with singletons. There is a higher incidence of anaemia in women with triplet pregnancies. Maternal complications (e.g. pre-eclampsia) are more common and caregivers should be vigilant for early signs [12].

Preterm delivery is the most common complication, with approximately 75% of triplets born prematurely. There is a lack of prospective randomized trials to determine the benefit of bed rest, routine hospitalization, cerclage, home uterine activity monitoring (HUAM) and tocolysis. Progesterone supplementation has been shown not to reduce preterm birth in triplet gestations. As prematurity is the most

common complication of triplet pregnancy; there are numerous sequelae, including perinatal mortality, respiratory and gastrointestinal complications. Dichorionic and monochorionic triplet pregnancies have a five-fold greater risk of adverse perinatal outcomes than trichorionic pregnancies, attributable to greater incidences of growth discordance, feto-fetal transfusion, fetal demise and preterm delivery, both spontaneous and iatrogenic [13].

Current recommendations for timing of elective delivery of triplet pregnancy is from 35 weeks 0 days, as beyond this gestation there is an increased risk of intra-uterine demise in uncomplicated triplet pregnancies. However, 75% of triplet pregnancies will deliver before 35 weeks gestation. Delivery planning with a neonatal intensive care unit (NICU) should be considered for women with triplet pregnancies and she should be offered elective birth from 35 weeks 0 days, after a course of antenatal corticosteroids has been advised. If the woman declines elective birth, weekly appointments should be offered with the specialist obstetrician. An ultrasound scan and biophysical profile assessment should be part of each appointment, with fortnightly fetal growth scans. Timing of birth should be discussed with women and possible modes of delivery early in the third trimester. Cesarean delivery is the commonest and most accepted mode for triplet pregnancies; however, there remains a need for large prospective studies to determine the optimal mode of delivery. There is an argument that vaginal delivery may be offered safely to a selected population of triplet pregnancies, but this is a controversial option [14].

Conclusion

Multiple pregnancies should be referred to obstetricians for shared care, due to the higher risk of mother and fetuses. Clinical care for women with triplet pregnancies should be provided by a team of specialist obstetricians, specialist midwives and ultrasonographers, all of whom have experience and knowledge of managing this pregnancies and must be referred to a tertiary level fetal medicine centre.

Bibliography

1. "Multiple pregnancy: antenatal care for twin and triplet pregnancies". NICE Clinical Guideline (2011).
2. Multiple pregnancy; NICE Quality Standard (2013).
3. Martin JA., *et al*. "Births: Final Data for 2015". National Vital Statistics Reports 66.1 (2017).
4. Martin JA., *et al*. "Triplet births: trends and outcomes, 1971-94". *Vital and Health Statistics. Series 21* 55 (1997): 1-20.
5. American College of Obstetricans and Gynecologists. "Multifetal gestations: twin, triplet, and high-order multifetal pregnancies. Practice Bulletin No. 144". *Obstetrics and Gynecology* 123.5 (2014): 1118-1132.
6. Cohn Meredith. "Rare identical triplets born to Baltimore couple". Baltimore Sun (2015).
7. Dodd JM., *et al*. "Specialised antenatal clinics for women with a multiple pregnancy for improving maternal and infant outcomes". *Cochrane Database of Systematic Reviews* 11 (2015): CD005300.
8. Martin JA., *et al*. "Births: final data for 2009". *National Vital Statistics Reports* 60.1 (2011): 1-70.
9. Birth Characteristics in England and Wales, Statistical bulletin; Office for National Statistics (2014).
10. Glinianaia SV., *et al*. "The North of England Survey of Twin and Multiple Pregnancy". *Twin Research and Human Genetics* 16.1 (2013): 112-116.
11. Intrauterine laser ablation of placental vessels for the treatment of twin-to -twin transfusion syndrome; NICE Interventional Procedure Guidance (2006).

12. Roberts D., *et al*. "Interventions for the treatment of twin-twin transfusion syndrome". *Cochrane Database of Systematic Reviews* 1 (2014): CD002073.

13. Rossi AC and D'addario V. "Twin-twin transfusion syndrome". *Minerva Ginecologica* 61.2 (2009): 153-165.

14. "Monochorionic Twin Pregnancy, Management (Green top Guideline No. 51)". Royal College of Obstetricians and Gynaecologists (2016).

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