

Intrauterine Single Fetal Demise in Twin Pregnancy

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Abstract

Intrauterine demise of one of the twin fetuses during second or third trimester of pregnancy is an uncommon complication. Fetal death of a twin during the first trimester is not an uncommon event and does not appear to impair the development of the second twin. However, fetal death during second or third trimester may increase the risk of IUGR, microcephaly, cerebral encephalomalacia, pre eclampsia, preterm labour, perinatal mortality. We present two cases with single fetal demise. Death of one of the two fetuses occurred at 23 weeks of gestation in the first case and at 33 weeks in the second case. Both patients were managed conservatively with close fetal monitoring and serial assessment of mother's clotting profile. Cesarean section was done especially due to patients' interest at 34 weeks and 35 weeks respectively. A fetus papyraceous was found in the first case. Both the cases were dichorionic diamniotic pregnancies with no maternal and fetal complications during pregnancy or the post partum period.

Keywords: Twin pregnancy; single fetal demise; fetus papyraceous.

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Introduction

The incidence of multiple pregnancy has increased in recent times due to overuse of ovulation induction drugs and assisted reproductive technology.¹ The incidence varies from place to place, being as high as 26.0-40.2 per 1000 deliveries in Nigeria and as low as 6.0-9.0 per 1000 deliveries in South and South-East Asia.² Intrauterine single fetal demise during second and third trimester is an uncommon complication. This might pose management challenge to the

obstetricians. It is a cause of great concern and psychological stress to the patient and her relatives. Reported incidence of single fetal death in twin range between 0.5-6.8%.^{3,4} Most of these are monochorionic twin gestations and can occur at any gestational age. The demise of one twin occurs after 24 weeks of gestation in 1.1% dichorionic twin in comparison to 3.6% of monochorionic twins. Causes of fetal death may include placental insufficiency, discordant growth,

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congenital malformation, twin-twin transfusion syndrome, placental abruption, blunt abdominal injury, etc.⁵

The severity of complications following death of a twin is dependent on the chorionicity and the gestational age at which it occurred.^{1,4,6} Fetal death of a twin during the first trimester is not an uncommon event and does not appear to impair the development of the second twin.⁷ However, fetal death during second or third trimester may increase the risk of IUGR, microcephaly, cerebral encephalomalacia, pre eclampsia, preterm labour, and perinatal mortality.^{1,8-10} In all cases, however, disseminated intravascular coagulation (DIC) may occur, and close fetal surveillance is needed. Fetal demise in first trimester has less complications as the dead fetus may be fully absorbed and it is called 'vanishing twin'. But the complications are more if demise occurs during second or third trimester, especially DIC and neurological complications.⁴ In majority cases, it is difficult to know the exact time of fetal demise in utero.

Maternal coagulopathy has been reported to occur in 3-5 weeks following fetal death.⁶ So, maternal clotting profile should be reassessed every 2-3 weeks when the fetal demise occurs after first trimester. These cases are reported due to rarity, optimum outcome and the ethical considerations required during management.

Case 1

A 24 years old primigravida, at five and half months of pregnancy was admitted in Obs and Gynae department of Nightingale Medical College Hospital, Ashulia with the complaints of history of fall and abdominal pain. She was an unbooked case and one of her previous USG scan revealed 12 weeks of alive twin pregnancy. She had regular menstrual cycle with no history of twinning in her family. There was also no history of taking ovulation inducing drugs. Her vital parameters were normal. Per abdominal examination revealed pregnant uterus of 24 weeks size. Obstetric ultrasonography showed twin

pregnancy with alive first baby of 22 weeks gestation and a dead second baby of 19 weeks gestation. Estimated weight of the live baby was 700 grams, no fetal anomalies were seen. Amniotic fluid was adequate, placenta was dichorionic diamniotic which was located in fundus. Her routine hematological investigations (Hb%, platelet count, bleeding time, coagulation time, prothrombin time) were normal. There was no albuminuria. Serum fibrinogen level, APTT, FDP, D-dimer could not be done due to financial reasons. Clinical diagnosis of 23 weeks of twin pregnancy with intrauterine demise of one baby was made. It was a great challenge for us whether to continue the pregnancy or not. The patient and her relatives were in anxiety. We consulted with medicine consultant as there was chance of maternal hypofibrinogenemia. Finally, we decided to continue after proper counseling with the attendants regarding risks of the alive baby and also maternal hypofibrinogenemia. Then she was discharged from hospital. We assessed her at two weeks interval with coagulation profile and USG. Her coagulation profile was within normal limit. As per USG, growth of the surviving twin was normal. She was given tocolytic drug and dose of dexamethasone for lung maturation was completed at 30 weeks. At 34 weeks of pregnancy decision for delivery was taken mainly in the maternal interest. Patient's relatives were told about the prognosis of the fetus and possible risks of excess hemorrhage during cesarean section. After consultation with pediatrician and anesthesiologist, the patient was undergone cesarean section under spinal anesthesia. First baby was delivered by vertex presentation, a female child of 2.4 kg with 8, 9 APGAR. A compressed fetus papyraceous weighing 250 grams was found attached with a rudimentary cord to the placenta. The placenta was diamniotic and dichorionic. Due to non availability of expertise, detailed placental study could not be carried out. There was no cord or fetal anomaly.

Post operative period was uneventful. The baby was breast fed successfully. Both the mother and the baby were discharged at 6th postoperative day with the advice for regular follow up for the baby

regarding its neurological development. At six month follow up no abnormalities were observed in the mother or the baby.

Case 2

A 26 years old lady, para 1+0 came in a private chamber at 33 weeks of pregnancy with the complaints of less fetal movement. She was an unbooked case. An USG was done which showed twin pregnancy with one fetus of 32 weeks and alive. The second fetus was dead and of 28 weeks gestation. The couple was in great anxiety. They were assured and counseled regarding prognosis of mother and alive baby. They wanted to continue the pregnancy. She was assessed with clotting profile and USG weekly which were within normal limit. She was completed with dose of steroid. At 35 completed weeks the patient complained of less fetal movement although fetal heart sound and CTG were reassuring. Decision was taken for cesarean section due to her husband's interest. The first baby was born by vertex which was a male baby weighing 2.6 kg with APGAR 8, 9. The second sac was ruptured and a macerated fetus weighing 1.2 kg was delivered. Placenta was delivered carefully and it was dichorionic as a separating membrane was noted. The alive baby was assessed by a neonatologist and she advised for breast feeding. No complications were observed in the postpartum period. Both mother and baby were discharged at 6th post operative day. There were no abnormalities on subsequent follow up.

Discussion

Intrauterine single fetal demise poses a management challenge to the obstetricians. The risks of conservative management should be weighed against risk of preterm birth. When patient is kept on conservative management, the close monitoring of both mother and fetus must be performed.¹ Steroid prophylaxis should be administered when gestational age is less than 34 weeks to induce lung maturation. Psychological

support for the patient and her relatives is very important because they become anxious about the death of the surviving twin. In both of our cases the relatives were counseled and wanted to continue pregnancy. We closely monitored the patients with clotting profile and USG for fetal surveillance. The patients had completed dose of steroid.

The etiology of death of single fetus in twin include twin-twin transfusion syndrome, cord complications (30%), congenital anomalies (25%), growth discordance (11-12%) and placental insufficiency.¹¹ When intrauterine death occurs in first trimester, vanishing twin syndrome occurs and the mother may develop only mild vaginal bleeding and cramping. If this event occurs in second trimester the dead fetus becomes compressed between the developing fetus and uterine wall. Thin mummified fetus is called fetus papyraceous (FP) which may be found within the membrane or in the placenta after delivery.¹¹ The incidence of FP is reported as one in 17000 to 20000 pregnancies.^{11,12} In our first case, fetal death occurred in early second trimester and a thin, mummified fetus papyraceous was found attached to placenta. Placental insufficiency may be the cause in both the cases although exact cause determination was not possible.

Determination of zygosity is important in multifetal gestation, as the risk to the fetus differs with zygosity. Incidence of death of one fetus in twin gestation in utero is 2.7% in second trimester and 6.7% in third trimester.^{1,13} The fetal complications are more with monozygotic twins.^{1,4-6} Twin specific complications in relation to zygosity is abnormal vascular communication, which is seen in monochorionic placenta.¹ Rarely, significant shunts between fetuses occur leading to acardiac twin to twin transfusion syndrome. Other complications associated with vascular communication are cerebral palsy, microcephaly, multicystic encephalomalacia caused by ischemic necrosis, leading to brain damage because of hypotension and death of one fetus.¹ As there is chance of developing neurological damage of the

surviving twin a detailed neonatal evaluation to detect abnormalities in circulatory, renal and CNS should be done. Effects of dead fetus on the surviving twin are unlikely in dichorionic gestation.¹ As Both of our cases were dichorionic diamniotic pregnancies, probably no abnormalities were detected in fetuses.

Adverse effects of dead fetus on the mother are rare if death occurs before 34 weeks. From dead fetus fibrin and thromboplastin are released in circulation causing DIC which is fatal for both the mother and the fetus.¹⁰ The incidence of DIC is 25%.¹² So mother is assessed at regular interval and when pregnancy has reached up to 34 weeks, delivery should be planned.¹ Mode of delivery should be decided by standard obstetrical indications. Vaginal delivery is not contraindicated.⁵

Here, we presented two cases of intrauterine single fetal demise discovered during second and third trimester respectively. Both were dichorionic diamniotic pregnancies. Cases were managed conservatively up to 34 weeks of gestation with appropriate evaluation, consultation with medicine specialist, neonatologist and counseling to the relatives. The patients were successfully managed with good maternal and fetal outcome.

Conclusion

The sequelae of a single fetal death in a twin pregnancy depend on the gestation and chorionicity. Fetal monitoring and sonographic determination of chorionicity are mandatory. It is challenging for the obstetricians to decide appropriate time and mode of delivery. Proper counseling and management can result in successful outcome.

Case 1



Fig 1: Compressed dead fetus



Fig 2: Alive baby of 2.4 kg



Fig 3: Baby of Case 1 at 14 months with her father

Case-2



Fig 4: Alive baby of case 2



Fig 5: Dead macerated second baby



Fig 6: Baby of case 2 at one year with his mother

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