

Delayed interval delivery (DID) with raised markers of infection and emergency cervical cerclage – a case report and review of literature

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Abstract

Typically, all fetuses of a multiple gestations deliver within a short interval; however, in selected cases, the preterm birth of one fetus may not require delivery of the other fetus (es). An extended time interval between births of siblings at a critical gestational age may improve neonatal survival and reduce morbidity from preterm birth. We report a case of 41-year-old woman with twin IVF pregnancy, in which the first twin delivered at 22 weeks and the second twin was delivered at 31 weeks with a favourable outcome. **Conclusion:** With the increasing use of ART and consequent multifetal gestation, premature delivery is the most dreaded complication with the loss of all babies. In recent years the approach to the fate of after coming twins during preterm delivery has changed. Desperate attempts to salvage the second twin by delaying delivery have been reported recently in some cases with favourable outcome for the second twin.

Keywords: Delayed interval twin delivery, preterm delivery, twin delivery

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INTRODUCTION

With the increasing use of assisted reproductive technology, there is a manifold rise in incidence of multiple gestation. Multifetal pregnancies are often complicated by spontaneous preterm delivery, thereby placing the neonates at risk for prolonged hospitalization, serious morbidity, and mortality. Typically, all fetuses of multiple gestation deliver within a short interval; however, in selected cases, the preterm birth of one fetus may not require delivery of the other fetus(es). An extended time interval between births of siblings at a critical gestational age may improve neonatal survival and reduce morbidity from preterm birth. We

report a case in which first twin delivered at 22 weeks and second twin was delivered at 31 weeks with favorable outcome in a patient with previous 6 IVF failures.

CASE REPORT

A 41-year-old woman married for 7 years underwent sixth IVF (with donor eggs) at our center with history of abortion at 16 weeks in previous IVF. She had a Dichorionic –Diamniotic twin gestation and progressed successfully. All her routine investigations and obstetric ultrasounds were normal. She underwent McDonald stitch application at 13 weeks considering prior history of midterm abortion and twin pregnancy

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this time. She came at 22+4 weeks for follow up with ultrasound which revealed severe oligohydramnios of the first fetus. The second twin had normal amniotic fluid index. Leading questions were asked and patient gave history of vaginal discharge for past 10 days. On examination she had leaking PV and closed cervix. Her total leucocyte count and CRP were high (18000/cmm and 9.4 mg/L respectively). The patient was treated with bed rest and iv antibiotics (inj ceftriaxone and inj Metrogyl).

On second day of her admission she complained of something coming out per vaginum. On examination fetal parts were felt per vaginum. Patient was taken to the labor room. Her McDonald stitch was removed and 1 fetus expelled on its own. Cord was clamped and cut. Patient had no uterine contractions post expulsion of first fetus and was observed for 1 hour. After detailed counselling about the possible benefits and risks, the couple decided to take a chance with delayed delivery of the remaining fetus.

After informed consent, decision was taken for emergency cervical cerclage. Patient was shifted to operation theatre and under GA with full aseptic precautions, umbilical cord of the first twin was ligated with the help of silk suture as high in the cervix as possible. The placenta of first twin was left inside the uterus. The vagina was gently cleaned with povidone iodine. Foot end of the OT table was raised so as to prevent bag of other twin coming in way of suture. The remaining cervical length was approximately 1 cm and there was no bulging of fetal contents or amniotic bag in the cervical canal. Repeat Mc Donald stitch was applied very gently with prolene No.1 suture on round body needle keeping the knot of suture in post fornix. Inj duvadilan (isoxsuprine hydrochloride 10 mg) was also given intramuscularly at the start of procedure.

Her TLC count and CRP started declining from the next day (12,000/cmm, 5.3 mg/L). She was kept on same injectable antibiotics for 1 week followed by oral cefixime and metrogyl for 2 more weeks. She was also given oral dydrogesterone 10 mg twice a day along with inj hydroxyprogesterone caproate 500 mg once a week for the whole duration of her pregnancy. She was initially monitored every alternate day with TLC along with daily 4 hourly monitoring of temp, pulse, uterine contractions, tenderness etc. Her ultrasound and colour doppler was done weekly to assess fetal well-being. She remained afebrile throughout hospital course.

Two doses of 12 mg of betamethasone were also given intramuscularly at 26 weeks. Around the same time, she developed some uterine irritability. Since she had already achieved the gestation of viability and her infection markers were within normal range, decision for atosiban infusion was taken to halt mild uterine contractions. Atosiban was administered intravenously in three successive stages: an initial bolus dose (6.75 mg- 0.9 ml of 37.5mg/5ml atosiban concentrate), followed by a high dose infusion for 3 hours (loading infusion 300 micrograms/min), followed by a lower dose of atosiban infusion (100 micrograms/min) up to 45 hours. Following this her hospital course was uneventful till 31 weeks of pregnancy.

She had Leaking PV at 31 weeks when her LSCS was done and a healthy though premature female child was born (59 days interval period). Two placentas were delivered, one of which was small, fibrous and calcified, with a narrow necrotic umbilical cord. The post-operative recovery of mother was uneventful. The neonate stayed in the NICU for 28 days and discharged in a healthy condition.

REVIEW OF LITERATURE

In recent years the approach to the fate of after coming twin has changed. In couples suffering from infertility and attempting ART, desperate attempts to salvage the second twin have been tried recently, in cases of premature delivery of the first twin. To evaluate survival benefit of the second twin from delayed interval delivery compared to the first twin, literature was reviewed.

First case report of delayed interval delivery (DID) was reported by Corson in 1880^[1] in the *BMJ* in a case with uterine didelphys. Between 1880 and the mid 1950s there were sporadic case reports of similar occurrences of uterine didelphys pregnancies with intervals up to 56 days, occasionally despite attempts to deliver with pitocin. In 1957 Abrams^[2] reported a DID in a normal uterus with a delay of 35 days. The first twin was 14oz and died soon after birth. The second twin was 2lbs 4ozs and survived. The mother did well. Drucker *et al.*^[3] reported in 1960 a 65 day DID with antibiotics in a normal uterus.

Earlier after the premature delivery of first twin no intervention was done to, purposefully prolong the duration of delivery of second twin, not expecting a favorable outcome. Many articles cited that the perinatal mortality rate of a retained second twin was higher than that of a first twin and was related to the period of retention.^[4]

Even active intervention by way of operative procedure or induction was done to deliver second twin.

First attempt of purposeful prolongation of gestation was done by Eicher in 1970^[5] and was successful in prolonging the delivery interval by 72 days after the first birth, with the use of sedatives, progesterone and tocolytics.

Thomsen in 1978,^[6] reported a DID with the first mention of the use of a cerclage and antibiotics, tocolytics and dexamethasone. In 1980s some cases are reported in the literature with Twins and triplets with Intervals of 5-131 days between deliveries. Some using cerclage, most using tocolysis and antibiotics showing 100% first twin death and high mortality of second twin.

The first systematic review of Delayed interval delivery in multifetal pregnancy was done in 1998 by Porreco, Diss Sabin, Heyborne and Lindsay.^[7] The perinatal mortality of firstborn infants in pregnancies in which a delayed-interval delivery was attempted was 70%, compared with 18% for the fetuses who were retained after the birth of their sibling(s).

In a retrospective study in 2000, with 24 twin pregnancies in whom delayed interval delivery was attempted the mean latency interval was 36 days, with a range of 3 to 123 days.^[8] Additionally, patients with previous cerclage(s) had significantly shorter mean latency intervals than patients without previous cerclage(s). Patients with long latency intervals (> or =49 days) had earlier births of the first fetus.

Recent systematic review by Feys *et al.*^[9] shows clear evidence of lower mortality risk of the second twin with DID.

A question to be answered was whether circlage should be performed or not. Arabin *et al.*^[10] did not perform it at all in their 17-year study, due to the potential risk that this invasive technique represents to the potentially infected gestational sac. However, Ariad *et al.*^[11] did it systematically to reduce the exposure of the amniotic membranes to the septic environment of the vagina. Fayad *et al.*^[12] only did it when there were changes in the cervix during follow-up. None of these three options have caused a significant improvement in survival, prolongation of delay or maternal complications. Zhang *et al.*^[13] retrospectively analyzed 7 cases that were offered cervical cerclage after delivery of the first

twin and found that the procedure did not increase the risk for intrauterine infection.

In a retrospective analysis of 20 cases by Doger^[14], conclusion was that cervical cerclage after the first delivery is associated with a longer delivery interval and higher birthweight of retained fetus. In a very recent retrospective analysis of 3 cases Nan *et al.*^[15] in 2020 concluded that cervical cerclage after the first delivery could prolong the pregnancy until an adequate gestational age at which an enhanced prognosis and better perinatal outcome for the second twin can be achieved.

CONCLUSION

With increasing use of ART and consequent multifetal gestation, delayed interval delivery rates are expected to increase in coming years. Better antenatal surveillance and new tocolytic agents are becoming more popular. Elective cerclage may be considered in twin pregnancies with delivery of the first twin before 23 weeks of gestation.

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Conflicts of interest

There are no conflicts of interest.

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