TRUE KNOT OF UMBILICAL CORD PRESENTING WITH REDUCED FETAL MOVEMENTS - CASE REPORT

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ABSTRACT

A 38 year old multigravida (gravida:4, para:2+1, live:1) with non-severe pre-eclampsia presented at 34 weeks gestation with reduced fetal movements [RFM]. Admission cardiotocography was reactive. Obstetric ultrasound showed weight on 1st centile. Dopplers showed cerebroplacental ratio of 0.9 suggestive of brain sparing. Umbilical artery pulsatility index was at 96th centile, with forward flow in diastole. In view of the persistent complaint of RFM, it was jointly decided to expedite delivery of the fetus. Per operatively, a true knot was present around 10 cms from the umbilical end with blanching proximal to the knot. The baby was delivered active, with an Apgar score of 6 and 7 at 1 and 5 minutes respectively.

KEYWORDS: True knot, Reduced fetal movements, Umbilical cord knot.

INTRODUCTION

Umbilical cord connects the placenta to the developing fetus and it is vital for transportation of oxygen and nutrients from maternal circulation to fetus and waste products back from fetus to maternal circulation, thus any abnormality in the umbilical cord results in adverse perinatal outcomes (1). With an incidence of 0.3-2%, a true knot of the umbilical cord is uncommon (2). True knot at umbilical cord attributes to four-fold increased risk of fetal loss as cord's tightening at knot due to fetal movements may cause acute fetal hypoxia (1,3). Ultrasonographic examination may occasionally reveal a 'clover-leaf pattern' or 'hanging noose' pattern, suggesting a true knot (4-5). It is thought that actual knots are mostly formed around 9-12 gestational weeks. Exact cause of true knot is still not known. Associations have been seen with long umbilical cords, small-for-gestational age fetus, polyhydramnios, multiparity, male fetus, chronic hypertension and amniocentesis (6).

Here we present a case of a multigravida woman who underwent preterm caesarean delivery at 34 weeks of gestation with true knot of umbilical cord.

CASE REPORT

A 38 year old multigravida (gravida:4 para:2+1 live:1) with non-severe pre-eclampsia presented at 34 weeks gestation with reduced fetal movements [RFM]. Her blood pressure was controlled on oral labetalol [200mg]. She had unexplained intrauterine fetal demise in the first pregnancy at 7 months. In the second pregnancy, she had preterm cesarean section [CS] at 8 months. The baby had duodenal atresia for which he was successfully operated in the neonatal period. There was history of pre labour rupture of membranes. General and systemic examination was normal. Uterus was relaxed and corresponded to 32 weeks gestation. Fetus was in longitudinal lie and cephalic presentation. Admission cardiotocography [CTG] was reactive. Obstetric ultrasound showed weight on 1st centile. Dopplers showed cerebroplacental ratio of 0.9 suggestive of brain sparing. Umbilical artery pulsatility index was at 96th centile, with forward flow in diastole. The patient was started Injection Dexamethasone [6mg] 12 hourly, for fetal lung maturity. The mother persisted in her complaint of RFM. Serial CTG showed a rising baseline fetal heart rate [FHR] which was concerning, absent accelerations and reduced variability. A joint decision for delivery by CS was taken, along with the patient. Per operatively, a true knot was present around 10 cms from the umbilical end with blanching proximal to the knot. The baby was delivered active, with an Apgar score of 6 and 7 at 1 and 5 minutes respectively.

DISCUSSION

It is difficult to diagnose true knot of the umbilical cord in the antenatal period. It is not a requirement for routine obstetric ultrasonography and the diagnosis is merely as a chance observation. Though uncommon, they are a contributor to adverse outcomes such as fetal distress

and stillbirth (1, 3). One of the clinical indicators remains maternal perception of RFM (7). Therefore, it is imperative that all cases of RFM be taken seriously even though there may be no clinical feature of fetal distress.

In our case, the points of concern were manifold - the fetus had features of severe growth restriction; our patient had received an incomplete course of corticosteroids for fetal lung maturity; the CTG features of reduced variability could very well be attributed to steroid administration; RFM in the setting of previous preterm CS could be an indicator of the scar giving way. Since the mother persisted in her complaint of RFM, we decided to expedite the delivery of the baby.

Figure 1: Showing CTG recordings

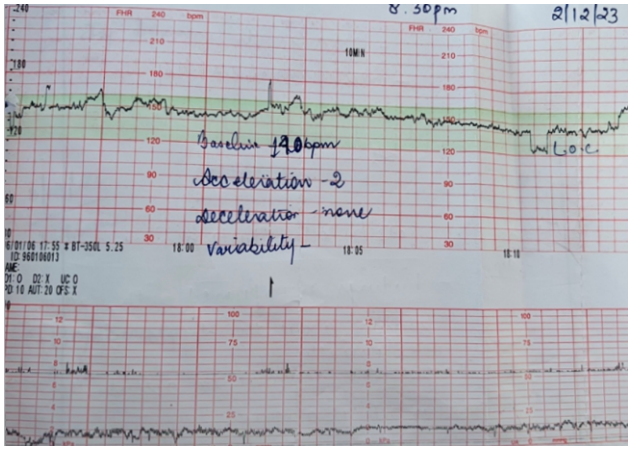

Fig. 1a: Showing initial CTG on admission which was reactive [baseline of 145 bpm , normal variability (5-10 bpm) , with 2 accelerations in 20 minutes].

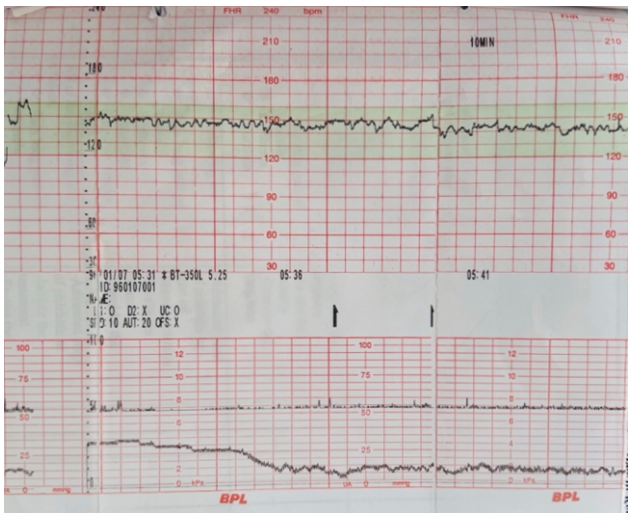

Fig. 1b: Showing CTG after 12 hours which was a category 2 CTG [baseline of 150 bpm with reduced variability (<5 bpm) and no acceleration in 20 minutes]

Fig. 2: Showing true knot of the umbilical Corderation in 20 minutes]

CONCLUSION

Reduced fetal movements should be considered as a warning sign of fetal compromise in all cases and should be investigated thoroughly for its cause. Clinical awareness, routine obstetric doppler study, adequate fetal monitoring and prompt decision making in patients with risk factors for true cord knot may help to minimize adverse perinatal outcomes in these patients.

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