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True Knot of Umbilical Cord Causing Term IUD

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Abstract:

Introduction: True knot of the umbilical cord can cause fetal jeopardy during labour due to tightening of the knot. But true knot causing fetal demise before labour is rare. *Case Report:* A 22 year old primigravida with uneventful antenatal period reported with absent fetal movements at 37 weeks. Evaluation revealed IUD and she delivered a fresh still born baby after labour induction. There was a true knot at the middle of the cord with ischemic changes in the cord. *Conclusion:* True knot of the umbilical cord is rare. This should be considered as one of the causes for sudden intrauterine demise, not only during labour but also near term especially in a well baby which is actively moving around.

Key words: Umbilical cord, Pregnancy, Fetal Death, Fetal Movement, Term Birth.

Introduction

True knots and false knots can form in the umbilical cord. True knots occur in approximately 1% of pregnancies, with the highest rate occurring in monoamnionic twins. True knots arise from fetal movements and are more likely to develop during early pregnancy, when relatively more amniotic fluid is present and greater fetal movement occurs. True knots are also associated with advanced maternal age, multiparty and long umbilical cords.

True knots have been reported to lead to a 4-fold increase in fetal loss, presumably because of compression of the cord vessels when the knot tightens. Fetal jeopardy usually occurs in either in the second trimester or during the process of labour where the cord gets tightened as the fetus descends through the birth canal [1]. Here we are reporting a case of true umbilical cord knot leading to fetal demise at term before the onset of labour, which is rare.

Case Report

A 22 year old primigravida with singleton pregnancy reported to us. She had regular antenatal check- ups, an uneventful antenatal period which was clinically and sonologically followed up. She had no history of hypertensive disorders, gestational diabetes or thyroid disorders. She also had no history of any chronic drug intake. A good fetal wellbeing was demonstrated about 5 days prior to this particular visit at 37 weeks of gestation, when she visited us

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with sudden absence of fetal movements. There was no history of abdominal pain, fever, bleeding or leaking per vaginum.

On examination, she was conscious, oriented and her general condition was normal. She had stable vital signs and a normal blood pressure recording. Clinically the uterus was corresponding to the period of amenorrhea but without demonstrable fetal heart sounds. Uterus was non tense and non tender. There was no evidence of labour, abruption or leaking per vaginum.

Ultrasonography revealed a baby with no cardiac pulsations consistent with intrauterine fetal demise. The baby was appropriate for gestational age with adequate amount of liquor and no evidence of abruption or low lying placenta. She was then induced with prostaglandin E1 (misoprostol) after thorough evaluation and ensuring normalcy in all vital parameters including coagulation profile. The patient promptly responded to labour induction and delivered a fresh still born baby weighing 3 kg. She had an uneventful intrapartum period of eight hours followed by a normal post-partum period as well. She was given appropriate counseling in view of the loss of the fetus and drugs for lactation suppression and discharged on postnatal day 2.

The still born baby was associated with a true knot at the centre of the umbilical cord with evidence of ischemic necrosis of the portion of the cord towards the baby [Fig.1]. The cord measured 59 cm. The placenta was normal without any retroplacental clots or ischemic areas and weighed 525 grams.

Discussion

Umbilical cord problems causing fetal compromise and perinatal morbidity and mortality are not uncommon. True knot of the umbilical cord causing fetal demise is relatively rare, and if at all occurs it may be in the second trimester (due to relatively more amniotic fluid and thus more fetal movements) or during the process of labour (due to further tightening of an already existent knot). When the true knot remains tight, it may impede the circulation of the fetus and may result to fetal death in utero [2].

Fig.1: True knot of the umbilical cord with baby and placenta.

The incidence of true knot of the umbilical cord is not only very low but it is often undiagnosed antenatally when present despite the availability of prenatal ultrasonography. Diagnosis of true knot may be made using 4D color Doppler study [3]. To make a precise diagnosis a careful observation for the abnormality is necessary and its repeated confirmation by color Doppler and power Doppler. Perfection of true umbilical cord knot diagnoses may reduce sudden and unforeseen fetal distress or demise. All this said the scope of antenatal diagnosis if at all made, in salvaging the baby, especially in the present case where fetal demise suddenly occurred at 37 weeks, is doubtful. The chief line of our management even in the face of antenatal detection of a true knot would be hospitalization and continuous monitoring with possible early termination. The unfortunate aspect

about this kind of mishaps is, that it is a possibility in a well and active baby which unlike its compromised counterpart is not under high scrutiny or monitoring, that might have helped pick up the telltale signs of fetal distress.

In our case, we could have opted for a colour flow Doppler screening for identification of any abnormal vascularity. A high index of suspicion, leading to a detection of entangled cord suggestive of true knot antenatally could have alerted us for further vigilant monitoring of the fetal status. With this knowledge and adequate counseling, monitoring of fetal movements by the mother could have been intensified. And this furthering the cause towards early action at a slightest signal of fetal compromise and thus saving a valuable life. In addition, the mother and the family could have used the preparedness about the condition and its possible consequences in case of such untoward events.

Conclusion

True knot of the umbilical cord is rare. This should be considered as one of the cause for sudden intrauterine demise, not only during labour but also near term especially in a well baby which is actively moving around. Studying the umbilical cord routinely by color Doppler may be useful for antenatal diagnosis and appropriate interventions, thus preventing unfortunate outcomes.

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