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Case Report

Two true knots in the umbilical cord: a rare case report

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ABSTRACT

True knots of the umbilical cord are infrequent but significant complications in obstetrics, occurring in approximately 0.3% to 2% of pregnancies. Their formation is often associated with factors such as increased fetal mobility, excessive amniotic fluid, and maternal conditions like diabetes. These knots can lead to serious outcomes, including fetal distress and stillbirth, necessitating careful monitoring and management. We present the case of a 30-year-old woman Gravida 1 Para 1 Live birth 1 (G2P1L1) with a known case of type 2 diabetes mellitus who presented at 36 weeks and 6 days of gestation with mild labor pains. Upon evaluation, she exhibited persistent fetal tachycardia and non-progressing labor despite augmentation efforts. An emergency lower segment cesarean section (LSCS) was performed, revealing two true knots in a lengthy umbilical cord measuring approximately 70 cm, along with one loop wrapped around the neck. The timely intervention resulted in a favorable outcome for both mother and baby. This case highlights the importance of recognizing and managing true knots in pregnancies complicated by diabetes and other risk factors. As these noted are mostly obscured on ultrasound and diagnosis is made only post placental delivery, it underscores the need for vigilant prenatal monitoring and a low threshold for surgical intervention in cases of fetal distress.

Keywords: True umbilical cord knots, High-risk pregnancy, Fetal distress, Cesarean delivery, Prenatal monitoring

INTRODUCTION

True knots of the umbilical cord represent a rare but critical obstetric finding, with an incidence between 0.3% and 2% of pregnancies.[1] They are associated with adverse fetal outcomes, particularly in high-risk pregnancies such as those complicated by diabetes, polyhydramnios, or advanced maternal age.[1,2]The formation of true knots of the umbilical cord occur in early gestation (between 9 and 12 weeks) is attributed to increased fetal mobility, prolonged umbilical cords, and excessive amniotic fluid, and patients who have undergone genetic amniocentesis.[3,4] Typically, the average umbilical cord measures around 55 cm in length, while cords exceeding 80 cm are considered unusually long and may increase the risk of entanglement.[5] This report highlights a rare case of two true knots, emphasizing the importance of prenatal surveillance and timely intervention.

CASE REPORT

A 30-year-old woman (G2P1L1) with Type 2 diabetes mellitus presented at 36+6 weeks gestation with mild labor pains. Her obstetric history included gestational diabetes in a prior pregnancy resulting in a macrosomic infant weighing 3.7 kg.

Upon admission, fetal tachycardia (170-188 bpm) was noted on cardiotocography (CTG), and labor progression was non-responsive to augmentation.

Clinical findings

History and symptoms

The patient reported mild, irregular contractions. Vital signs were stable, and fetal movements were adequate.

Examination and imaging

Physical examination revealed a term uterus with fetal head engagement (head 4/5 palpable). CTG monitoring showed persistent tachycardia, indicative of fetal distress.

Labor management

Labor induction with cerviprime gel failed to induce progression, necessitating emergency lower segment cesarean section (LSCS).

Surgical findings

The LSCS revealed a lengthy umbilical cord (70 cm) with two true knots and one loop wrapped around the fetal neck. Excess amniotic fluid was noted intraoperatively. The baby was delivered with Apgar scores of 8 and 9 at one and five minutes, respectively.

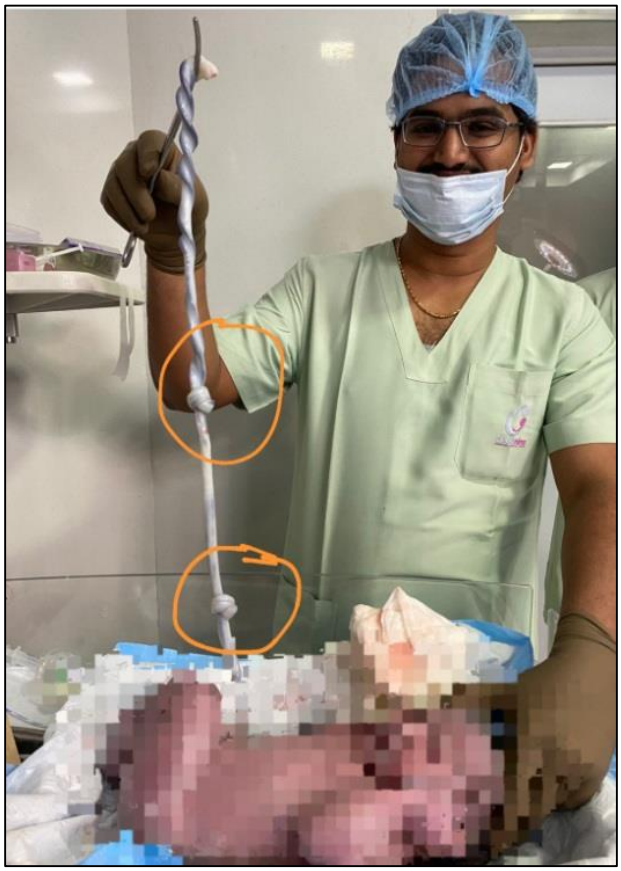

Figure 1: A lengthy umbilical cord with two true knots.

DISCUSSION

A true umbilical cord knot, though relatively uncommon in clinical obstetric practice, carries significant emotional weight for both the obstetrician and the expectant mother.[6] The incidence of a double true knot in the umbilical cord is unknown but is believed to be even rarer than that of a single true knot.[3,7] Fetuses with such knots face a 4 to 10 fold increased risk of stillbirth, along with perinatal complications occurring in up to 11% of cases.[3,5] The findings in this case correlate with previously published reports highlighting that advanced maternal age, multiparity, and gestational diabetes are significant risk factors for true umbilical knot.[1,2] The patient's age (30 years) and history of diabetes align with these risk factors, reinforcing the need for careful monitoring during pregnancy.

Previous studies have shown that true umbilical cord knots can result in adverse outcomes, including fetal asphyxia and stillbirth. However, their occurrence is an unexpected event that typically does not warrant changes to the obstetric approach for delivery.[8] In this case, despite the presence of two true knots, the outcome was favorable due to timely intervention through LSCS. This case contributes to the existing literature by demonstrating that even rare occurrences like double true knots can result in positive outcomes when managed appropriately.

True knots are often challenging to detect prenatally, as ultrasonography has limited sensitivity.[5] Enhanced surveillance in high-risk pregnancies, including frequent CTG monitoring, can facilitate early intervention.[9]

CONCLUSION

This case underscores the critical need for vigilant prenatal monitoring in pregnancies with risk factors for umbilical cord anomalies. Early recognition of Fetal distress and timely surgical intervention can mitigate potential adverse outcomes. Recommendations include enhanced prenatal screening for high-risk patients, consideration of elective cesarean delivery in cases with significant risk factors, and further research into optimal management strategies for true knots. However, this study’s findings are limited by its singular case nature, which restricts generalizability. Multicentric studies are essential to validate and establish comprehensive management protocols for true knots.

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