

## Precipitous Delivery in a Patient with a True Umbilical Cord Knot

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### ABSTRACT

*True umbilical cord knots are relatively rare conditions that usually cause no fetal harm but can lead to fetal distress and death. We report the case of a 36 year old gravida 4 para 2 G4P2 parturient who delivered precipitously and was later found to have a true umbilical cord knot. Our patient had multiple risk factors including gestational diabetes, male infant and long umbilical cord but ultimately delivered a healthy baby boy.*

### Introduction

True umbilical cord knots are relatively rare conditions that usually cause no fetal harm but can lead to fetal distress and death. The incidence of a true knot in the umbilical cord is approximately 1%-2% [1]. This anomaly can be detected in utero, however antenatal diagnosis is often elusive. Current recommendations encourage vaginal delivery as the risk of adverse fetal outcomes associated with this condition is difficult to quantify. We report the case of a 36 year old gravida 4 para 2 G4P2 parturient who delivered precipitously and was later found to have a true umbilical cord knot.

### Case Report

Our patient is a 36 year old G4P2 female with sub-optimally controlled gestational diabetes managed with dietary modifications who received standard antenatal care. She was being followed regularly in the outpatient clinic with no significant gestational complications. She was noted to have a 6cm uterine fibroid on ultrasound but it had not posed any clinical concerns. She presented to the labor and delivery unit completely dilated and effaced at 36-week gestation and proceeded to deliver precipitously approximately 15 minutes after her arrival. The baby's Apgar scores were 8 and 9 and the umbilical cord knot (Figure 1) was discovered after delivery. The baby weighed 3080 grams. The male neonate was noted to be generally drowsy but required no interventions and had no other complications.

### Discussion

True umbilical cord knots are relatively rare, occurring with an incidence of 1-2% of all gestations [1]. A knot occurs when a segment of the umbilical cord becomes entwined upon itself [2]. These knots are correlated with polyhydramnios, monoamniotic twin gestation, long umbilical cords, velamentous cord insertion and gestational diabetes [3], as well as male gender. Umbilical cord knots are often discovered incidentally at the time of delivery, however antenatal discovery is possible and it has been proposed that women with the above risk factors should be thoroughly evaluated via ultrasonography to rule out this anomaly [4]. Three dimensional and four dimensional ultrasonography evaluation accompanied by color Doppler examination is the most effective means of evaluating for this anomaly, however even this method can miss this condition in many patients. Knots are thought by some to be formed between 9-12 weeks of gestation and can also be formed during labor [2], however there is documentation of formation of knots during all trimesters [5].

Fetuses with umbilical cord knots often experience distress during delivery and stillbirth at delivery has also been noted [3]. Fetuses found to have true knots of the umbilical cord have a greater likelihood of still birth, low Apgar scores, intrauterine growth restriction (IUGR), premature birth, and NICU admission [6]. Despite this risk, caesarean section is not routinely recommended for this presentation, as the majority of babies found to have

umbilical cord knots do well and caesarean delivery does not appear to correlate with improvement in outcome [7]. The diagnosis of a true umbilical cord knot can be difficult, with some authors recommending four- dimensional and color Doppler examination as a requisite in the evaluation for this anomaly. The diagnosis of a condition that is rarely harmful and for which no intervention consistently produces any benefit, does lead to an ethical dilemma. Multiple authors debate whether diligent surveillance of the at risk population for this rare anomaly provides any benefit or cause anxiety for the patient and provider [8,9].

In conclusion, a true knot of the umbilical cord is a diagnosis that is often difficult to make prenatally, but when present carries a risk of fetal demise. Our patient had multiple risk factors including gestational diabetes, male infant and long umbilical cord but ultimately delivered a healthy baby boy.



**Figure 1:** True Umbilical Cord Knot in a parturient with precipitous delivery.

## References

1. Camann W, Marquardt J. Images in clinical medicine. Complex umbilical-cord knot. *N Engl J Med*. 2003; 349:159.
2. Ikechebelu JL, Eleje GU, Ofojebe CJ. True umbilical cord knot leading to demise. *Annals of Medical Health Science Research*. 2014; 4: S155-158.
3. Khan M, Zahiruddin S, Iftikhar M. True knot of umbilical cord: Case report and review of literature. *Journal of Pakistan Medical Association*. 2016; 66: 1037-1038.
4. Guzikowski W, Kowalczyk D, Wiecek J. Diagnosis of true umbilical cord knot. *Archives of Medical Science*. 2014; 10: 91-95.
5. Sepulveda W, Shennan, AH, Bower S, et al. True knot of the umbilical cord: a difficult prenatal ultrasonography diagnosis. *Ultrasound in Obstetrics and Gynecology* 1995; 5: 106-108.
6. Raisanen S, Georgiadis L, Harju M, et.al. True umbilical cord knot and obstetric outcome. *International Journal of Gynecology and Obstetrics*. 2013; 122: 18-21.
7. Arias U, Heinonen S. Clinical significance of true umbilical knots: A population based-analysis. *American Journal of Perinatology*. 2002; 19: 127-132.
8. Bohiltea RE, Turcan N, Cirstoiu M, et al. Prenatal ultrasound diagnosis and pregnancy outcome of umbilical cord knot-debate regarding ethical aspects of a series of cases. *J Med Life*. 2016; 9: 297-301.
9. Vasilj O, Matijevic R, Miskovic B. Do we sometimes see too much? Prenatal diagnosis of a true umbilical cord knot. *European Journal of Obstetrics& Gynecology and Reproductive Biology*. 2015; 187: 73-74.