

True Knot of the Umbilical Cord

By Jane Palmer



Recently I was at a lovely homebirth. Baby was born into his parents arms after a short but intense labour. No problems during the labour were identified. Once the woman and her baby were snuggled together and comfortable, I set to the task of checking the placenta under the woman's watchful gaze. Quickly we both saw that there was a true knot in the umbilical cord. I have seen quite a few true knots of the umbilical cord over the years – all of which have been identified after the birth and none of which were associated with a significant adverse outcome. I was interested in this finding as a variation on normal but the woman was reasonably concerned and wanted to know what were the implications for her baby in having a true knot in the umbilical cord?

I sat there and thought about the answer I would give. Certainly I was aware that a true knot in the umbilical cord can cause the baby stress in labour and in the worst case scenario can cause the death of a baby. But my experiences haven't yielded any poor outcomes so I wondered how significant is it? We discussed my positive experiences and my understanding that it is associated with poor outcomes in the literature. We also talked about the fact that I didn't know the rates of poor outcomes, so I promised to do a bit of research for the woman. Following is a summary of the information I found.

Problems with the baby's umbilical cord can cause abnormalities of the baby's heart rate in labour (both major and minor) and can be a cause of the baby dying before birth (Kaplan, 1996). However the umbilical cord contains special substance called Wharton's jelly and this protects the blood vessels of the cord even if a true knot occurs. The protective function of Wharton's jelly will, most of the time, prevent a tight knot from forming, and stops the knot from interfering with the circulation of blood going to the baby. It is not common that a significant problem occurs, which is congruent with what I have noticed in my own midwifery practice.

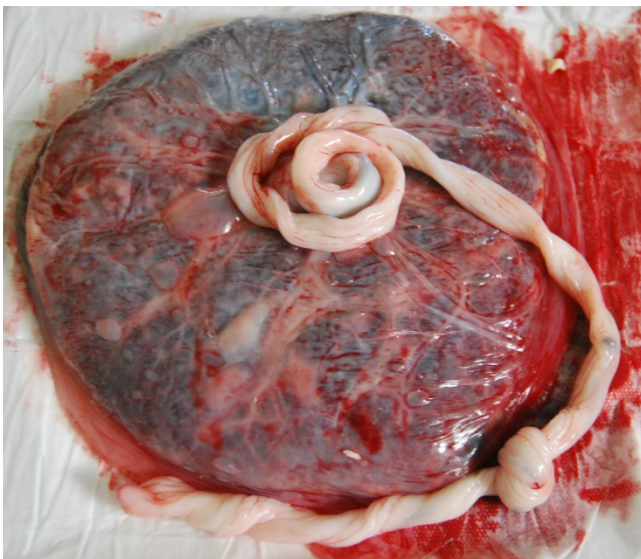
Knots rarely tighten before labour but can do so when the baby starts descending down the birth canal. While significant problems are rare, they can occur. Where a baby has a true knot in their cord there is a definite increase in the risk of death before labour begins in comparison with babies who do not have a knot in their cord. During labour there is an increase in the number of babies who show worrying heart rate changes and those babies that pass meconium liquor (this is where the baby does a poo in the waters before birth). There is also a four-fold increase in the number of babies who die before birth. Because of complications these babies are more likely to be born by caesarean than a baby that doesn't have a knot in their cord.



The literature indicates that a true knot of the umbilical cord occurs in between 0.3 to 2.2 percent of all births. The most commonly quoted statistic I found was 1.25 percent. Most true knots are discovered after the birth but with new ultrasound techniques some are discovered during the pregnancy. The following circumstances increase the chance of a true knot forming:

- Male babies
- Twins
- Women who've given birth before
- Too much amniotic fluid (polyhydramnios)
- Small babies
- Long umbilical cords

True knots of the umbilical cord are formed when the baby moves through a loop or loops of cord while being active in the uterus, and most form very early in the pregnancy (Heifetz, 1996; Hershkovitz et al., 2001; Ramón Y Cajal & Martínez, 2004; Semchyshyn, 1973). It is important to note that babies who suffer temporary stress during labour as a result of a true knot usually recover shortly after birth. A true knot is not an automatic reason to plan a caesarean birth (Airas & Heinonen, 2002). In doing my research I didn't find very many research articles on true knot of the umbilical cord – so some of this information may be the opinion of health professionals rather than fact. More research and understanding is needed.



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