

Intrauterine Death in a Fetus with Umbilical Cord Stricture: A Case Report

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ABSTRACT

We present a case of a 25-year-old primigravida with intrauterine death of fetus secondary to umbilical cord stricture at 31 weeks of gestation. She presented with a 1-day history of disappearance of fetal movements and a subsequent diagnosis of intrauterine death was made on ultrasonography. A well-defined site of stricture and torsion was present at the fetal end of the umbilical cord, distal to which the

umbilical cord was dilated and ecchymotic. Literature suggests the absence of Wharton's jelly as a probable etiology of umbilical cord stricture. This stricture can lead to acute obstruction of the fetal-placental circulation. Umbilical cord stricture is not detected on ultrasonography, which can result in unpredictable and unpreventable intrauterine death of the fetus.

Keywords: Intrauterine Death; Umbilical Cord Stricture; Ultrasonography

CASE REPORT

A 25-year-old primigravida at 31 weeks of gestation presented with a 1-day history of disappearance of fetal movements. Her past medical history was uneventful. She took obstetric examination once every 4 weeks since the 12th week of gestation. The growth parameters such as fundal height and abdominal circumference were consistent with the gestational age. Fetal measurements were also appropriate for the gestational age, according to the abdominal ultrasonography performed at 20th and 30th week of gestation. For example, the biparietal diameter and femur length at 30th week of gestation were 7.3 cm and 5.7 cm, respectively. There was no evidence of fetal growth restriction. A diagnosis of intrauterine fetal death was made on ultrasonography after admission. The patient underwent intraamniotic injection of ethacridine for labor induction, and a 1650 g dead male fetus was delivered. The fetus was grossly normal. The umbilical cord measured 50 cm in length. Patency of umbilical vessels was examined through digital palpation. They were not obstructed, and there was no perceptible thrombosis within the umbilical vessels. The umbilical cord insertion site was focally deficient of Wharton's jelly. A well-defined site of stricture and torsion was present at the fetal end of the umbilical cord, directly adjacent to the fetal abdomen (Figure 1 arrow).

Distal to the primary constriction site, the umbilical cord was apparently dilated and ecchymotic (Figure 1 arrowhead). The abdomen of the fetus was distended and reddened. The autopsy findings were unavailable, as the patient refused to perform an autopsy on the fetus, and her husband supported her in this decision. Finally, we elected not to perform an autopsy, and the fetus was cremated. The mother's recovery was uneventful, and she was discharged home on postpartum day 2.

DISCUSSION

Intrauterine fetal death is a disastrous complication of pregnancy. Umbilical cord stricture, when complete and persistent, may lead to acute obstruction of the fetal-placental circulation, and has been determined as an uncommon cause of intrauterine fetal death [1, 2]. The fact that the fetus had a grossly conformable growth before intrauterine death suggests an acute obstruction event. The potential mechanism for umbilical cord stricture remains unclear. Previous reports noted that the absence of Wharton's jelly is a probable etiology of umbilical cord stricture [2-4]. Wharton's jelly is known to protect the umbilical vessels. Local deficiencies in Wharton's jelly may leave the cord without its structural entirety, and cause weakness in the cord [3]. The fetus can rotate to cause umbilical cord torsion and stricture. The

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site of torsion is usually present near the fetus, while edema is frequently distal to the affected area [4]. Resultant vascular compromise may lead to fatal consequences for the fetus.

Umbilical cord stricture results in unpredictable and unpreventable intrauterine fetal death [1]. Clinically, the stricture cannot be detected using ultrasonography. A decrease in fetal movements and the consequent fetal death are usually the original clinical manifestations of this severe complication. Although the torsion develops acutely, the stricture could not have developed in one day. The relationship between umbilical cord stricture and acute torsion is still an open question. As the evidence in this case is limited, future research is worth looking for. Meanwhile, we hope that advances in auxiliary examination modalities will make umbilical cord stricture predictable and preventable.

Figure 1: A well-defined site of stricture and torsion is present at the fetal end of the umbilical cord (arrow). The umbilical cord is dilatational and ecchymotic (arrowhead) distal to the primary constriction site.



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