

Vaginal delivery in a pregnant woman with cord prolapse, velamentous cord insertion, and fetal vertex presentation

A case report

Pei-Chen Li, MD^a, Dah-Ching Ding, MD, PhD^{a,b,*}

Abstract

Rationale: We report a rare case of a pregnant woman with cord prolapse, velamentous cord insertion (VCI), and fetal vertex presentation who completed vaginal delivery.

Patient concerns: Without having undergone regular antepartum examinations, a 31-year-old pregnant woman, gravida 6, para 4, abortion 1, presented at 37 weeks and 3 days of gestation. She had regular labor pain and bloody show.

Diagnoses: Cord prolapse during labor and VCI after delivery.

Interventions: Per vaginal examination at 11:20 PM revealed a fully dilated cervix. Thirty minutes later, artificial rupture of the membrane was performed, and an overt prolapsed cord approximately 10-cm long was palpated in the vagina. Fetal heartbeat decelerated to 60bpm. After fundal pushing for some minutes, a female baby weighing 2130g was delivered at 11:54 PM with a pediatrician on standby. Apgar scores were 7 (0 minute), 9 (5 minutes), and 10 (10 minutes). The placenta weighed 870g and was delivered 5 minutes later, and VCI was discovered.

Outcomes: Her postpartum course was uncomplicated and both the patient and infant were discharged 3 days later.

Lessons: A pregnant woman with umbilical prolapse, VCI, and a fetal vertex presentation can successfully deliver a baby through the vagina. Factors contributing to the success of the reported vaginal delivery might have been a small fetus, multipara status, and immediate management.

Abbreviations: bpm = beats per minute, DDI = diagnosis of UCP to delivery interval, min = minutes, PM = postmeridiem, PV = per vaginal, ROM = rupture of the membrane, UCP = umbilical cord prolapse, VCI = velamentous cord insertion.

Keywords: cord prolapse, vaginal delivery, velamentous cord insertion, vertex

1. Introduction

Umbilical cord prolapse (UCP) is an infrequent and unpredictable obstetric emergency that is responsible for poor perinatal outcomes.^[1–3] UCP should be seriously considered when the fetal heart rate decelerates immediately after spontaneous or

artificial rupture of the membrane and should be confirmed through vaginal examination; examination will show the presence of a palpable cord within the vagina or a visible cord protruding from the introitus.

Velamentous cord insertion (VCI) is abnormal insertion of the cord into the membrane rather than the placental disc. VCI may be associated with adverse pregnancy outcomes such as low birth weight, preterm birth, perinatal death, intrauterine fetal death, and an increased risk of emergency cesarean section.^[4–6]

We report a rare case in which a pregnant woman with UCP, VCI, and fetal vertex presentation delivered a baby through the vagina. The patient provided informed consent for publication of this case.

2. Case report

A 31-year-old pregnant woman, gravida 6, para 4, abortion 1, who had not undergone regular antepartum examinations, presented at 37 weeks and 3 days gestation with regular labor pain and bloody show. Per vaginal examination at 11:20 PM revealed a fully dilated cervix. Thirty minutes later, artificial rupture of the membrane (AROM) was performed, and an overt prolapsed cord approximately 10-cm long was palpated in the vagina. Fetal heartbeat decelerated to 60bpm (Fig. 1A). After fundal pushing for some minutes, a female baby weighing 2130g was delivered at 11:54 PM with a pediatrician on standby. Apgar

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Consent: Authors have got the approval of the Research Ethical Committee of Buddhist Tzu Chi General Hospital for use of the clinical material in this manuscript. Informed written consent was obtained from the patient for publication of this case report and accompanying images.

The authors have no conflicts of interest to disclose.

^a Department of Obstetrics and Gynecology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, ^b Institute of Medical Sciences, Tzu Chi University, Hualien, Taiwan.

* Correspondence: Dah-Ching Ding, Department of Obstetrics and Gynecology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Tzu Chi University, Hualien, Taiwan (e-mail: dah1003@yahoo.com.tw).

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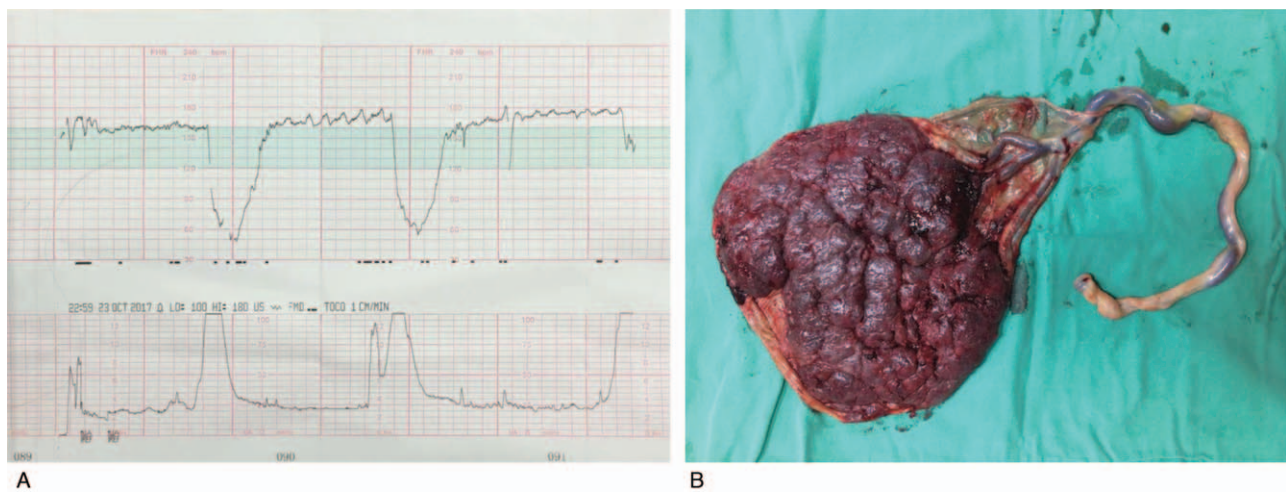


Figure 1. The fetal heart tracing and gross picture of the placenta. (A) Fetal monitor indicated the late deceleration of heart tracing. (B) The placenta exhibited velamentous cord insertion.

scores were 7 (1 minute), 9 (5 minutes), and 10 (10 minutes). The placenta weighed 870 g and was delivered 5 minutes later, and VCI was discovered (Fig. 1B). Her postpartum course was uncomplicated, and both the patient and infant were discharged 3 days later.

3. Discussion

To the best of our knowledge, this is the first paper to report the case of a woman with UCP, VCI, and vertex presentation who successfully delivered through the vagina at term. The incidence of UCP in vertex presentation is rare. One previous review reported that the overall incidence of UCP in the vertex, breech, and transverse presentations was 0.24%, 3.5%, and 9.6%, respectively.^[7] Perinatal mortality related to UCP ranges widely from 0% to 3% for fetuses that are continuously monitored in a delivery unit to 38% to 44% for those that are delivered outside a hospital.^[8]

VCI appears to be associated with an excessively long umbilical cord, low birth weight, and premature delivery.^[6,9,10] Preterm babies are smaller and their presenting part is not fully engaged to the cervix, which provides a larger space for the cord to prolapse, and thereby contributes to cord prolapse.

For this case, the decision on whether to deliver through the vagina or convert to Cesarean section was subject to clinical condition and the obstetrician's judgment. The guiding principle was to deliver the fetus as soon as possible. Cesarean section is the recommended mode of delivery in cases of UCP.^[11] However, vaginal delivery can still be attempted if the birth can be accomplished quickly and safely and fetal heartbeats can be traced to avoid the impact of the cord. A large cohort study concluded that vaginal delivery is amenable when possible and that delivery by Cesarean section was associated with a greater risk of fetal injury.^[3]

Murphy concluded that Apgar scores were better with a shorter DDI (diagnosis of UCP to delivery interval) and babies delivered vaginally generally had shorter DDIs and better Apgar scores than those delivered through Cesarean section.^[12] Intrapartum assessment of fetal heart tracing is crucial for determining the optimal mode of delivery.

Our case presented a rare occasion of UCP (0.24% in vertex presentation) and VCI (1% in the singleton pregnancy)^[9] and

successful vaginal delivery without complication. In this case, we learned that the situation was very urgent and required immediate management. First, the time of AROM in this case could be delayed. Without AROM, UCP may not have occurred. AROM is also a danger to the fetus if VCI is present. AROM can cause membranous umbilical vessel damage and harm the fetus. Second, immediate management at the time of fetal heart rate deceleration is critical. Delivery choices are vaginal or Cesarean delivery. We evaluated the fetus size and determined we could deliver the fetus vaginally. However, if the size of the fetus renders vaginal delivery infeasible, an emergency Cesarean section is the only choice for fetal delivery. Moreover, the labor course was progressing fast due to multipara. Therefore, immediate vaginal delivery could be expected. In primipara, if one encounters the condition of UCP and fetal distress, an emergency Cesarean section should be the first choice.

In conclusion, the pregnant woman in this case with UCP, VCI, and a fetal vertex presentation successfully delivered a baby vaginally. Factors contributing to the success of this vaginal delivery may have been a small fetus, multipara status, and immediate management.

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Author contributions

Pei-Chen Li, Dah-Ching Ding: study design, manuscript preparation and final approval of the manuscript.

Conceptualization: Dah-Ching Ding.

Data curation: Pei-Chen Li, Dah-Ching Ding.

Formal analysis: Pei-Chen Li, Dah-Ching Ding.

Funding acquisition: Dah-Ching Ding.

Investigation: Pei-Chen Li.

Methodology: Pei-Chen Li, Dah-Ching Ding.

Project administration: Dah-Ching Ding.

Supervision: Dah-Ching Ding.

Validation: Dah-Ching Ding.

Visualization: Dah-Ching Ding.

Writing – original draft: Pei-Chen Li, Dah-Ching Ding.

Writing – review & editing: Pei-Chen Li, Dah-Ching Ding.

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