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Velamentous Cord Insertion: A Rare Presentation

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Abstract

Velamentous cord insertion is an abnormal cord insertion in which the umbilical vessels diverge as they traverse between the amnion and chorion before reaching the placenta. With a reported incidence of 1% in singleton pregnancies, it has been associated with several obstetric complications. We here present a case of primigravida who landed into emergency cesarean section for variable decelerations indicating fetal distress. During the intervention the velamentous cord insertion was noted which was missed on routine antenatal scans. Thus, we here highlight the importance of routine scans for diagnosis of VCI and to minimize the potential obstetric and perinatal risks

Keywords: Velamentous Cord Insertion (VCI)

Introduction

The umbilical cord normally inserts into the central portion of the placenta, well away from the placental edge. The Velamentous cord insertion (VCI) refers to a condition in which, the umbilical cord inserts into the chorioamniotic membranes rather than the placental mass. The prevalence of VCI is reported to be in a range of 0.1% to 1.8% among all pregnancies. However, the risk is up to 10-fold higher in multiple pregnancies [1, 2] .The length of the membranous vessels or the distance between the end of the normal cord and the placental insertion is highly variable.

Pregnancies complicated with velamentous cord insertion are at greater risk for adverse perinatal outcome including fetal growth restriction, preterm labor, placental abruption, vasa previa, abnormal intrapartum fetal heart rate (FHR) patterns, low APGAR scores at 1 and 5 minutes, and neonatal death. [3, 4] During intrapartum period, variable decelerations and non-reassuring fetal heart rate pattern are frequently observed in cases with velamentous cord insertion. [5]

Case Report

A 24 year old female, primigravida, 40 weeks of gestation presented with the complaint of leaking per vaginum for 2 hrs. On per abdominal examination, she had fundal height of 36 weeks with fullness in flanks, the head was engaged and a regular fetal heart could be auscultated along left spinoumbilical line. On per vaginum examination, her cervical dilatation was 2 cm, posterior cervix which was firm in consistency and with a cervical length of 3.5cm. The leaking was noted and liquor was clear and membrane was ruptured. The vertex was at -3 station. The bishop's score was 2. Her vitals showed a temperature of 97*F, pulse rate of 80 per minute. Her blood pressure was 126/30 millimeter of mercury. She had an early pregnancy scan of 20 weeks which showed the placenta to be in fundoposterior location. The decision for induction with dinoprostone gel was taken.

Patient was reassessed after 6 hrs but per vaginum findings showed no progress. She was having 2

contractions per 10 minutes lasting for 20-25 seconds. The cardiotocography (CTG) showed variable decelerations. The patient and attendants were counseled and decision of cesarean section was taken for termination of pregnancy. The intervention took place without any reported difficulty. On removal of placenta, it was observed to be discoidal in shape and had insertion of vessels in the membranes, showing a velamentous placenta.

She delivered a healthy female weighing 3kg. The APGAR score was 8 and 9 at 1 minute and 5 minute.

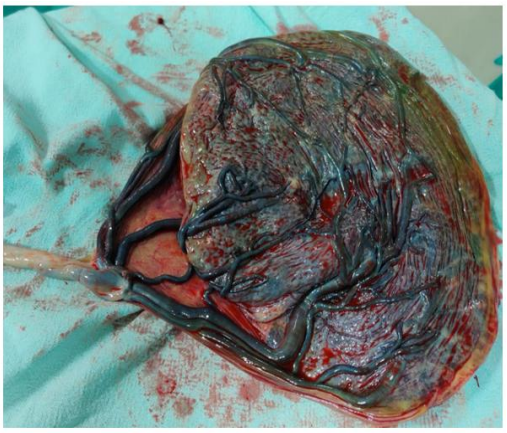

FIGURE 1: PLACENTA WITH VELAMENTOUS CORD INSERTION(VCI)

FIGURE 2: UMBILICAL VESSELS COURSING ACROSS THE PLACENTAL MEMBRANES

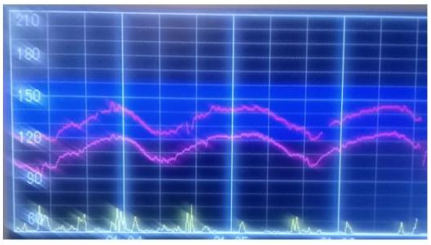

FIGURE 3: VARIABLE DECELERATIONS WITH NO ACCELERATION

The postnatal period was uneventful and no neonatal or obstetric complications were noted.

Discussion

The velamentaous cord insertion is a variety of placental cord abnormalities. The pathogenesis is still unknown. [6] The velamentous insertion has been described in association with several obstetrical complications. It is thought that frequent fetal heart rate abnormalities in velamentous cord insertion cases are caused by a lack of Wharton's jelly, which results in compression of vessels during uterine contractions and increasing risk of perinatal morbidity and mortatlity. [5]

The cord occlusion, either partial or complete, can cause both increase in after load and decrease in fetal arterial oxygen content, both of which will result in an activated vagal reflex causing bradycardia. [7]

Atypical variable decelerations (VD) are prognostically unfavorable with features indicative of fetal hypoxia, including the slow return of the fetal heart rate to the baseline, loss of variability during the deceleration, loss of initial and/or secondary accelerations, persistence of secondary acceleration (overshoot), continuation of the fetal heart rate at a lower level, and biphasic deceleration. [8]

Often it is difficult to screen velamentous cord insertion on routine scan and hence, it presents late in intrapartum period resulting in increased obstetrical and perinatal morbidity. It necessitates need for availability of urgent cesarean section.

The prenatal diagnosis of velamentous insertion is based upon the presence of characteristic sonographic

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findings (membranous umbilical vessels) at the placental cord insertion site, using gray-scale ultrasound [9], Color Doppler [5], and three-dimensional ultrasound [10]. The criteria for ultrasound diagnosis of a velaamentous cord insertion are: umbilical vessel entering the placenta margin parallel to the uterine wall and connecting to superficial placental vessels; an immobile cord insertion, even when the uterus is shaken; and umbilical vessels diverging as they traverse the membrane. In fact, the CI site could not be determined more frequently in cases of marginal CI and VCI than in the normal CI. [5]

As visualization of the placental cord insertion site becomes more difficult with advancing gestation, the placental cord insertion site should be evaluated in the mid trimester. [11, 12]In this case, the patient had no scan in 1st trimester where it could have been possible to look for placental cord abnormality. However, good intrapartum fetal monitoring and timely decision enabled delivery of healthy baby.

A definitive diagnosis is made only by gross examination of the placenta, cord, and membranes after delivery.

Conclusion

Abnormal placental cord insertions influence the maternal and perinatal outcome. It is vital to diagnose the abnormalities in early obstetrical ultrasound scans to improve the obstetrical outcomes and avoid chances of Emergency Cesarean Sections.

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