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## RESEARCH ARTICLE

### VASA PREVIA: A CASE REPORT

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#### ABSTRACT

Normally, the blood vessels of the baby run from the middle of the placenta via the umbilical cord to the baby. Velamentous insertion means that the blood vessels, unprotected by Wharton's jelly, traverse the membranes before they come together into the umbilical cord. The most significant clinical problem arising from a velamentous insertion of the umbilical cord is vasa previa, a dangerous condition in which the velamentous umbilical vessels traverse the fetal membranes in the lower uterine segment below the presenting part. In 6% of singleton pregnancies with a velamentous insertion, vasa previa is a coexisting condition. These unprotected vessels may rupture at any time during pregnancy, causing fetal exsanguination and death. Although spontaneous rupture has been reported before labor and with or without intact membranes, this accident occurs most often during amniotomy. In our manuscript, we will present a case of vasa previa and will discuss different aspects of this pathology.

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## INTRODUCTION

Our patient is a 28-years-old female in her second Pregnancy, with history of spontaneous miscarriage. The current pregnancy was well followed-up with a correct prenatal check-up, fetal morphology and growth without abnormality. It was carried until 41 weeks of gestation. Ultrasound monitoring of amniotic fluid revealed single deepest pocket up to 2 cm, which was in favour of a moderate oligo-amnios, low lying placenta prior to the classification of Bessis and grade III according to the Granum maturity staging, a correct umbilical Doppler with resistance index at 0.56, a fetal weight estimation at 2900g in cephalic presentation and a bishop score at 4. Non-stressed fetal heart rate monitoring in the antepartum period was reactive with accelerations, the rate of the baseline was between 120 and 130 beats per minute (bpm). To evaluate fetal well-being before considering an artificial induction of labor, we decided to carry contractions stress test (CSTs) induced by oxytocin. After 40 min of oxytocin a satisfactory uterine activity was obtained however the fetal heart rate lost its variability and accelerations. 10min later, we observed 2 variable decelerations that lasted 2min and decreased more than 70bpm, so we proceeded to the membranes stripping which brought back a liquid mixed with some clots of blood, with unfavorable cervix assessment and the lower uterine segment tonically contracted.

An emergency cesarean surgery for suspicion of a retro placental hematoma was done and allowed the extraction of a newborn female Apgar 8/10, weighting 2600g, the uterus was firm after the uterine suture. The exploration of the placenta revealed a central retro-placental hematoma extended on 6cm and a short cord measuring 40cm in marginal insertion without being in a velamentous one. There is also a beginning of umbilical vein fissure, the hemoglobin control on cord blood was at 12g/dl without hemodynamic disturbance noted in the newborn. The postoperative consequences were simple. The evaluation of the acquired thrombophilia showed no abnormality.

## DISCUSSION

Vasa previa is a rarely reported condition in which exposed fetal vessels traverse the amniotic membranes between the fetal's presenting part and the internal cervical os, unprotected by placental tissue or umbilical cord. The incidence of vasa previa has been estimated at 1 in 2500 births, although has been reported to vary between 1/513 and 1/6000 in naturally conceived pregnancies (Seince *et al.*, 2002), and as high as 1/293 in IVF-assisted pregnancies. Although vasa previa remains a rare situation in pregnancy, its obstetrical complication remains dreaded with a very high fetal mortality rate (50 to 95%) when undiagnosed prenatally (Seince *et al.*, 2002). This can be attributed to rapid fetal exsanguination resulting from the vessels tearing when the cervix dilates,

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membranes rupture or if the vessels become pinched off as they are compressed between the baby and the walls of the birth canal (Standring, 2005).

#### The aberrant vessels result from:

- Velamentous Hyperlink "<http://vasaprevia.com/Velamentous-Cord-Insertion>" Insertion of the Hyperlink "<http://vasaprevia.com/Velamentous-Cord-Insertion>" Umbilical Hyperlink "<http://vasaprevia.com/Velamentous-Cord-Insertion>" Cord
- Bilobed Hyperlink "<http://vasaprevia.com/Bilobed-and-Trilobed-Placentas>" and Hyperlink "<http://vasaprevia.com/Bilobed-and-Trilobed-Placentas>" Placenta
- Succenturiate Hyperlink "<http://vasaprevia.com/Succenturiate-Lobe>" Hyperlink "<http://vasaprevia.com/Succenturiate-Lobe>" Lobed Hyperlink "<http://vasaprevia.com/Succenturiate-Lobe>" Placenta

As the placenta remodels, new growth may occur away from the location where the cord inserts into the placental resulting in velamentous cord insertion. Or the remodeling may leave the placenta in lobes connected by unprotected blood vessels running through the membranes between the lobes (bi-lobed, succenturiate lobed placenta). Vasa previa can result from low-lying placenta or placenta previa, where the placenta is in front of the birth canal. Vasa previa might be present if any of the following conditions exist (Seince, 2002):

- Velamentous Insertion of the Umbilical Cord
- Bilobed and Trilobed Placenta
- Succenturiate Lobed Placenta
- Low-lying placenta or placenta previa
- Pregnancies resulting from in-vitro fertilization
- Multiple pregnancies
- Maternal history of uterine surgery

When vasa previa is detected prior to labor, the baby has a much greater chance of surviving. Vasa previa can be detected during pregnancy with use of transvaginal sonography, preferably in combination with color Doppler (Gagnon, 2009). Women with identified risk factors should have this test to rule out vasa previa (Standring, 2005). When vasa previa is diagnosed, elective delivery by cesarean section before labor begins can save the baby's life. Ideally, it should be performed early enough to avoid an emergency, but late enough to avoid problems associated with prematurity. Steroid treatments can help accelerate the maturation of the baby's lungs if born prematurely. When there is bleeding during pregnancy, investigation for the source of the blood is necessary. If the blood is determined to be fetal, immediate action must be taken to assess the condition of the baby.

When vasa previa is identified during the second trimester (20 weeks or earlier) there is a small possibility that vasa previa may not persist to term. This can be due to the formation of the lower segment of the uterus in the third trimester which can result in the vessels being located further away from the internal cervical os. This does not necessarily mean that the vessels are far enough from the cervix to allow for a safe natural delivery as the exposed vessels still pose a danger from compression or rupture. There is no established evidence regarding what distance is considered "safe" to deliver naturally when exposed fetal vessels are in the vicinity of the cervical os (Royal College of Obstetricians and Gynaecologists, 2011).

#### Conclusion

The antenatal diagnosis of vasa previa improves fetal prognosis by prophylactic caesarean section. The gestational age at which it must be performed is currently a controversial subject, for some it would be legitimate to program between 36-37 weeks of gestation because of the risk of bleeding and premature rupture of membranes unpredictable in the third trimester remaining increased in this category of patients, for others, they will recommend corticotherapy in case of premature rupture of membranes between 28-32 weeks of gestation with a transfer to a maternity level 3. The ultrasound screening of vasa previa during ultrasound is imperative in the absence of a consensus of management of this dreaded pathology that involves fetal and maternal prognosis.

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