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The Importance of Prenatal Diagnosis in the Management of Vassar Praevia: A Case Report and Literature Review

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ABSTRACT: Vasa praevia (VP) is an uncommon obstetric condition that can be associated with a low-lying placenta or placenta prævia and also associated with significant perinatal mortality and morbidity, it is one of the few causes of perinatal death that can be potentially prevented through prenatal detection and appropriate care.

KEYWORDS: vasa praevia; pregnancy; placenta praevia.

1 INTRODUCTION

Fetal vessels crossing or running in close proximity to the inner cervical os. These vessels course within the membranes (unsupported by the umbilical cord or placental tissue) and are at risk of rupture when the supporting membranes rupture.[1].

Haemorrhage after the vessels are torn following spontaneous or artificial membrane rupture can be result in a high fetal mortality within rate of about 75-100 %. [2].

The fetal mortality is potentially preventable if corrected prenatal diagnosis being made by ultrasound imaging including the use Doppler technology and pregnancy treatment done before the onset of labour or befor membrane rupture [3].

There are two main forms of vasa prævia: in one there is velamentous insertion of the umbilical cord and in the other there is normal cord insertion with vessels running between placental lobes in a bilobed or succenturiate-lobed placenta. [4].

Here we present a case of vasa prævia who prenatally diagnosed in third trimester routine sonographic evaluation and managed successfully with elective cesarean section at 36th weeks of pregnancy.

2 CASE PRESENTATION

A healthy (Madam K) 36-year-old multiparous housewife. She has previously undergone two normal vaginal deliveries. Booking investigations was showed non complicated Gestational Diabetes Mellitus and she was treated with diet therapy on an out-patient level and the target values of blood glucose levels was achieve during pregnancy.

The Screening scan at 22 showed parameters equal to dates and no foetal abnormalities. However, placenta was noted to be lower posterior reaching cervical os. A subsequent growth scan was satisfactory, but placenta was still low-lying, she is not presented uterine contraction or vaginal bleeding.

At 34 weeks ultrasound control showed a type 3 posterior **placenta praevia** with tip reaching cervical os with a presence anterior **succenturiate (accessory) lobe** of the placenta **(Fig.1)** also there were small vessels crossing the internal os raising the suspicion of **vasa praevia,** Doppler study was used to confirm the presence of vessels preavia **(see Fig. 2)**. And decision was made delivery by elective caesarean section after 36th week of pregnancy and intramuscular betamethasone to improve foetal lung maturity was administered in anticipation of a preterm delivery should a massive antepartum haemorrhage occur.

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Fig. 1. Transvaginal ultrasound of third trimester shows a bilobed type 3 posterior placenta praevia + anterior succenturiate placenta

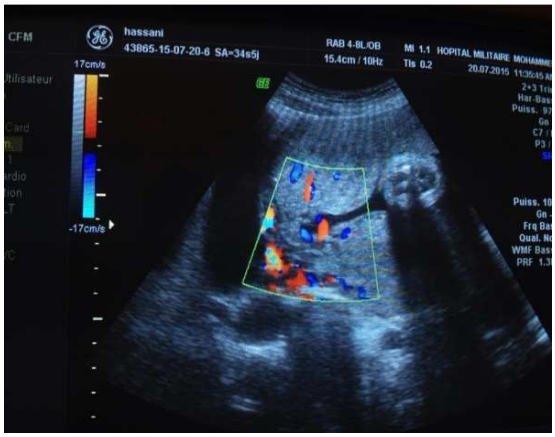

Fig. 2. Doppler study shows presence of vessels preavia that crossing the inner cervical os.

At 36 weeks +4 days patient was admitted for elective cesarean section without vaginal bleeding or others symptoms but two hours later she presented episode painless antepartum haemorrhage. Cardiotocograph demonstrated a reactive trace and weak irregular uterine contractions**.** Patient underwent an emergency caesarean section. Baby was delivered with Apgar score of 9 at 1 minute and 10 at 5 minutes. Birth weight was 3kg. Intraoperatively Placenta was posterior and lowlying and vasa praevia was confirmed **(Fig 3).**

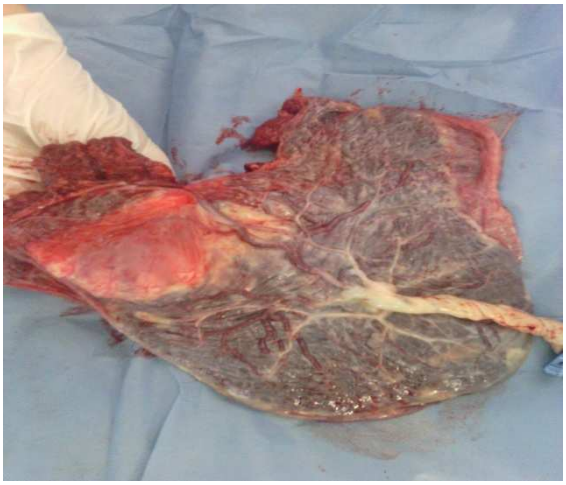

Fig. 3. Show macroscopic evaluation of vasa previa

Admission haemoglobin was 12g/dl and coagulation screen normal, fetal hemoglobin was.

3 DISCUSSION

Fetal vessels crossing or running in close proximity to the inner cervical os. [1].

In obstetric terms, vasa previa is defined as “fetal vessels crossing or running in close proximity to the inner cervical os. These vessels course within the membranes (unsupported by the umbilical cord or placental tissue) and are at risk of rupture when the supporting membranes rupture, which is a serious and often fatal (to the fetus) obstetric emergency [5].

The estimated incidence of vasa previa is approximately 1 in 2500 deliveries, but it is much higher (1 in 700) among patients who conceive through assisted reproductive technologies [2]. The aetiology is uncertain, but risk factors include bilobed or succenturiate lobed placenta, velamentous insertion of cord, second trimester placenta praevia, pregnancies resulting from in vitro fertilisation and multiple pregnancies [1] .

We found that velamentous insertion in a previous pregnancy increases the risk of marginal insertion in the subsequent pregnancy (and vice versa), This suggests that these placental conditions share etiologic factors, and supports the assumption that velamentous and marginal cord insertions represent a continuum of conditions that occur as a consequence of an altered placental development and the concept of “trophotropism” has been introduced to explain the preferential development of the placental tissue at sites for optimal uterine perfusion, and more or less distant from the original insertion site [6].

The classic clinical picture combines a painless genital bleeding with acute fetal distress. It is usually due to rupture of an umbilical vessel, laceration of velamentous insertion in the expansion area, usually occur during spontaneous or induced rupture of membranes. These vessels are included in the membranes and are not protected by Wharton's jelly. They link the placenta or the umbilical cord to connect the accessory lobe. They expressed previa when located at the, the front of the fetal presentation the cervix area.[7]

Ultrasound is the method of choice for the antenatal diagnosis of vasa praevia, the first report of ultrasonographic diagnosis of vasa previa appeared in the literature in 1987, It can be suspected at the time of the mid-trimester scan and confirmed in the third trimester [7].

Although high-risk factors have been identified, baulies et al. reported that revealed the following associated factors in their study. In vitro fertilization (IVF) pregnancies, bilobate or succenturiate placenta, and second trimester placenta previa have been associated, therefore, if patients present with any of these risk factors, a concerted effort to detect vasa previa using ultrasound screening in the second trimester is necessary [2].

Some authors have also suggested that Magnetic Resonance Imaging (MRI) may be useful [8]. Some case of vasa previa which is diagnosed at second trimester screening may resolve spontanously. But commonly vasa previa persists until term and caused fetal bleeding upon spontaneous or artificial rupture of the membranes. [1].

The relative rarity of VP and the severe morbidity and mortality associated with the condition, makes it difficult to conduct trials evaluating the appropriate management of affected pregnancies but when diagnosed during the antepartum period, treatment plans include tocolytics to inhibit any threatened pre-term labour and steroid treatment given to develop foetal lung maturity, in anticipation for any pre-term delivery. Patients should be advised to avoid sexual intercourse, vaginal examinations and heavy straining during bowel softeners [5].

Clearly, delivery by elective caesarean should be performed prior to rupture of membranes to avoid rupture of the exposed fetal vessels and fetal exsanguination. However, there is limited evidence available to determine the ideal timing of delivery, or whether expectant management is entirely appropriate, nonetheless, it is certain that if delivery is done after the membranes rupture, the fetal prognosis is poor [8].

4 CONCLUSION

Screening of vasa previa with transvaginal ultrasound in antenatal care, especially at high risk patients is a useful approach for the prevention of adverse perinatal outcomes.

COMPETING INTERESTS

The authors declare no competing interests.

AUTHORS' CONTRIBUTIONS

All authors read and approved the final manuscript.

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