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CASE REPORT

Vasa Previa: An Avoidable Obstetric Tragedy

Sujata Datta[1] · K. M. Babu[1] · Sujoy Mitra[1] · Deepashree Patil[1]

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About the Author

Dr Sujata Datta has been working as a Gynecologist in Armed Forces Medical Services for the past 15 years. At present, she is working at Command Hospital Air Force, Bangalore, as an Associate Professor. She is interested in high risk obstetrics and endoscopy. She is a keen postgraduate teacher.

Introduction

Vasa previa is a rare condition where the fetal vessels run within the membranes in close proximity to the internal os. It is one of the important but rare causes of antepartum hemorrhage (APH) where the fetal distress is disproportionate to the amount of bleeding. Its incidence varies from 1:1275 to 1:.8333 of all pregnancies and has high perinatal mortality where timely planned or emergency cesarean ensures good perinatal outcome [1]. We present a case of vasa previa which was managed successfully in our institute.

Case Report

A 30-year-old primigravida at 36 weeks reported to labor room with history of watery discharge per vagina. She was perceiving adequate fetal movements. This was a spontaneous conception. She had already registered in the hospital and was undergoing regular antenatal check-ups. She was normotensive throughout her gestation period. All her antenatal investigations were within normal limits. Dating scan corresponded to LMP. Nuchal translucency scan was normal, and no fetal anomalies were detected by scan done at 18 weeks with placenta in fundo posterior location but not low lying. The third trimester scan done at 34 weeks showed adequate fetal growth and normal liquor with placenta in fundo posterior location. On admission, there

Dr. Sujata Datta is an Associate Professor; K. M. Babu is a Prof & HOD; S Mitra is an Assistant Professor; D Patil is a PG Resident in the Department of Obstetrics & Gynaecology, Command Hospital Air Force, Bangalore.

✉ Sujata Datta
sujata4datta@rediffmail.com

[1] Department of Obstetrics & Gynaecology, Command Hospital Air Force, Old Airport Road, Bangalore, India

was no pallor, and her maternal pulse was 84 pm and BP was 120/80 mmHg. Abdominal examination revealed uterus to be term size, relaxed, cephalic presentation with head 5/5 palpable with fetal heart rate ranging from 80 to 100 beats per min. Per speculum examination revealed frank leakage of liquor with fresh bleeding from cervical os, approximately 50 ml. Per vaginal examination was not done in view of suspected placenta previa as there was APH without any abdominal pain. Since there was fetal bradycardia disproportionate to the amount of blood loss, diagnosis of APH with fetal distress was made (high probability of vasa previa was kept in mind). Immediately, LSCS was performed and a live male baby of 2.3 kg was delivered, with a 15 min decision-to-delivery interval. Baby's APGAR score was 6/10 and 9/10 at 1 and 5 min, respectively. The baby was pale. Placenta and membranes were removed completely. Intra operative examination of placenta revealed velamentous insertion of cord with vasa previa with bleeding from the fetal vessel (as shown in Fig. 1). There was no retro placental clot or succenturiate lobe. The baby was shifted to NICU and 36 ml of PRBC was transfused. Baby's hemoglobin level was 12 gm at birth and the post-transfusion hemoglobin level was 15 gm. He was observed for 48 h in NICU and then roomed in with mother. Both mother and baby were discharged on 4th post-operative day in good condition.

Discussion

Vasa previa is a rare cause of APH which presents catastrophic complication to the fetus. In vasa previa, fetal vessels run through the membranes and are at risk of rupture with consequent fetal exsanguination. It is an anomaly in which umbilical vessels have a velamentous insertion in a low-lying placenta and traverse the membrane in the lower uterine segment in front of the fetal presenting part. The vessels may be lacerated following spontaneous rupture of membranes (as in our case) or after ARM [1]. Spontaneous vessel rupture may occur due to absence of protective Wharton's jelly. Fetal hypoxia and death may be caused when fetal vessels in the presenting part are compressed during labor. In undiagnosed cases of vasa previa, fetal mortality rate is almost 60–70 %. The common risk factors for vasa previa are accessory placental lobes (succenturiate or bilobate), velamentous insertion of the cord, low-lying placenta, placenta previa, multiple gestation, and post-IVF pregnancies.

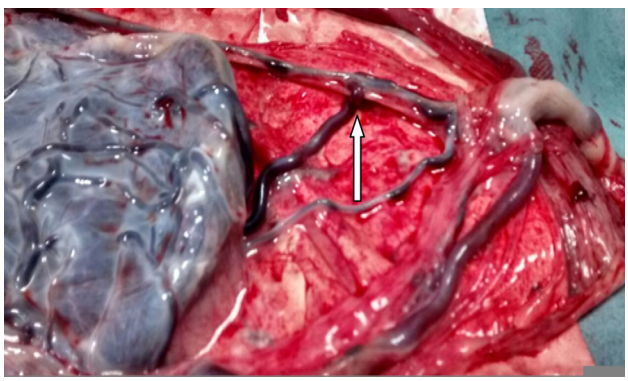

Fig. 1 *Arrow* shows velamentous insertion of cord with V P with minor abrasion and bleeding from the fetal vessels

The key to reducing fetal loss from vasa previa is prenatal diagnosis. Vasa previa is identified during labor in most of the cases where vessels would have already been ruptured. Vaginal bleeding is followed by fetal distress and death if emergent delivery is not performed. Because the entire fetal cardiac output passes through the cord, it can take less than 10 min for total exsanguination of the fetus to occur. If cesarean delivery is accomplished immediately, good neonatal outcome can be obtained by aggressive postnatal transfusion [2]. In our case, there was only a small abrasion of one of the vessels and no actual rupture of the vessel (Fig. 1).

It is now well established that vasa previa may be diagnosed prenatally using Doppler ultrasound [3]. Routine obstetric ultrasound should include an assessment of the placental site and number of placental lobes and an evaluation of the placental cord insertion site. In all cases where a multilobed or succenturiate placenta or a low-lying placenta or velamentous cord insertion is identified on TAS, a detailed examination of the lower uterine segment and cervix should be performed using TVS. Gray-scale ultrasound can identify placental cord insertion in most cases, but color or power Doppler makes the process easier and therefore should be used [3].

A recent retrospective, multicenter study showed newborn survival rates of 97 % in prenatally detected cases of vasa previa and a fetal loss rate of 56 % in undiagnosed cases [3]. Relevant information about vasa previa may be obtained by carefully using a two-dimensional vaginal probe for assessing lower uterine segment with maternal positional change, the use of the Trendelenburg position, and by gentle manual elevation of the fetal presenting part aiding visualizing the fetal vessels. At present, there are no universal guidelines available for optimal management and timing of delivery in prenatally diagnosed vasa previa cases. For cases of confirmed vasa previa in the third trimester, the Royal College of Obstetricians and Gynaecologists (RCOG 2011) suggests admission to a unit with appropriate neonatal facilities between 28 and 32 weeks of gestation, administration of corticosteroids for fetal lung maturity because of the risk of preterm delivery, and delivery by elective cesarean section between 35 and 37 weeks of gestation [4]. The International Vasa Previa Foundation of USA (info@vasaprevia.com) agrees that

vasa previa is an avoidable obstetric tragedy and efforts should be made to detect vasa previa prenatally around 16th week with the use of TVS and color Doppler studies, and 95 % of fetal mortality can be possibly reduced with a diligent search by antenatal scan.

Conclusion

In our case, the patient had spontaneous conception with no other antenatal risk factors. Even though vasa previa was not diagnosed antenatally, when patient presented with APH and fetal distress, expediting delivery by emergency LSCS and immediate resuscitation of the baby with transfusion of PRBC helped in achieving good neonatal outcome. In modern obstetric practice, antenatal diagnosis of vasa previa can be done using TVS in combination with color Doppler. The fetal mortality can be considerably reduced by elective cesarean delivery at 35–37 weeks at tertiary care center and aggressive resuscitation of the neonate if fetal vessels have ruptured. A national vasa previa organization needs to be set up to heighten the awareness of vasa previa among medical, paramedical staff, and public. It is high time that we have our own national guidelines for vasa previa screening and management.

Compliance with Ethical Standards

Conflict of interest All the authors declare that they have no conflict of interest.

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