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# Vasa Previa

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**Abstract:** ***Vasa previa is a rare obstetrical complication with the high risk of fetal death or demise if these are left unrecognized before the rupturing of membranes. It is sometimes be asymptomatic but there can be sudden onset of abnormally heavy or small amounts of vaginal bleeding which is painless which usually occurs in the second or third trimester of pregnancy. It is important to rule out this problem as early as possible and when it is diagnosed prenatally it is very helpful to treat it comfortably without any fail with different conservative managements.***

**Keywords:** Vasa previa, Placenta Previa, succenturiate-lobed placentas, velamentous placenta, transvaginal sonography, multifetal pregnancies, amniotomy

## 1. Introduction

Vasa previa is a rare obstetrical complication with the high risk of fetal death or demise if these are left unrecognized before the rupturing of membranes. It is a condition in which fetal blood vessels traverse the lower uterine segment in advance of the presenting part. In this neither the umbilical cord nor the placenta supports the vessels. Fetal mortality for cases not recognized before the onset of labor is reported to range between 22.5% and 100%.[1,2] Vasa is a plural of vas which comes from the latin word denoting the vessel or a dish. Previa is a combination of two words. Pre means before and via means the way. Previa in the medicine usually refers to anything obstructing the passage in the childbirth therefore the vasa previa means the vessels in the way before the baby. Lobestein reported the first case of rupture of vasa previa in 1801.[3] The first ultrasound description of vasa previa dates back to 1987. [4]

### Definition

Vasa praevia is a problem during the pregnancy in which the bleed vessels of the babies' cross or run near the internal opening of the uterus. There is a risk of rupturing the vessels as the supporting membranes get rupture, because they are unsupported by the umbilical cord or placental tissue.[8]

### Incidence

Rarely reported occurs in 1:2500 births with a fetal mortality rates estimated to be as high as 95% if not diagnosed prenatally.[5,6] The longest studies reports a prevalence of 1.5-4:10,000.[2,7] About 10% of vasa previa occur in twins.[1] Vasa praevia occurs in about 0.6 per 1000 pregnancies.[8]

### Risk factors /Warning signs

Vasa previa can be present during the following conditions like the low-lying placenta, bilobed or succenturiate-lobed placentas, velamentous insertion of the cord, pregnancies resulting from in-vitro fertilization or multiple pregnancies.[9,10] Conditions associated with vessels that run close to the cervix, such as low-lying placenta[1,11] placenta previa[12], multiple pregnancies[13],and of course multilobate placentas and velamentous insertion [1% of singleton pregnancy[14], 10% in multifetal pregnancies[15-16] About 2% of velamentous insertions are associated with a vasa previa[17-18] Placenta membranacea[19] is also a risk factor. It is less clear why, but in-vitro fertilization increases the risk of vasa previa [20-21](about 1:300 pregnancies) [22]. If any of these conditions are present with the vaginal bleeding then it is to be considered as a possible alert for the vasa previa.

### Clinical features

Vasa previa sometimes be asymptomatic but there can be sudden onset of abnormally heavy or small amounts of vaginal bleeding which is painless which usually occurs in the second or third trimester of pregnancy. So it is important to know the site of bleeding to determine whether the blood is maternal or fetal if the baby is not in distress. Vasa previa presents with painless vaginal bleeding at the time of spontaneous rupture of membranes or amniotomy (AROM). Fetal shock or demise can occur rapidly [1,2] Patients usually present with bleeding at the time of spontaneous or artificial rupture of membranes.[2] Sometimes , the bleeding may occur before the membranes get rupture.[23] In Vasa previa, there can be fetal bradycardia due to the compression on the velamentous vessels by the presenting part. [24,25] During the palpation of fetal vessels with the fingers can cause the deceleration of heart rate of the fetus due to the compression on the vessels [26]Fetal death caused by asphyxia and hemorrhagic shock has been described.[27,28]

## 2. Diagnosis

- Infant death from Vasa previa is preventable if diagnosed prenatally.
- Visualize the placental cord for any connection of the velamentous cord insertion during the time of the ultrasound is recommended. The color Doppler is preferable for this.
- The suspected cases with the low-lying placenta, multi-gestational pregnancies, multi-lobed placentas , velamentous cord insertion, placenta previa should be checked for the vasa previa with the transvaginal color Doppler ultrasound. [4]
- The transvaginal sonography along with the colour Doppler is preferable during the pregnancy to detect the Vasa previa. [29]
- Alkali denaturation test detects the presence of fetal hemoglobin in vaginal blood, as fetal hemoglobin is resistant to denaturation in presence of 1% NaOH.

- Also detection of fetal hemoglobin in vaginal bleeding is diagnostic
- During the time of the first trimester of pregnancy the nuchal lucency screening is too helpful to know about the insertion of cord when the fetus is less likely to obscure the cord insertion[30].

## 3. Treatment

It is important to rule out this problem as early as possible and when its diagnosed prenatally it is very helpful to treat it comfortably without any fail.

a) The prenatal diagnosis is followed by the c – section is performed at 35 weeks or the earlier signs of labor or the membrane rupture occurs.[31]
b) The lung maturity should be assessed before the time by doing the amniocentesis. We can admit the woman around 30-32 weeks to assist in promotion of lung maturity with the help of corticosteroids or when we found that the cervix started ripen.[32,33]
c) If the placenta previa is diagnosed before the time there should be proper treatment plans to be followed
   - Use of tocolytics to stop the preterm uterine activity.
   - There should not be any pelvic activity as no vaginal examinations or two finger test except of tranvaginal sonography as it is considered safe and patient should be guided that no sexual intercourse should be there.
   - Hospitalize the woman in the 3rd trimester.
   - Regular ultrasonography to be done to know the source of bleeding if any.
   - Steroid therapy should be given for lung maturity.
   - Elective c-Section to be planned to avoid any complications and should be late enough to make sure about the lung maturity. As per the current findings 35 weeks is considered a safe time to deliver with vasa previa.[34,35]

## References

[1] Fung TY, Lau TK. Poor perinatal outcome associated with vasa previa: is it preventable? A report of three cases and review of the literature. Ultrasound Obstet Gynecol 1998; 12: 430–3.
[2] Oyelese KO, Turner M, Lees C, Campbell S. Vasa previa: an avoidable obstetric tragedy. Obstet Gynecol Surv 1999; 54: 138–45.
[3] Lobstein J. Archives de L'art des Accouchements 1801. Strasbourg: p. 320.
[4] Gianopoulos J, Carver T, Tomich PG, Karlman R, Gadwood K. Diagnosis of vasa previa with ultrasonography. Obstet Gynecol. 1987 Mar;69(3 Pt 2):488–91.
[5] Vago T. Caspi E. Antepartum bleeding due to injury of velamentous placental vessels. Obstet Gynecol 1962;20:671-5
[6] Quek, SP, Tan KL. Vasa praevia. Aust NZ J Obstet Gynaecol 1972;12:206
[7] Lee W, Lee VL, Kirk JS, Sloan CT, Smith RS, Comstock CH. Vasa previa: prenatal diagnosis, natural evolution, and clinical outcome. Obstet Gynecol. 2000 Apr;95(4):572–6.
[8] Ruiter, L; Kok, N; Limpens, J; Derks, JB; de Graaf, IM; Mol, B; Pajkrt, E (July 2016). "Incidence of and risk indicators for vasa praevia: a systematic review.". BJOG : an international journal of obstetrics and gynaecology. **123** (8): 1278–87.
[9] Evans GM. Vasa praevia. Br Med J 1952;2:1243
[10] McAfee CHG. Placenta praevia-A study of 174 cases. J Obstet Gynaecol Br Emp 1945;52:313
[11] Lee W, Kirk JS, Comstock CH, Romero R. Vasa previa: prenatal detection by three-dimensional ultrasonography. Ultrasound Obstet Gynecol. 2000 Sep;16(4):384–7.
[12] Francois K, Mayer S, Harris C, Perlow JH. Association of vas ‘
[13] a previa at delivery with a history of second-trimester placenta previa. J Reprod Med. 2003 Oct;48(10):771–4.
[14] Raga F, Ballester MJ, Osborne NG, Bonilla-Musoles F. Role of color flow Doppler ultrasonography in diagnosing velamentous insertion of the umbilical cord and vasa previa. A report of two cases. J Reprod Med. 1995 Nov;40( 11):804–8.
[15] Sepulveda W, Rojas I, Robert JA, Schnapp C, Alcalde JL. Prenatal detection of velamentous insertion of the umbilical cord: a prospective color Doppler ultrasound study. Ultrasound Obstet Gynecol. 2003 Jun;21(6):564–9.
[16] Ernirschke K, Kaufmann P. Pathology of the human placenta. New York, NY: Springer-Verlag; 2000. pp. 353–359.
[17] Whitehouse DB, Kohler HG. Vasa praevia in twin pregnancy: report of two cases. J Obstet Gynaecol Br Emp. 1960 Apr;67:281–3.
[18] Vago T, Caspi E. Antepartum bleeding due to injury of velamentous placental vessels. Obstet Gynecol. 1962 Nov;20:671–4.
[19] Toivonen S, Heinonen S, Anttila M, Kosma VM, Saarikoski S. Reproductive risk factors, Doppler findings, and outcome of affected births in placental abruption: a population-based analysis. Am J Perinatol. 2002 Nov;19(8):451–60.
[20] Sauerbrei EE, Davies GL. Diagnosis of vasa previa with endovaginal color Doppler and power Doppler sonography: report of two cases. J Ultrasound Med. 1998 Jun;17( 6):393–8.
[21] Spellacy WN. Vasa previa, multiple pregnancies, and in vitro fertilization clarification. Fertil Steril. 2003 May;79( 5):1254–5
[22] Oyelese KO, Schwarzler P, Coates S, Sanusi FA, Hamid R, Campbell S. A strategy for reducing the mortality rate from vasa previa using transvaginal sonography with color Doppler. Ultrasound Obstet Gynecol. 1998 Dec;12(6):434–8.
[23] Schachter M, Tovbin Y, Arieli S, Friedler S, Ron-El R, Sherman D. In vitro fertilization is a risk factor for vasa previa. Fertil Steril. 2002 Sep;78(3):642–3.
[24] Carp HJ, Mashiach S, Serr DM. Vasa previa: a major complication and its management. Obstet Gynecol 1979; 53: 273–5.
[25] Dougall A, Baird CH. Vasa previa - report of three cases and review of the literature. Br J Obstet Gynaecol 1987; 94: 712–5.
[26] Naftolin F, Mishell DR Jr. Vasa previa: report of 3 cases. Obstet Gynecol 1965; 26: 561–5.

[27] Curl CW, Johnson WL. Vasa previa, antepartum diagnosis. Obstet Gynecol 1968; 31: 328–30
[28] Cordero DR, Helfgott AW, Landy HJ, Reik RF, Medina C, O'Sullivan MJ. A non-hemorrhagic manifestation of vasa previa: a clinicopathologic case report. Obstet Gynecol 1993; 82(4 Pt 2 suppl): 698–700.
[29] Schellpfeffer MA. Improved neonatal outcome of vasa previa with aggressive intrapartum management. A report of two cases. J Reprod Med 1995; 40: 327–32.
[30] Meyer WJ Blumenthal L, Cadkin A et al. Vasa previa: Prenatal diagnosis with transvaginal color Doppler flow imaging. Am J Obstet Gynecol 1993; 169:1627-1629
[31] Oyelese Y, Catanzarite V, Prefumo F, Lashley S, Schachter M, Tovbin Y, Goldstein V, Smulian JC. Vasa previa: the impact of prenatal diagnosis on outcomes. Obstet Gynecol. 2004 May;103(5 Pt 1):937–42.
[32] Oyelese Y, Smulian JC. Placenta previa, placenta accreta, and vasa previa. Obstet Gynecol. 2006 Apr;107(4):927–41.
[33] Canterino JC, Mondestin-Sorrentino M, Muench MV, Feld S, Baum JD, Fernandez CO. Vasa previa: prenatal diagnosis and evaluation with 3-dimensional sonography and power angiography. J Ultrasound Med. 2005 May;24(5):721–4.
[34] Yinka Oyelese MD, Val Catanzarite MD, Federico Prefumo MD, Susan Lashley MD, Morey Schachter MD, Yosi Tovbin MD, Victoria Goldstein MBA, John C. Smulian MD, MPH. Vasa Previa: The Impact of Prenatal Diagnosis on Outcomes; Obstet Gynecol 2004;103:937-942.
[35] Yinka Oyelese MD, John C. Smulian MD, MPH. Placenta Previa, Placenta Accreta, and Vasa Previa. Obstet Gynecol 2006;107:927-941.