

Vasa Praevia

Date of Search: 12/09/2016

Sources Searched: Medline, Embase, The Cochrane Library

Search History:

1. Medline; ("Vasa praevia*" OR "Vasa previa*").ti; 194 results.
2. Medline; exp VASA PREVIA/DI, DH, DT, TH, US, CL, RT, SU [DI=diagnosis, DH=diet therapy, DT=drug therapy, TH=therapy, US=ultrasonography, CL=classification, RT=radiotherapy, SU=surgery]; 70 results.
3. Medline; 1 OR 2; 203 results.
4. Medline; 3 [Limit to: (Language English)]; 174 results.
5. EMBASE; ("Vasa praevia*" OR "Vasa previa*").ti; 222 results.
6. EMBASE; *VASA PREVIA/di, dm, dt, su, th [di=Diagnosis, dm=Disease Management, dt=Drug Therapy, su=Surgery, th=Therapy]; 63 results.
7. EMBASE; 5 OR 6; 229 results.
8. EMBASE; 7 [Limit to: English Language]; 192 results.
9. EMBASE; *VASA PREVIA/ [Limit to: English Language]; 122 results.
10. EMBASE; exp CLASSIFICATION/ OR exp DISEASE CLASSIFICATION/ [Limit to: English Language]; 1330091 results.
11. EMBASE; 9 AND 10 [Limit to: English Language]; 3 results.
12. Medline; *VASA PREVIA/; 66 results.

Title: Vasa previa: diagnosis and management.

Citation: American journal of obstetrics and gynecology, Aug 2016, vol. 215, no. 2, p. 223.e1, 1097-6868 (August 2016)

Author(s): Swank, Morgan L, Garite, Thomas J, Maurel, Kimberly, Das, Anita, Perlow, Jordan H, Combs, C Andrew, Fishman, Shira, Vanderhoeven, Jeroen, Nageotte, Michael, Bush, Melissa, Lewis, David, Obstetrix Collaborative Research Network

Abstract: Vasa previa is a rare condition that is associated with a high rate of fetal or neonatal death when not diagnosed antenatally. The majority of available studies are either small, do not include antepartum data, limited to single institutions, or are biased by inclusion of patients from registries and online vasa previa support groups. The purpose of this study was to investigate the diagnostic and management strategies for this potentially catastrophic entity and to describe further maternal and placental risk factors that may aid in the establishment of a screening protocol for vasa previa. This was a retrospective multicenter descriptive study that included all pregnancies that were complicated by vasa

previa that delivered between January 1, 2000, and December 31, 2012. Nine maternal fetal medicine practices and the hospitals in which they practice participated in data collection of diagnosis, treatment, and maternal-neonatal outcomes. Sixty-eight pregnancies were identified that included the diagnosis of vasa previa or "possible vasa previa" either in the ultrasound record or in the hospital record at the time of delivery. Four cases (5.8%) appeared to resolve on repeat ultrasound examination. Fifteen of the 64 cases that were suspected of having vasa previa could not be verified or were not documented at delivery. Of the remaining 49 cases, where vasa previa was documented, 47 cases (96%) were diagnosed by ultrasound scanning antenatally. Known risk factors for vasa previa were present in 41 of 47 cases (87%). Of the 49 cases, 41 were delivered by planned cesarean delivery at a mean gestational age of 34.7 weeks, and 8 cases required emergent cesarean delivery at a mean gestational age of 34.6 weeks (range, 32.4-36.0 weeks gestation). Seven of these emergent cesarean deliveries had been diagnosed previously; 1 case had not. All of the emergent cesarean deliveries were for vaginal bleeding; 1 case was also for a concerning fetal heart rate, but only 1 of the known cases had a documented ruptured fetal vessel. None of these cases were found to have cervical shortening before the onset of bleeding. One of the undiagnosed cases resulted in a ruptured fetal vessel and a baby with no heart beat at birth who survived but had periventricular leukomalacia at 1 month of age with mild white-matter atrophy. Of the remaining neonates in this group, there were no deaths and no major complications beyond mild respiratory distress syndrome in 9 cases. There were no other major neonatal complications, which included no cases of periventricular leukomalacia, neonatal sepsis, necrotizing enterocolitis, or any grade of intraventricular hemorrhage in the confirmed cases of vasa previa. This study confirms most current recommendations that include risk-based ultrasound screening, early hospitalization at 30-34 weeks gestation, antenatal corticosteroids at 30-32 weeks gestation, and elective delivery at 33-34 weeks gestation. Thus, with these recommendations for current identification and management of vasa previa in this series of geographically diverse mostly private practice maternal fetal medicine practices, we have confirmed recent reports that show a dramatic improvement in neonatal survival and complications compared with earlier reports. Copyright © 2016 Elsevier Inc. All rights reserved.

Source: Medline

Title: Incidence of and risk indicators for vasa praevia: a systematic review.

Citation: BJOG : an international journal of obstetrics and gynaecology, Jul 2016, vol. 123, no. 8, p. 1278-1287, 1471-0528 (July 2016)

Author(s): Ruiters, L, Kok, N, Limpens, J, Derks, J B, de Graaf, I M, Mol, Bwj, Pajkrt, E

Abstract: Vasa praevia (VP) is a rare phenomenon that is assumed to increase the risk of severe complications, including fetal death. Critical data on its incidence are lacking, so there is no rational basis for prenatal screening. To review the literature on the incidence and risk indicators for VP. We searched OVID MEDLINE, OVID EMBASE, the Cochrane Library and PubMed for case-control and cohort studies on incidence and risk indicators for VP. Two reviewers selected studies and scored their methodological quality. We calculated the mean

incidence of VP. We constructed 2 × 2 tables cross-classifying potential risk indicators against the incidence of VP to calculate common odds ratios and 95% confidence intervals, using the Mantel-Haenszel method. We included 13 studies (two prospective cohort studies, ten retrospective cohort studies and one case-control study) reporting on 569 410 patients with 325 cases of VP. Based on ten included cohort studies providing information on the incidence, the mean incidence of VP was 0.60 per 1000 pregnancies. We identified five different risk indicators and markers for VP: second-trimester placenta praevia, conception by assisted reproductive technologies, a bilobed or succenturiate placenta, umbilical cord insertion in the lower third part of the uterus at first-trimester ultrasound and velamentous cord insertion. Almost 83% of the cases of VP had one or more risk indicators. In view of the low incidence, screening for VP in an unselected population is not advised. Targeted screening of women with one or more risk indicators as a part of routine mid-gestation scanning should be considered. Vasa praevia is more common in placenta praevia, conception by ART, velamentous cord insertion and bilobed placenta. © 2015 Royal College of Obstetricians and Gynaecologists.

Source: Medline

Full Text:

Available from *John Wiley and Sons* in [BJOG: An International Journal of Obstetrics and Gynaecology](#)

Title: Velamentous insertion of umbilical cord with vasa praevia: case series and literature review.

Citation: Journal of medicine and life, Apr 2016, vol. 9, no. 2, p. 126-129, 1844-3117 (2016 Apr-Jun)

Author(s): Bohîlțea, R E, Cîrstoiu, M M, Ciuvica, A I, Munteanu, O, Bodean, O, Voicu, D, Ionescu, C A

Abstract: A velamentous umbilical cord is characterized by membranous umbilical vessels at the placental insertion site that are prone to compression and rupture, especially when they are located in the membranes covering the cervical os (vasa praevia). The velamentous insertion of the umbilical cord, with a reported incidence of 1% in singleton pregnancies and 15% in mono chorionic twin gestations, has been associated with obstetric complications: fetal growth restriction, prematurity, congenital anomalies, low Apgar scores, fetal bleeding with acute fetal distress and placental retention. The pathogenesis is unknown, but the trophotropism theory is the most common and supported by the association of velamentous cord insertion and placenta praevia. The prevalence of vasa praevia is of approximately 1/ 2500 deliveries; the risk factors include the use of assisted reproductive technologies, low-lying placenta or placenta praevia, bilobed or succenturiate lobe placenta and multiple gestation. The diagnosis is rarely established before delivery and consequently the fetal mortality is extremely high. We report two cases of velamentous marginal umbilical cord insertion associated with vasa praevia (type 1 vasa praevia) and placenta praevia diagnosed during a routine mid-trimester fetal 2D ultrasound scan, color and power Doppler transvaginal ultrasound cervical assessment. The ultrasound examination revealed

one umbilical vessel crossing the internal os of the cervix entering the placental margin and connecting to the subchorionic vasculature, remaining immobile when the uterus was shaken, the color Doppler imaging enhancing the identification of the vessel. The patients were admitted to the hospital in the third trimester and deliveries were planned and successfully performed at 38 weeks gestation, being confirmed by a macroscopic examination ultrasound diagnostic.

Source: Medline

Full Text:

Available from *ProQuest* in [Journal of Medicine and Life](#)

Available from *National Library of Medicine* in [Journal of Medicine and Life](#)

Title: Fetal heart rate patterns of pregnancies with vasa previa and velamentous cord insertion

Citation: Archives of Gynecology and Obstetrics, February 2016, vol./is. 293/2(361-367), 0932-0067;1432-0711 (01 Feb 2016)

Author(s): Baumfeld Y., Gutvirtz G., Shoham I., Sheiner E.

Language: English

Abstract: Objective: To investigate the fetal heart rate (FHR) patterns in pregnancies complicated with vasa previa and velamentous cord insertion (VCI). Methods: A retrospective study comparing FHR patterns in pregnancies and subsequent pregnancies with/without VCI and in pregnancies with/without vasa previa was conducted. For each patient, FHR patterns were compared to the subsequent pregnancy. Deliveries occurred between the years 1988 and 2012 in a tertiary medical center. FHR patterns were evaluated according to the ACOG guidelines. Results: During the study period, there were 184 pregnancies with VCI and 37 pregnancies with vasa previa, undetected during pregnancy. FHR patterns of the VCI group included more cases of abnormal baseline (7 vs. 2 %, $p < 0.05$), out of which 7 % were fetal tachycardia (vs. 2 %) and 4 % were bradycardia (vs. 1 %). There were also more cases of abnormal baseline and abnormal variability (7 vs. 2 % and 32 vs. 22 %, respectively, $p < 0.05$) in the VCI group. FHR categories also differed between the velamentous cord insertion pregnancies and subsequent ones. VCI pregnancies had more category 2 patterns, not statistically significant (64 vs. 55 %, $p = 0.11$). FHR patterns of the vasa previa group included more cases of abnormal baseline (27 vs. 7 %, $p < 0.05$), out of which 18 % were tachycardia and 9 % were bradycardia. Decelerations were recorded in a total of 61 % of the vasa previa cases (61 vs. 31 %, $p = 0.02$), most of which were variable decelerations (48 vs. 17 %). Vasa previa pregnancies had more category 2 patterns (64 vs. 52 %). Conclusions: Fetal heart rate patterns in pregnancies complicated with VCI or vasa previa have several non-specific pathological characteristics; none can be used for early detection of these conditions.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *Springer Link Journals* in [Archives of Gynecology and Obstetrics](#)

Title: Vasa previa: Another ultrasound sign and caution at cesarean section.

Citation: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians, Jan 2016, vol. 29, no. 7, p. 1139-1140, 1476-4954 (2016)

Author(s): Matsubara, Shigeki, Kuwata, Tomoyuki, Takahashi, Hironori, Suzuki, Hirotada

Source: Medline

Full Text:

Available from *Taylor & Francis* in [Journal of Maternal-Fetal and Neonatal Medicine, The](#)

Title: What is the optimal gestational age of delivery in vasa previa?

Citation: American Journal of Obstetrics and Gynecology, January 2016, vol./is. 214/1 SUPPL. 1(S329), 0002-9378 (January 2016)

Author(s): Senz K., Wetzel S., Aviram A., Caughey A.B.

Language: English

Abstract: OBJECTIVE: Prior research demonstrated that optimal delivery in vasa previa is between 34-35 weeks' gestation. The goal of this study was to further study the optimal time of delivery with best fetal outcome measured in QALYs per gestational age. STUDY DESIGN: A decision-analytic model was constructed using TreeAge software to compare delivery outcomes of delivery at each gestational week between 32 and 37 weeks' gestation. We accounted for the probabilities of spontaneous onset of labor, PPRM and scheduled cesarean delivery at each week, as well as the probability of bleeding from vasa previa. Probabilities and utilities of adverse outcomes were found in the published literature and from a retrospective cohort data collected in California from 2005-2008. Adverse outcomes evaluated included stillbirth (IUFD), intrapartum fetal death, infant death, and neurodevelopmental delay (NDD). Univariate sensitivity analyses were used to vary model inputs to investigate the robustness of the model results. RESULTS: Using a theoretical cohort of 16,000 women, 36 weeks gestation was found to be the optimal age of delivery in vasa previa, with 909,630 QALYs. While the number of infant deaths decreased with each subsequent week, the number of IUFDs and intrapartum fetal deaths increased. The number of NDD demonstrated decreased until 36 weeks with a rise at 37 weeks. In a sensitivity analysis, delivery at 36 weeks was the optimal strategy as long as the probability of spontaneous bleeding was between 13-75%. If the probability of bleeding decreased below 13%, the preferred timing of delivery would be 37 weeks, and if the probability of bleeding

exceeded 75%, the preferred strategy would be delivery at 35 weeks. A second sensitivity analysis demonstrated that optimal time of delivery decreased from 36 to 33 weeks as the rate of PPRM increased at each week. **CONCLUSION:** Among women with known vasa previa, delivery at 36 weeks yields the best pregnancy outcomes. (Table Presented).

Publication Type: Journal: Conference Abstract

Source: EMBASE

Title: Screening strategies for vasa previa during the mid-trimester ultrasound: A decision and cost-effective analysis

Citation: American Journal of Obstetrics and Gynecology, January 2016, vol./is. 214/1 SUPPL. 1(S257), 0002-9378 (January 2016)

Author(s): Sinkey R., Odibo A.

Language: English

Abstract: **OBJECTIVE:** Undiagnosed vasa previa can have catastrophic consequences with a 44% neonatal mortality rate. Antenatal diagnosis improves neonatal survival to 97%. The aim of this study is to perform a decision and cost-effective analysis comparing four screening strategies among singleton pregnancies. **STUDY DESIGN:** TreeAge Pro 2015 software (TreeAge Software, Inc, Williamstown, MA) was used to construct a decision-analytic model comparing strategies to screen for vasa previa. Published probabilities and costs were applied to four transvaginal screening scenarios: no screening, ultrasound-indicated screening, screening IVF pregnancies, and universal screening. Ultrasound-indicated screening was defined as any abnormality associated with an increased risk of vasa previa noted during the routine anatomy ultrasound including a bilobed or succenturiate placenta, low-lying placenta, or marginal or velamentous cord insertion. The primary outcome was cost per quality adjusted life years (QALY) in U.S. dollars. The analysis was from a societal perspective with a willingness to pay (WTP) threshold of \$100,000 per QALY selected. One-way and multivariate sensitivity analyses (Monte-Carlo simulation) were performed. **RESULTS:** This decision-analytic model demonstrated that ultrasound-indicated transvaginal screening for vasa previa was the most cost-effective strategy. The incremental cost effectiveness ratio (ICER) for ultrasound-indicated screening was \$6,444.76 / QALY. This strategy dominated the others evaluated in that it was cheaper and more effective. These data were robust to all one-way and multivariate sensitivity analyses performed. See Figure 1. **CONCLUSION:** Within our baseline assumptions, transvaginal ultrasound screening for vasa previa appears to be most cost-effective when prompted by other ultrasound findings at the time of routine anatomy scan. (Figure Presented).

Publication Type: Journal: Conference Abstract

Source: EMBASE

Title: Management of vasa previa during pregnancy

Citation: Journal of Perinatal Medicine, November 2015, vol./is. 43/6(783-784), 0300-5577;1619-3997 (01 Nov 2015)

Author(s): Hasegawa J., Arakaki T., Ichizuka K., Sekizawa A.

Language: English

Abstract: In order to prevent fetal mortality due to vasa previa, it is necessary to obtain an antenatal diagnosis and perform elective cesarean section prior to membrane rupture. Under present circumstances, management strategies for vasa previa depend on each institutional policy. In our institution, patients are not routinely admitted, although precise outpatient management, including confirming the presence of uterine contractions and monitoring the cervical length, fetal growth and fetal heart rate, is provided for pregnant females with vasa previa. In the present report, we reviewed 21 cases of vasa previa managed at our hospital. Some 71% (15/21) of them were required inpatient management due to its complications, resulting in emergency delivery in about half of them. Therefore, our results suggest that only carefully selected asymptomatic patients may be successfully managed as outpatients.

Publication Type: Journal: Article

Source: EMBASE

Title: #37: Diagnosis and management of vasa previa

Citation: American Journal of Obstetrics and Gynecology, November 2015, vol./is. 213/5(615-619), 0002-9378;1097-6868 (November 2015)

Author(s): Sinkey R.G., Odibo A.O., Dashe J.S.

Language: English

Abstract: Vasa previa occurs when fetal blood vessels that are unprotected by the umbilical cord or placenta run through the amniotic membranes and traverse the cervix. If membranes rupture, these vessels may rupture, with resultant fetal hemorrhage, exsanguination, or even death. Prenatal diagnosis of vasa previa by ultrasound scans is approximately 98%. Approximately 28% of prenatally diagnosed cases result in emergent preterm delivery. Management of prenatally diagnosed vasa previa includes antenatal corticosteroids between 28-32 weeks of gestation, considerations for preterm hospitalization at 30-34 weeks of gestation, and scheduled delivery at 34-37 weeks of gestation.

Publication Type: Journal: Article

Source: EMBASE

Title: Using ultrasound in the clinical management of placental implantation abnormalities.

Citation: American journal of obstetrics and gynecology, Oct 2015, vol. 213, no. 4 Suppl, p. S70., 1097-6868 (October 2015)

Author(s): Vintzileos, Anthony M, Ananth, Cande V, Smulian, John C

Abstract: Placental implantation abnormalities, including placenta previa, placenta accreta, vasa previa, and velamentous cord insertion, can have catastrophic consequences for both mother and fetus, especially as pregnancy progresses to term. In these situations, current recommendations for management usually call for an indicated preterm delivery even in asymptomatic patients. However, the recommended gestational age(s) for delivery in asymptomatic patients are empirically determined without consideration of the recent literature regarding the usefulness of specific ultrasound findings to help individualize management. The purpose of this article is to propose literature-supported guidelines to the current opinion-based management of asymptomatic patients with placental implantation abnormalities based on relevant and specific ultrasound findings such as cervical length, distance between the internal cervical os and placenta, and placental edge thickness. Copyright © 2015 Elsevier Inc. All rights reserved.

Source: Medline

Title: Placental implantation abnormalities and risk of preterm delivery: a systematic review and metaanalysis.

Citation: American journal of obstetrics and gynecology, Oct 2015, vol. 213, no. 4 Suppl, p. S78., 1097-6868 (October 2015)

Author(s): Vahanian, Sevan A, Lavery, Jessica A, Ananth, Cande V, Vintzileos, Anthony

Abstract: We sought to evaluate the extent of the association between placental implantation abnormalities (PIA) and preterm delivery in singleton gestations. We conducted a systematic review of English-language articles published from 1980 onward using PubMed, MEDLINE, EMBASE, CINAHL, LILACS, and Google Scholar, and by identifying studies cited in the references of published articles. Search terms were PIA defined as ≥ 1 of the following: placenta previa, placenta accreta, vasa previa, and velamentous cord insertion. Observational and experimental studies were included for review if data were available regarding any of the aforementioned PIA and regarding gestational age at delivery or preterm delivery. Case reports and case series were excluded. Studies were reviewed and data extracted. The primary outcome was gestational age at delivery or preterm delivery <37 weeks' gestation. Secondary outcomes included birthweight, 1- and 5-minute Apgar scores, neonatal intensive care unit (NICU) admission, neonatal and perinatal death, and

small for gestational age. Of the 1421 studies identified, 79 met the defined criteria; 56 studies were descriptive and 23 were comparative. Based on the descriptive studies, the preterm delivery rates for low-lying/marginal placenta, placenta previa, placenta accreta, vasa previa, and velamentous cord insertion were 26.9%, 43.5%, 57.7%, 81.9%, and 37.5%, respectively. Based on the comparative studies using controls, there was decreased pregnancy duration for every PIA; more specifically, there was an increased risk for preterm delivery in patients with placenta previa (risk ratio [RR], 5.32; 95% confidence interval [CI], 4.39-6.45), vasa previa (RR, 3.36; 95% CI, 2.76-4.09), and velamentous cord insertion (RR, 1.95; 95% CI, 1.67-2.28). Risks of NICU admissions (RR, 4.09; 95% CI, 2.80-5.97), neonatal death (RR, 5.44; 95% CI, 3.03-9.78), and perinatal death (RR, 3.01; 95% CI, 1.41-6.43) were higher with placenta previa. Perinatal risks were also higher in patients with vasa previa (perinatal death rate RR, 4.52; 95% CI, 2.77-7.39) and velamentous cord insertion (NICU admissions [RR, 1.76; 95% CI, 1.68-1.84], small for gestational age [RR, 1.69; 95% CI, 1.56-1.82], and perinatal death [RR, 2.15; 95% CI, 1.84-2.52]). In singleton gestations, there is a strong association between PIA and preterm delivery resulting in significant perinatal morbidity and mortality. Copyright © 2015 Elsevier Inc. All rights reserved.

Source: Medline

Title: Prenatal diagnosis of vasa previa

Citation: Journal of Maternal-Fetal and Neonatal Medicine, October 2015, vol./is. 28/15(1806-1808), 1476-7058;1476-4954 (13 Oct 2015)

Author(s): Breborowicz G.H., Markwitz W., Szpera-Gozdziwicz A., Dera-Szymanowska A., Ropacka-Lesiak M., Szymanski P., Kubiaczyk-Paluch B.

Language: English

Abstract: Vasa previa is a rare condition in which unsupported by the placenta, umbilical cord blood vessels runs within the placental membranes between internal os of the cervix and presenting part of the fetus. We report an antenatal diagnostic procedure and management of a patient with low-lying placenta and velamentous cord insertion near to the internal os with two large fetal blood vessels coursing between the internal cervical os and fetal presenting part. An elective cesarean section was performed at 36 weeks gestation.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *Taylor & Francis* in [Journal of Maternal-Fetal and Neonatal Medicine, The](#)

Title: Abnormal Placentation: Placenta Previa, Vasa Previa, and Placenta Accreta.

Citation: Obstetrics and gynecology, Sep 2015, vol. 126, no. 3, p. 654-668, 1873-233X (September 2015)

Author(s): Silver, Robert M

Abstract: Placental disorders such as placenta previa, placenta accreta, and vasa previa are all associated with vaginal bleeding in the second half of pregnancy. They are also important causes of serious fetal and maternal morbidity and even mortality. Moreover, the rates of previa and accreta are increasing, probably as a result of increasing rates of cesarean delivery, maternal age, and assisted reproductive technology. The routine use of obstetric ultrasonography as well as improving ultrasonographic technology allows for the antenatal diagnosis of these conditions. In turn, antenatal diagnosis facilitates optimal obstetric management. This review emphasizes an evidence-based approach to the clinical management of pregnancies with these conditions as well as highlights important knowledge gaps.

Source: Medline

Full Text:

Available from *Obstetrics and Gynecology* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *Ovid* in [Obstetrics and Gynecology](#)

Title: Systematic review of accuracy of ultrasound in the diagnosis of vasa previa.

Citation: Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology, May 2015, vol. 45, no. 5, p. 516-522, 1469-0705 (May 2015)

Author(s): Ruiters, L, Kok, N, Limpens, J, Derks, J B, de Graaf, I M, Mol, B W J, Pajkrt, E

Abstract: Vasa previa is an obstetric complication in which the fetal blood vessels lie outside the chorionic plate in close proximity to the internal cervical os. In women with vasa previa, the risk of rupture of these vessels is increased, thus potentially causing fetal death or serious morbidity. Our objective was to assess the accuracy of ultrasound in the prenatal diagnosis of vasa previa. We searched MEDLINE, EMBASE, the Cochrane Library and PubMed for studies on vasa previa. Two reviewers independently selected studies on the accuracy of ultrasound in the diagnosis of vasa previa. The studies were scored on methodological quality using the Quality Assessment of Diagnostic Accuracy Studies tool (QUADAS-2). Data on sensitivity and specificity were subsequently extracted. The literature search revealed 583 articles, of which two prospective and six retrospective cohort studies were eligible for inclusion in the qualitative analysis. All studies documented methods suitable for the prenatal diagnosis of vasa previa. Four out of the eight studies used transvaginal ultrasound (TVS) for primary evaluation, while the remaining four studies used transabdominal ultrasound and performed a subsequent TVS when vasa previa was suspected. The QUADAS-2 tool reflected poor methodology in six of the eight included studies, and prenatal detection rates varied from 53% (10/19) to 100% (total of 442,633

patients, including 138 cases of vasa previa). In the two prospective studies (n = 33,795, including 11 cases of vasa previa), transvaginal color Doppler performed during the second trimester detected all cases of vasa previa (sensitivity, 100%) with a specificity of 99.0-99.8%. The accuracy of ultrasound in the diagnosis of vasa previa is high when performed transvaginally in combination with color Doppler. Copyright © 2014 ISUOG. Published by John Wiley & Sons Ltd.

Source: Medline

Full Text:

Available from *John Wiley and Sons* in [Ultrasound in Obstetrics and Gynecology](#)

Available from *Wiley-Blackwell Free Backfiles NHS* in [Ultrasound in Obstetrics and Gynecology](#)

Available from *John Wiley and Sons* in [Ultrasound in Obstetrics and Gynecology](#)

Title: Vasa praevia: A population based study in Australia

Citation: BJOG: An International Journal of Obstetrics and Gynaecology, April 2015, vol./is. 122/(61-62), 1470-0328 (April 2015)

Author(s): Sullivan E.A., Javid N., Cincotta R., Oyelese Y., Homer C., Halliday L., Duncombe G.

Language: English

Abstract: Introduction Vasa praevia (VP) is an under-researched rare obstetric condition. VP has a high fetal mortality rate of over 60% if not prenatally detected and appropriately managed. In 2011, the RCOG released Green-top guideline no. 27 that provided guidance about diagnosis and management of VP. Vasa praevia is a dynamic condition that may change during pregnancy, this makes diagnosis and management challenging. Women may have a suspected VP at the morphology scan which is no longer present in third trimester or conversely these fetal vessels may go undetected antenatally. There have been no national population studies on the diagnosis, management and outcomes of VP. This is the first prospective national population study of VP worldwide. Methods A prospective, national population-based descriptive study was conducted across Australian maternity hospitals with >50 births per year. Women were included if they were diagnosed with VP during pregnancy or at childbirth and gave birth between 1 May 2013 and 30 April 2014. Inclusion criteria: suspected VP on antenatal U/S > 18 weeks gestation, and confirmed VP on antenatal U/S > 31 weeks gestation (if not given birth prior to 31 weeks); or palpation or visualisation of the fetal vessels in labour; or rupture of membranes with bleeding associated with fetal death/ exsanguination or severe anaemia; or antenatal or intrapartum bleeding of fetal origin with pathologic CTG and/or positive APT test; or VP documented in medical record as reason for admission and caesarean section. All cases were confirmed by either clinical examination or pathological report of the placenta confirming VP. Data were collected on demographic, pregnancy and birth outcomes. Descriptive analysis with incidence rates, proportions of preterm birth <37 weeks of gestation, low birthweight (<2500 g) and mortality were calculated. Results Sixty eight women had a confirmed diagnosis of VP with an estimated incidence of 2.3 per 10 000 women giving birth. The

average age of women with VP was 32.3 years (range 20-39). 24% of women had assisted reproductive technology pregnancies. Almost all pregnancies were singleton (n = 65) with 1 twin pregnancy and 2 unknown. 57.4% of women had antesterooids for fetal maturation during pregnancy. Almost all (94.1%) women had a caesarean delivery. Perinatal outcomes of 69 babies included: 65.2% born preterm (<37 weeks), 24.6% were low birth weight, 13% were admitted to NICU and 37.7% to SCN. There were two perinatal deaths (one antepartum stillbirth and one neonatal death) with a perinatal case fatality rate of 2.9%. Conclusions Conservative study inclusion criteria may have led to under-ascertainment and under estimate of the prevalence of VP as placenta examination is not always routine or possible, especially the undiagnosed 'near miss' group. One in four cases followed were associated with assisted reproduction pregnancy. There was national consistency in the practice of the use of early caesarean delivery as the method of birth which was associated with high rates of were preterm birth, low birthweight and higher level care.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Full Text:

Available from *John Wiley and Sons* in [BJOG: An International Journal of Obstetrics and Gynaecology](#)

Title: A population based study of vasa praevia: Diagnosis and outcomes

Citation: Journal of Paediatrics and Child Health, April 2015, vol./is. 51/(65), 1034-4810 (April 2015)

Author(s): Javid N., Duncombe G., Cincotta R., Oyelese Y., Homer C.S.E., Sullivan E.A.

Language: English

Abstract: Background: Vasa praevia is an important obstetric complication that can be diagnosed during pregnancy with ultrasound, allowing elective caesarean section (CS) before rupture of fetal vessels and fetal haemorrhage to reduce perinatal mortality. Method: A descriptive national population-based study that prospectively included women across Australian maternity hospitals with >50 births per year was conducted. Women were included if they were diagnosed with VP during pregnancy or childbirth, confirmed by clinical examination or placental pathology; and gave birth during May 2013-April 2014. Results: Of 75 women with VP, there were 74 singleton pregnancies and one set of twins. Half (51%) were primiparous; maternal age ranged from 20 to 39 years; 89% (n = 67) had >one risk factor(s) for VP (59% low lying placenta, 53% Velamentous cord insertion, 29% succenturiate placenta, 24% assisted reproductive technology, 8% marginal cord insertion and 5% bilobed placenta). Almost half (45%) were hospitalised due to VP, 20% had antepartum haemorrhage, 15% laboured and 97% (n = 73) had CS (11% due to urgent threat to the life of the fetus). The mean gestation at birth was 35 and half weeks. Two babies required blood transfusion. There was one antepartum stillbirth that was delivered vaginally, and one neonatal death with perinatal mortality rate of 2.6% (n = 2). Conclusions:

This is the first prospective national population study of VP internationally. The majority of women had at least one risk factor for VP and had elective CS. Further research to examine the benefits and risks of screening needs to be undertaken.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Full Text:

Available from *John Wiley and Sons* in [Journal of Paediatrics and Child Health](#)

Title: Prenatal diagnosis of vasa previa.

Citation: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians, Jan 2015, vol. 28, no. 15, p. 1806-1808, 1476-4954 (2015)

Author(s): Bręborowicz, Grzegorz H, Markwitz, Wiesław, Szpera-Goździewicz, Agata, Dera-Szymanowska, Anna, Ropacka-Lesiak, Mariola, Szymański, Piotr, Kubiaczyk-Paluch, Beata

Abstract: Vasa previa is a rare condition in which unsupported by the placenta, umbilical cord blood vessels runs within the placental membranes between internal os of the cervix and presenting part of the fetus. We report an antenatal diagnostic procedure and management of a patient with low-lying placenta and velamentous cord insertion near to the internal os with two large fetal blood vessels coursing between the internal cervical os and fetal presenting part. An elective cesarean section was performed at 36 weeks gestation.

Source: Medline

Full Text:

Available from *Taylor & Francis* in [Journal of Maternal-Fetal and Neonatal Medicine, The](#)

Title: Is it time to look for vasa previa? Cajal method's for prenatal diagnosis

Citation: Journal of Maternal-Fetal and Neonatal Medicine, June 2014, vol./is. 27/(38), 1476-7058 (June 2014)

Author(s): Cordeiro Vidal G., Valladares Bajo Z., Cervino Gomez E., Lopez Ramon y Cajal C.N.

Language: English

Abstract: Brief Introduction: Vasa previa (VP) describes a situation where fetal vessels cross or run membranes around the lower uterine segment in close proximity to the inner cervical os. The estimated incidence is 1/2000-6000 deliveries. An accurate prenatal diagnosis before the rupture of membranes or before the initial stages of labor would avoid fetal

exsanguination and demise ought to laceration of umbilical vessels. We could describe different VP types. Type I due to free fetal vessel in a velamentous cord insertion in single or bilobed placenta. Type II where fetal vessels are running between lobes of a placenta with one or more accessory lobes. And type III, associated with a velamentous cord insertion located in the intergemelar membrane of the second twin. Materials & Methods: Retrospective descriptive study of all diagnosed cases of vasa previa at the University Hospital of Vigo, Spain, between January 2007 and January 2014. We follow this diagnostic scheme (Cajal's Method). First, placental integrity is evaluated detecting the presence of placental lobes and its relationship with the low uterine segment. Secondly, we find the insertion of the umbilical cord. The morphology of the placental fetal side - hypertrophic or not (convex or concave respectively)- will help the diagnosis. Convex placenta would be associated with marginal or velamentous cord insertions. Finally, we studied paths of free fetal vessels and its connection with inner cervical os. We introduce a 3D scan to know anatomical relationships. VP was confirmed in placental study after cesarean section. Clinical Cases or Summary Results: We diagnosed 20 cases of VP in our center in the last 6 years, 11 single pregnancies and 9 twin pregnancies. Our incidence is 1/1130 births. The average maternal age was 36.5 years. 40% of the patients were multiparous, 20% of these had a previous cesarean and 45% (9 cases) were in vitro fertilization pregnancies. The average gestational age at the time of ultrasound diagnosis of VP was 25 weeks. 55% (11 cases) were classified as type I (velamentous insertion), 5%(1 case) as type II (bilobed placenta) and 15%(3 cases) as type III (velamentous cord insertion of second twin). The marginal or low insertion placenta was diagnosed in 30% of the cases and bilobed placenta was found at 15%. 25% (5 cases) of patients had at least one episode of vaginal bleeding during pregnancy. The elective cesarean occurred in 65% of cases, being urgent in 35%. The average gestational age at the time of the cesarean section was 34 weeks. Apgar score at 5 min was >9 in all cases. All newborns were healthy. Conclusions: It is advisable the routine evaluation of the placental cord insertion in the second trimester ultrasound examination. This method helped us diagnose all cases of VP in our Hospital.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Full Text:

Available from *Taylor & Francis* in [Journal of Maternal-Fetal and Neonatal Medicine, The](#)

Title: Timing delivery of vasa previa: A decision analysis

Citation: Obstetrics and Gynecology, May 2014, vol./is. 123/(148S-149S), 0029-7844 (May 2014)

Author(s): Hoover M.A., Allen A., La Rochelle F., Baig-Lewis S., Pilliod R., Caughey A.B.

Language: English

Abstract: INTRODUCTION: The objective of this study was to determine the optimal gestational age for delivery in cases of vasa previa. METHODS: A decision-analytic model

was designed to compare gestational age of delivery in vasa previa for gestational ages between 32 and 37 weeks using maternal and fetal quality-adjusted life-years in a theoretical cohort of 1,000 women with vasa previa. At each week of gestational age, we allowed for different delivery strategies: 1) premature labor with emergent delivery or 2) planned delivery by cesarean at a predetermined gestational age. Quality-adjusted life-years were calculated based on the probability of fetal bleed or no fetal bleed, with or without development of cerebral palsy, stillbirth, or uncomplicated fetal delivery. RESULTS: Delivery at 33 weeks of gestation for women with vasa previa optimizes maternal and neonatal outcomes, (Figure presented) resulting in 6.98 stillbirths per 1,000 and 12.2 cases of cerebral palsy per 1,000. Delivery at 33 weeks of gestation maximizes total quality-adjusted life-years at 56.4. CONCLUSION: Delivery at 33 weeks of gestation for women with vasa previa optimizes maternal and fetal outcomes.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Full Text:

Available from *Obstetrics and Gynecology* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *Ovid* in [Obstetrics and Gynecology](#)

Available from *Ovid* in [Obstetrics and gynecology.](#)

Title: Placental and cord insertion pathologies: screening, diagnosis, and management.

Citation: Journal of midwifery & women's health, May 2014, vol. 59, no. 3, p. 328-335, 1542-2011 (2014 May-Jun)

Author(s): Wiedaseck, Susan, Monchek, Ruth

Abstract: Placenta previa, low-lying placenta, and placenta accreta are aberrations in the normal development of the placenta. Diagnosis in the prenatal period is essential because each of these pathologies can have a profound impact on the management of labor, birth, and the third stage. In recent years, there has been an increase in the occurrence of these placental abnormalities, with the increase in the cesarean rate considered to be a main cause of this phenomenon. Comprehensive risk assessment, combined with recent advances in ultrasonography, can provide earlier detection of impaired placental implantation. Umbilical cord insertion pathologies are also of concern. Velamentous cord insertion is a defect in the insertion site of the umbilical cord resulting from the atrophy of portions of the developing placenta. In this condition, the blood vessels of the umbilical cord are not protected by Wharton's jelly, resulting in a potential for increased risk of breakage when the amniotic membranes rupture. Vasa previa is a velamentous insertion of the umbilical cord in which the blood vessels are present over the cervical os. If these blood vessels rupture during labor, it can have catastrophic effects on the fetus. Prenatal diagnosis of this condition can allow the certified nurse-midwife/certified midwife (CNM/CM) to plan for the safe birth of the newborn and avoid fetal hemorrhage. This article provides a review of risk factors, diagnosis pathophysiology, and management options for these conditions, thus

enabling the CNM/CM to provide safe, effective care and management. © 2014 by the American College of Nurse-Midwives.

Source: Medline

Full Text:

Available from *John Wiley and Sons* in [Journal of Midwifery and Womens Health](#)

Title: Ultrasound in placental disorders.

Citation: Best practice & research. Clinical obstetrics & gynaecology, Apr 2014, vol. 28, no. 3, p. 429-442, 1532-1932 (April 2014)

Author(s): D'Antonio, Francesco, Bhide, Amar

Abstract: The definition of placenta previa based on ultrasound findings is more practical, and the traditional definition (implantation of the placenta in the lower uterine segment) needs to be revised. The term 'placenta previa' should only be used when the placental edge overlaps or is within 2 cm of the internal cervical orifice in late pregnancy. If the placental edge is located further than 2 cm but within 3.5 cm from the internal cervical orifice, the placenta should be termed 'low-lying'. Unless the placental edge at least reaches the internal orifice at mid-trimester, symptomatic placenta previa in the third trimester will not be encountered. Caesarean section is the recommended mode of delivery for placenta previa at term. Attempt at vaginal delivery is appropriate for low-lying placenta, but the possibility of post-partum haemorrhage should be kept in mind. The incidence of invasive placentation, such as placenta accrete, has progressively risen in the past 3 decades, possibly as a consequence of increasing caesarean section rates. Ultrasound has a sensitivity of 91% and a specificity of 97% for the identification of all forms of invasive placentation. Chorioangiomas are benign non-trophoblastic placental tumours with excessive vascular proliferation within the stroma of chronic villi. They are usually asymptomatic, although occasionally can be associated with adverse fetal outcomes. Chorioangiomas usually appear as well-circumscribed, rounded, hypo-echoic lesions next to the chorionic surface. Iatrogenic delivery or prenatal intervention are two options, if fetal compromise is present. Prenatal detection leads to a dramatic increase in survival compared with those cases unsuspected antenatally. Copyright © 2014. Published by Elsevier Ltd.

Source: Medline

Title: Natural history of vasa previa across gestation using a screening protocol.

Citation: Journal of ultrasound in medicine : official journal of the American Institute of Ultrasound in Medicine, Jan 2014, vol. 33, no. 1, p. 141-147, 1550-9613 (January 2014)

Author(s): Rebarber, Andrei, Dolin, Cara, Fox, Nathan S, Klauser, Chad K, Saltzman, Daniel H, Roman, Ashley S

Abstract: The purpose of this study was to estimate the prevalence and persistence rate of vasa previa in at-risk pregnancies using a standardized screening protocol. We conducted a descriptive study of patients with a diagnosis of vasa previa from a single ultrasound unit between June 2005 and June 2012. Vasa previa was defined as a fetal vessel within 2 cm of the internal cervical os on transvaginal sonography. Screening for vasa previa using transvaginal sonography with color flow mapping was performed routinely in the following situations: resolved placenta previa, prior pregnancy with vasa previa, velamentous insertion of the cord in the lower uterine segment, placenta succenturiata in the lower uterine segment, and twin gestations. A total of 27,573 patients were referred to our unit for fetal anatomic surveys over the study period. Thirty-one cases of vasa previa were identified, for an incidence of 1.1 per 1000 pregnancies. Twenty-nine cases had full records available for analysis. Five patients (17.2%) had migration and resolution of the vasa previa. When the diagnosis was made during the second trimester (<26 weeks), there was a 23.8% resolution rate (5 of 21); when the diagnosis was made in the third trimester, none resolved (0 of 8 cases). Of the 24 pregnancies (5 twin gestations and 19 singleton gestations) with persistent vasa previa, there was 100% perinatal survival and a median length of gestation of 35 weeks (range, 27 weeks 5 days-36 weeks 5 days). No known missed cases were identified over the study period. The use of standardized screening for vasa previa based on focused criteria was found to be effective in diagnosing vasa previa, with a 100% survival rate. Vasa previa diagnosed during the second trimester resolves in approximately 25% of cases.

Source: Medline

Full Text:

Available from *Highwire Press* in [Journal of Ultrasound in Medicine](#)

Title: Management of vasa praevia: a potential role for cervical length and quantitative fetal fibronectin measurement.

Citation: Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology, Nov 2013, vol. 33, no. 8, p. 905-906, 1364-6893 (November 2013)

Author(s): Gibson, S, Hezelgrave, N L, Shennan, A H

Source: Medline

Full Text:

Available from *Taylor & Francis* in [Journal of Obstetrics and Gynaecology](#)

Title: Vasa previa: clinical presentations, outcomes, and implications for management.

Citation: Obstetrics and gynecology, Aug 2013, vol. 122, no. 2 Pt 1, p. 352-357, 1873-233X (August 2013)

Author(s): Bronsteen, Richard, Whitten, Amy, Balasubramanian, Mamtha, Lee, Wesley, Lorenz, Robert, Redman, Mark, Goncalves, Luis, Seubert, David, Bauer, Sam, Comstock, Christine

Abstract: To review experience with diagnosis, clinical associations, and outcomes of vasa previa in a single institution. This was a retrospective review of all identified vasa previa cases from January 1 1990, to June 30, 2010. Sixty cases of vasa previa were identified (53 singletons, seven twins); 56 cases were diagnosed before delivery. An abnormal cord insertion or abnormal placental location was present in 55 cases. Missed diagnoses were attributed to technical and observer factors. Preterm bleeding was encountered in 25 (42%) case group participants. Seven case group participants required an emergent delivery, with significant neonatal morbidity and mortality. Twin pregnancies had a significantly earlier median age at delivery of 32 weeks of gestation compared with 35 weeks of gestations in singletons ($P=.01$). The seven twin pregnancies had a 28.6% emergent preterm delivery rate, whereas singletons had a 4.1% rate ($P=.07$). In 14 case group participants, the membranous fetal vessel was located in the lower uterus and not directly over the cervix. The vessel location was not related to the risk of emergent delivery. Transvaginal ultrasound scans of at-risk patients can identify most cases of vasa previa. Preterm bleeding does not usually require immediate delivery. The rate of emergent preterm delivery was low in singleton pregnancies. Twins were delivered, on average, 3 weeks earlier than singletons. III.

Source: Medline

Full Text:

Available from *Obstetrics and Gynecology* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *Ovid* in [Obstetrics and Gynecology](#)

Available from *Ovid* in [Obstetrics and gynecology.](#)

Title: Management and outcome of Vasa Praevia: A ten year review

Citation: Archives of Disease in Childhood: Fetal and Neonatal Edition, April 2013, vol./is. 98/(no pagination), 1359-2998 (April 2013)

Author(s): Kubba T., Ushakov F., Cicero S., Attilakos G.

Language: English

Abstract: Introduction Vasa Praevia (VP) describes fetal vessels coursing through the membranes over the internal os, unprotected by placental tissue or umbilical cord. VP is associated with significant fetal risk when membrane rupture occurs. The RCOG guideline on VP recommends antenatal admission from 28-32 weeks until delivery in a unit with appropriate neonatal facilities to facilitate quicker intervention in the event of bleeding or labour. Aim To review the management and outcome of VP cases at a tertiary teaching hospital. Methods We undertook a ten year retrospective review (2002 to 2012) of all cases of confirmed VP. Cases were identified using the discharge codes of all inpatient episodes and the fetal medicine unit database. We reviewed the ultrasound scans and notes of all

cases. Results We identified 15 confirmed cases of VP. 14 cases were diagnosed antenatally. The median GA at diagnosis was 25+3 weeks. 9 cases were admitted antenatally (duration: 2 days to 5 weeks). None of the admitted cases went into labour. 11/15 cases had elective LSCS and 4/15 had emergency LSCS (2/4 had category 1 LSCS). The median GA at delivery was 37 + 3 weeks. The single undiagnosed case resulted in neonatal death secondary to VP. Conclusions VP is a rare condition. A high proportion of cases were diagnosed antenatally, however there may be cases which were never diagnosed and did not cause adverse events. Further evidence is needed on the necessity and timing of antenatal admission.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Full Text:

Available from *Highwire Press* in [Fetal and Neonatal](#)

Title: Antepartum management of vasa previa: Are there benefits to hospitalization?

Citation: American Journal of Obstetrics and Gynecology, January 2013, vol./is. 208/1 SUPPL.1(S237), 0002-9378 (January 2013)

Author(s): Rochelle F.L., Allen A., Werner E., Nguyen B., Caughey A.

Language: English

Abstract: OBJECTIVE: Vasa previa, while relatively rare, can lead to catastrophic neonatal outcomes in the event of a vessel rupture. Given the poor outcomes, many clinicians choose to hospitalize these women. Our goal was to analyze the potential costs and benefits of managing women with vasa previa in the hospital versus at home. STUDY DESIGN: A decision-analytic model was built using TreeAge that compared maternal and neonatal outcomes between managing women with vasa previa in the hospital versus at home until 35 weeks gestational age. We assumed that vessel rupture occurs with preterm labor/PPROM at a rate of 0.38. In neonates who were not delivered within 15 minutes of a fetal hemorrhage, it was assumed that all exsanguinated. Outcomes included were: fetal death, neonatal death, major neurodevelopmental disability (MNDD). Cost-effectiveness threshold was set at \$100,000 per quality adjusted life year (QALY). Sensitivity analysis was performed in order to test the robustness of our baseline assumptions. RESULTS: In our theoretical cohort of 1,000 women with vasa previa, hospitalization resulted in 3 fewer fetal deaths than management at home (13 vs 16). However, costs were significantly increased with hospitalization (\$91,683,000) compared to management (\$23,382,000) at home. Management of women with vasa previa in the hospital was not a cost-effective strategy as the cost was \$763,549 per QALY. Sensitivity analysis revealed that management of women with vasa previa in the hospital does not become cost effective until the cost of hospitalization is less than \$8,120 (four days of hospitalization). CONCLUSION: While there may be some marginal benefit to hospitalization of women with vasa previa, it does not appear to be a cost-effective intervention. Prospective studies should be conducted before such care becomes routine. (Table Presented).

Publication Type: Journal: Conference Abstract

Source: EMBASE

Title: A case of vasa previa (type 2)

Citation: Placenta, September 2012, vol./is. 33/9(A134), 0143-4004 (September 2012)

Author(s): Nosaka S., Sakashita T., Sakate S., Nobuzane T., Kudo Y.

Language: English

Abstract: Vasa previa is an uncommon condition in which fetal vessels traverse the lower uterine segment in advance of the fetal presenting part. There are the two types of vasa previa; type 1 results from velamentous cord insertion and type 2 from vessels running between lobes of a bi-lobed or succenturiate lobed placenta. Since the vessels are not protected by either the umbilical cord or the placenta, they are prone to be compressed during labor and may tear as a result of the rupture of the membrane. Because rupture of vasa previa results in fetal exsanguination, hemorrhagic shock and death, the prognosis of fetus is poor when vasa previa is not diagnosed prenatally. We report a case of 32-year-old woman who is diagnosed of vasa previa (type 2) prenatally. She was referred to our hospital at 30 weeks of pregnancy because she had low-lying placenta and slight vaginal bleeding was observed. Transabdominal and transvaginal ultrasound examination showed a horseshoe-shaped placenta nearly enclosed the inner cervical os, marginal placental venous sinus and vessels crossing over the inner cervical os. She was diagnosed as type 2 vasa previa and admitted to our hospital. Because uterine contraction increased, in spite of tocolysis, elective cesarean section was performed at 34 weeks of pregnancy. A vertical incision on the uterine body was used in order to avoid cutting the placenta, vasa previa and fetal vessels. The post operative examination revealed the horseshoe-shaped placenta and large vessels running on the extraplacental membrane between the both ends of the placenta crossing over the internal cervical os. The postpartum course of her and the infant was uneventful.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Title: Abnormal placentation: Evidence-based diagnosis and management of placenta previa, placenta accreta, and vasa previa

Citation: Obstetrical and Gynecological Survey, August 2012, vol./is. 67/8(503-519), 0029-7828;1533-9866 (August 2012)

Author(s): Rao K.P., Belogolovkin V., Yankowitz J., Spinnato II J.A.

Language: English

Abstract: Placenta previa, placenta accreta, and vasa previa cause significant maternal and perinatal morbidity and mortality. With the increasing incidence of both cesarean delivery and pregnancies using assisted reproductive technology, these 3 conditions are becoming more common. Advances in grayscale and Doppler ultrasound have facilitated prenatal diagnosis of abnormal placentation to allow the development of multidisciplinary management plans to achieve the best outcomes for mother and baby. We present a comprehensive review of the literature on abnormal placentation including an evidence-based approach to diagnosis and management. Targeted Audience: Obstetricians & Gynecologists, Family Physicians. Learning Objectives: After completing this CME activity, physicians should be better able to: assess risk factors associated with placenta previa, placenta accreta, and vasa previa; evaluate sonographic characteristics of placenta previa, placenta accreta, and vasa previa; formulate antepartum management plans and delivery plans for patients with placenta previa, placenta accreta, and vasa previa; implement preoperative planning and surgical techniques used in management of placenta previa, placenta accreta, and vasa previa; and categorize the risks and benefits associated with conservative management of placenta accreta. Copyright © 2012 by Lippincott Williams & Wilkins.

Publication Type: Journal: Review

Source: EMBASE

Full Text:

Available from *Ovid* in [Obstetrical & gynecological survey.](#)

Available from *Ovid* in [Obstetrical and Gynecological Survey](#)

Title: Is it time to actively look for vasa praevia?

Citation: Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology, Jul 2012, vol. 32, no. 5, p. 413-418, 1364-6893 (July 2012)

Author(s): Nishtar, A, Wood, P L

Abstract: Vasa praevia can cause acute severe fetal haemorrhage prior to or during rupture of the membranes, contributing to perinatal morbidity and mortality. There are no large prospective studies relating to vasa praevia and there is no place for a randomised controlled trial as it would be ethically unjustifiable given the poor prognosis. There are no national guidelines for the management of vasa praevia. Identification of vasa praevia by the 3rd trimester of pregnancy warrants the offer of delivery by planned caesarean section to avoid the complications. This is essentially intuitive and logical rather than based on any randomised trials. A universal screening programme for vasa praevia is not currently supported by a robust evidence base; however, the role of prenatal diagnosis requires an informed debate, as high quality data may not be forthcoming, given the low evidence of

the condition. Increasing awareness and understanding of the clinical situations can accumulate information, which identify and treat this tragic complication of childbirth.

Source: Medline

Full Text:

Available from *Taylor & Francis* in [Journal of Obstetrics and Gynaecology](#)

Title: Antenatal diagnosis of velamentous cord insertion and vasa previa: preparing for a good outcome when the cervix is shortened

Citation: Journal of ultrasound in medicine : official journal of the American Institute of Ultrasound in Medicine, June 2012, vol./is. 31/6(963-965), 1550-9613 (Jun 2012)

Author(s): Garretto D., Budorick N.E., Figueroa R.

Language: English

Publication Type: Journal: Letter

Source: EMBASE

Full Text:

Available from *Highwire Press* in [Journal of Ultrasound in Medicine](#)

Title: Precise mid-trimester placenta localisation: Does it predict adverse outcomes?

Citation: Australian and New Zealand Journal of Obstetrics and Gynaecology, April 2012, vol./is. 52/2(156-160), 0004-8666;1479-828X (April 2012)

Author(s): Robinson A.J., Muller P.R., Allan R., Ross R., Baghurst P.A., Keirse M.J.N.C.

Language: English

Abstract: Background: A low-lying placenta detected at the mid-pregnancy ultrasound is commonly reported to warn against potential morbidity associated with placenta praevia. There is no information on what distance away from the internal cervical os is safe. Aims: We examined whether a low-lying placenta not overlapping the cervical os in the second trimester increases the risk of obstetric complications and whether there is a cut-off point at which that increase occurs. Methods: Adverse perinatal outcomes were examined prospectively in a cohort of women with a placenta 0-30 mm from the internal cervical os (low-lying) at the routine mid-trimester ultrasound and compared to those with a placenta further away. Two composite outcomes of major and minor adverse events were predefined as primary outcome measures, requiring a sample size of 480 women with a low-lying placenta. Chi-square and Fisher's exact tests were used for statistical analysis. Results: In 1662 pregnancies (low-lying: n = 484; normal: n = 1178), there was no increase in composite adverse outcomes with a low-lying placenta and no cut-off distance within 30 mm from the

cervical os at which risks increased. Postpartum haemorrhage > 1000 mL was more frequent with a low-lying placenta (7.6% vs 4.7%, $P < 0.05$). Conclusions: Women with a low-lying placenta, not overlapping the cervical os, in mid-pregnancy are at no higher risk of adverse outcomes than those with a normally located placenta, except postpartum haemorrhage. This suggests that the high-risk label can be removed from pregnancies with a low-lying placenta not overlapping the cervical os in midpregnancy, reducing anxiety and resource utilisation. © 2012 The Authors. ANZJOG © 2012 The Royal Australian and New Zealand College of Obstetricians and Gynaecologists.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *John Wiley and Sons* in [Australian and New Zealand Journal of Obstetrics and Gynaecology](#)

Available from *John Wiley and Sons* in [Australian and New Zealand Journal of Obstetrics and Gynaecology](#)

Title: Prenatal diagnosis, antenatal surveillance, and timing of delivery for vasa previa: A national survey

Citation: American Journal of Obstetrics and Gynecology, January 2012, vol./is. 206/1 SUPPL. 1(S83), 0002-9378 (January 2012)

Author(s): Romero V., Joshi D., Van De Ven C., Mozurkewich E., Nugent C., Perni U., Chames M., Treadwell M.

Language: English

Abstract: OBJECTIVE: To assess the current patterns of clinical practice on prenatal screening and antenatal management of vasa previa among maternal- fetal medicine specialists in the United States. STUDY DESIGN: We conducted a national postal survey of screening, surveillance, and delivery practices for pregnancies complicated by vasa previa. We mailed 1943 questionnaires to the members of the Society for Maternal-Fetal Medicine in October 2010. RESULTS: 556 surveys were returned, a response rate of 30%. 50% of respondents were in university-based practice. 79.5% of respondents had at least one case of vasa previa in their careers. 43% of respondents reported following a protocol to routinely screen for vasa previa in their ultrasound unit; 33% had a protocol for antenatal management. 38% of respondents would routinely offer serial measurements of cervical length to patients with prenatal diagnosis of vasa previa, of these 55% monitor cervical length at a frequency of every 2 weeks. 63% of respondents reserve use of preterm prediction tests for symptomatic patients. Most respondents (36%) would offer elective delivery at 36 weeks gestation whereas 18% would deliver at 37 weeks, 20% at 34 weeks and 9% at 35 weeks gestation. 6% would offer amniocentesis to document fetal lung maturity prior to delivery. Only 29% would give steroids before delivery between 34-37 weeks gestation, whereas 5% would administer steroids at 37-39 weeks. CONCLUSION:

Despite evidence that perinatal outcomes can be improved with antenatal diagnosis and elective cesarean delivery, only 43% of maternal-fetal specialists have a protocol for screening and 33% follow a protocol for antenatal management. Although most respondents would recommend elective delivery at 36 weeks, there is no consensus regarding the optimal antepartum management and timing of delivery. Our findings suggest the need for research to establish evidence-based guidelines for screening, antenatal management and timing of delivery of vasa previa.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Title: Vasa-previa: A critical analysis of risk factors and perinatal outcomes of 237 cases

Citation: American Journal of Obstetrics and Gynecology, January 2012, vol./is. 206/1 SUPPL. 1(S63), 0002-9378 (January 2012)

Author(s): Weintraub A.Y., Gutvirth G., Sergienko R., Sheiner E.

Language: English

Abstract: OBJECTIVE: To investigate risk factors and pregnancy outcomes of patients with vasa previa. STUDY DESIGN: A population-based study comparing all pregnancies of women with and without vasa previa was conducted. Stratified analysis using multiple logistic regression models was performed to control for confounders. RESULTS: During the study period there were 246525 deliveries, of which, 0.1% were complicated with vasa previa (n=237). Vasa previa was significantly associated with several pregnancy complications and adverse perinatal outcomes (table). Using a multivariable analysis, controlling for maternal age, multiple gestations (OR 6.3; 95% CI 4.1-9.8; P<0.001), and fertility treatments (OR 1.76; 95% CI 1.1-3.3; P=0.016) were independently associated with vasa previa. Using another multivariable logistic regression model, with perinatal mortality as the outcome variable, controlling for confounders such as preterm birth, multiple gestations and maternal age, vasa previa was found as an independent risk factor for perinatal mortality (weighted OR 3.0; 95% CI 2.6-3.5; P <0.001). CONCLUSION: Multiple gestations as well as fertility treatments are independent risk factors for vasa previa. Vasa previa is an independent risk factor for perinatal mortality. Careful surveillance of multiple gestations is recommended using Doppler studies for the detection of vasa previa. Accordingly, timely delivery is needed in order to reduce the associated complications. (Table Presented).

Publication Type: Journal: Conference Abstract

Source: EMBASE

Title: 15 cases of vasa previa

Citation: Journal of Perinatal Medicine, November 2011, vol./is. 39/(no pagination), 0300-5577 (November 2011)

Author(s): Matsuoka R., Hasegawa J., Aoki H., Koide K., Ichizuka K., Sekizawa A., Okai T.

Language: English

Abstract: Objectives: We reviewed 8 cases of vasa previa retrospectively to find out the important points for effective screening. Methods: 15 cases of vasa previa in our department in 2002 - 2010 were reviewed retrospectively. The incident was 0.097% in all deliveries. In our department, we checked cord insertion in 9 - 12 week, identified the location of cord insertion in 18-20 week and rechecked 30 week with ultrasonic exam. We diagnosed vasa previa by ultrasound color Doppler image of fetal vessels running. Result: We have diagnosed all 15 cases in antepartum in 18w - 36w. In three cases, vasa previa connected to velamentous cord insertion, which was located in low segment of uterus. In five cases, vasa previa were the connecting vessels between lobed placenta which was low placenta or placenta previa. In seven cases, cord insertion was located low segment of uterus. The average gestational age was 35.5w (30w-37w). In six cases, elective cesarean section was done. In two cases, emergency cesarean section was done because of PIH and premature rupture of membrane. Conclusion: It was possible to pick up the case of vasa previa by identification of cord insertion in antepartum. The important point for detection of vasa previa was to check if there was fetal vessels in case of low placenta, placenta previa and cord insertion located in low segment of uterus.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Title: Prenatal diagnosis and management of vasa previa: a 6-year review

Citation: The journal of obstetrics and gynaecology research, October 2011, vol./is. 37/10(1391-1396), 1447-0756 (Oct 2011)

Author(s): Kanda E., Matsuda Y., Kamitomo M., Maeda T., Mihara K., Hatae M.

Language: English

Abstract: To evaluate the methods of screening and prenatal diagnosis of vasa previa. We reviewed cases of vasa previa in our hospital between January 2002 and December 2007. During this period, we visualized the site of cord insertion using transabdominal ultrasonography and observed the internal os using gray-scale transvaginal ultrasonography. A diagnosis of vasa previa was confirmed by transvaginal color Doppler imaging. We encountered 10 cases of vasa previa among 5131 deliveries. All cases had one or more known risk factors. In all of the four cases that underwent screening in the second trimester (i.e. between 20 and 25 weeks of gestation), the diagnosis was correct. Routine ultrasonography detected in only three of the other six cases of vasa previa that were

referred to our hospital after 26 weeks of gestation. Of the other three cases referred after 26 weeks of gestation, in two cases vasa previa was detected by detailed examination using color Doppler transvaginal ultrasonography after fetal heart rate monitoring detected the presence of non-reassuring fetal status; in the remaining case, we were unable to make an antenatal diagnosis. Non-reassuring fetal status was seen on fetal heart rate monitoring in four of the five detected cases complicated by preterm labor. We consider that the best timing of antenatal screening for vasa previa is the second trimester. Non-reassuring fetal heart rate pattern without other possible causes warrants detailed examination of vasa previa. © 2011 The Authors. Journal of Obstetrics and Gynaecology Research © 2011 Japan Society of Obstetrics and Gynecology.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *John Wiley and Sons* in [Journal of Obstetrics and Gynaecology Research](#)

Available from *John Wiley and Sons* in [Journal of Obstetrics and Gynaecology Research](#)

Title: Prediction of risk for vasa previa at 9-13 weeks' gestation

Citation: The journal of obstetrics and gynaecology research, October 2011, vol./is. 37/10(1346-1351), 1447-0756 (Oct 2011)

Author(s): Hasegawa J., Nakamura M., Sekizawa A., Matsuoka R., Ichizuka K., Okai T.

Language: English

Abstract: To assess the usefulness for predicting vasa previa by detecting a cord insertion site in the lower third of the uterus between 9 and 13 weeks' gestation. The positional relationship between the uterine cavity and the cord insertion site was examined in consecutive subjects prospectively using ultrasonography at 9-13 weeks' gestation. The distance between the internal os and the fundus was divided equally into three parts. Cord insertions in the lower third were defined as cases; other insertions were defined as controls. Placental and umbilical cord abnormalities at the time of the delivery were analyzed between the two groups. The cord insertion sites were identified as 139 (10.6%) cases with low cord insertion and 1172 control cases. The case subjects frequently had an abnormal placental form (6.5% vs 2.1%, RR 3.2, 95% CI 1.5-7.0) or placenta previa (4.7% vs 1.3%, RR 3.5, 95% CI 1.3-9.1). The frequencies of velamentous cord insertion were 7.2% in cases and 0.9% in controls (RR 8.1, 95% CI 3.4-19.6). Three cases (2.2%) of vasa previa were observed in the cases, but none were observed in the controls (P = 0.001). Placental abruption occurred in 4.3% of the cases and 0.9% of the controls (RR 4.7, 95% CI 1.7-13.1). Screening sonography in the late first or early second trimesters and following up at the second trimester in cases with low cord insertion is a useful way to detect vasa previa. © 2011 The Authors. Journal of Obstetrics and Gynaecology Research © 2011 Japan Society of Obstetrics and Gynecology.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *John Wiley and Sons* in [Journal of Obstetrics and Gynaecology Research](#)

Available from *John Wiley and Sons* in [Journal of Obstetrics and Gynaecology Research](#)

Title: Management and outcome of vasa praevia in a teaching hospital over a 10 year period

Citation: Archives of Disease in Childhood: Fetal and Neonatal Edition, June 2011, vol./is. 96/(Fa83), 1359-2998 (June 2011)

Author(s): Knowles L., Attilakos G.

Language: English

Abstract: Introduction: RCOG have recently published guidelines regarding vasa praevia. Routine screening is not recommended but additional ultrasonography is advised if vasa praevia is suspected from previous ultrasound scans or clinical suspicion. Elective caesarean section is recommended before the onset of labour between 35 and 37 weeks. Aim: To determine the outcome of cases of vasa praevia at St Michael's Hospital, Bristol and compare management to the new guidelines. Methods: We used the discharge codes of all inpatient episodes to identify cases of vasa praevia between 2000 and 2010 at St Michael's Hospital, Bristol. We also searched the perinatal mortality database to identify vasa praevia-related deaths. We collected demographic data, as well as data relating to diagnosis, management and delivery. Results: We identified 18 cases of vasa praevia without any perinatal deaths due to vasa praevia in this time period. 5/18 cases were diagnosed antenatally, with the remaining diagnosed intrapartum. All women diagnosed antenatally had a low-lying placenta throughout pregnancy and had repeat ultrasound scans. Gestational age at delivery was 36.3+/-1.1 weeks in the antenatal diagnosis group compared to 38.9+/-1.8 weeks in the intrapartum diagnosis group. All cases diagnosed antenatally were delivered by elective caesarean section. Conclusions: Despite RCOG guidelines only recently being published, all women diagnosed antenatally had the recommended repeat ultrasound scans and were managed as guidelines suggest. Despite the intrapartum diagnosis of most cases, the perinatal mortality was surprisingly low. As the total number of cases is too small, multicentre observational studies may provide more meaningful conclusions.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Full Text:

Available from *Highwire Press* in [Fetal and Neonatal](#)

Title: Neonatal outcomes after prenatally diagnosed vasa previa. A case series

Citation: Reproductive Sciences, March 2011, vol./is. 18/3 SUPPL. 1(183A), 1933-7191 (March 2011)

Author(s): Romero V., Perni U., Joshi D., Mozurkewich E., Treadwell. M.C.

Language: English

Abstract: Objective: Fetal exsanguination from ruptured vasa previa may have catastrophic fetal and neonatal consequences. The purpose of this study was to describe the neonatal outcomes when prenatal diagnosis of vasa previa has been made. Methods: A retrospective review of cases of vasa previa diagnosed between 2007 and 2010 at the University of Michigan Medical Center was conducted. Obstetric and neonatal outcome data were collected. Results: Prenatal diagnosis of vasa previa occurred in 13 pregnancies of which 9 (6 singletons and 3 twin pregnancies, resulting in 12 neonates) delivered in our center. Gestational age at delivery ranged from 24 weeks to 38 weeks, with the majority of neonates delivered at 34 weeks (33.3%) and 35 weeks (33.3%). Vaginal bleeding that required immediate delivery was reported in 3 pregnancies (2 twin and 1 singleton gestation). 66.7% (8/12) were born to mothers who had received betamethasone. 100% were delivered by cesarean section. One minute Apgar score < 5 was reported in 50% of cases and cord ph < 7.1 was seen in one case. One patient with prenatal diagnosis of vasa previa presented in early labor at 38weeks and the neonate required blood transfusion. NICU admissions were reported in 66.7% (8/12). The median length of stay was 18 days (range: 8-93 days). Neonatal death was reported only in 1 case delivered at 24 weeks due to extreme prematurity. (Table presented) Conclusion: Late preterm delivery of pregnancies complicated prenatally diagnosed vasa previa has led to reports of reduced neonatal morbidity and mortality. However, significant morbidity related to iatrogenic prematurity persists.

Publication Type: Journal: Conference Abstract

Source: EMBASE

Title: Effectiveness of timing strategies for delivery of individuals with vasa previa

Citation: Obstetrics and Gynecology, March 2011, vol./is. 117/3(542-549), 0029-7844 (March 2011)

Author(s): Robinson B.K., Grobman W.A.

Language: English

Abstract: OBJECTIVE: To compare strategies for the timing of delivery in patients with ultrasonographic evidence of vasa previa. METHODS: A decision tree was designed comparing 11 strategies for delivery timing in a patient with vasa previa. The strategies ranged from a scheduled delivery at 32, 33, 34, 35, 36, 37, 38, or 39 weeks of gestation to a

scheduled delivery at 36, 37, or 38 weeks of gestation only after amniocentesis confirmation of fetal lung maturity. Outcomes factored into the model included perinatal mortality, infant mortality, respiratory distress syndrome, mental retardation, and cerebral palsy. RESULTS: A scheduled delivery at 34 weeks of gestation was the preferred strategy and resulted in the highest quality-adjusted life-years under the base-case assumptions. Sensitivity analyses demonstrated that the optimal gestational age for delivery was dependent on certain estimates in the model, although in most circumstances remained at 34 or 35 weeks of gestation. Under all circumstances, strategies incorporating confirmation of fetal lung maturity failed to result in a better outcome than strategies that incorporated delivery at the same gestational age without amniocentesis. CONCLUSION: This decision analysis suggests that for women with a vasa previa, delivery at 34-35 weeks of gestation may balance the risk of perinatal death with the risks of infant mortality, respiratory distress syndrome, mental retardation, and cerebral palsy related to prematurity. At any given gestational age, incorporating amniocentesis for verification of fetal lung maturity does not improve outcomes. © 2011 The American College of Obstetricians and Gynecologists.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *Obstetrics and Gynecology* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *Ovid* in [Obstetrics and Gynecology](#)

Available from *Ovid* in [Obstetrics and gynecology.](#)

Title: A case of vasa previa diagnosed prenatally, and review of the literature.

Citation: Journal of medical ultrasonics (2001), Jan 2011, vol. 38, no. 1, p. 41-45, 1346-4523 (January 2011)

Author(s): Komatsu, Atsushi, Kozuma, Shiro, Yoshida, Shiro, Hyodo, Hironobu, Yamashita, Takahiro, Kamei, Yoshimasa, Fujii, Tomoyuki, Taketani, Yuji

Abstract: The perinatal mortality rate of vasa previa is high if it is not prenatally diagnosed. In this report, a case of vasa previa diagnosed prenatally is presented. Antepartum hemorrhage at 24 weeks of gestation prompted a close investigation of the uterine cervix, internal os, and placenta. We detected a low-lying bilobed placenta with umbilical cord insertion in the lower uterine segment. Furthermore, one of the connecting vessels of the bilobed placenta passed directly above the internal os. Vasa previa was suspected and confirmed with color Doppler and MRI. The fetus was delivered uneventfully by planned Cesarean section at 38 weeks of gestation. It should be considered that placenta previa (including low-lying placenta), bilobed placenta, and umbilical cord insertion in the lower uterine segment are associated with high risk of vasa previa. Ultrasound screening for cord insertion and placenta around the internal os enables efficient and certain detection of vasa previa.

Source: Medline

Full Text:

Available from *Springer Link Journals* in [Journal of Medical Ultrasonics](#)

Title: Clinical significances of magnetic resonance imaging in prenatal diagnosis of vasa previa in a woman with bilobed placentas

Citation: Journal of Obstetrics and Gynaecology Research, January 2011, vol./is. 37/1(75-78), 1341-8076;1447-0756 (January 2011)

Author(s): Kikuchi A., Uemura R., Serikawa T., Takakuwa K., Tanaka K.

Language: English

Abstract: We report a case of a pregnant woman diagnosed as having vasa previa by magnetic resonance imaging (MRI). A parous woman was referred to our hospital at 31 weeks of gestation due to suspicion of placenta previa. Transvaginal ultrasound examination together with the Doppler techniques showed a fetal vessel on a lesion of low and high mixed echogenecities over the internal os, but could not confirm whether it was placental tissue or not. MRI demonstrated that it was not placenta but a hemorrhage between bilobed placentas and that the vessel was running over the internal os freely from the placenta. At 34 weeks of gestation, emergency cesarean section was performed due to increasing vaginal bleeding. MRI should be useful in the diagnosis of vasa previa when the relation between the position of the placenta and that of suspicious vessels cannot be adequately evaluated by ultrasound. © 2010 Japan Society of Obstetrics and Gynecology.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *John Wiley and Sons* in [Journal of Obstetrics and Gynaecology Research](#)
Available from *John Wiley and Sons* in [Journal of Obstetrics and Gynaecology Research](#)

Title: Analysis of the ultrasonographic findings predictive of vasa previa

Citation: Prenatal Diagnosis, December 2010, vol./is. 30/12-13(1121-1125), 0197-3851;1097-0223 (December 2010)

Author(s): Hasegawa J., Farina A., Nakamura M., Matsuoka R., Ichizuka K., Sekizawa A., Okai T.

Language: English

Abstract: Objectives: To clarify the ultrasonographic findings indicative of prenatal vasa previa. Methods: The variables associated with placental and umbilical cord abnormalities were retrospectively analysed in cases with and without vasa previa. Results: Consecutive subjects were divided into those with vasa previa (10) and controls (4682). Abnormal placental forms and placenta previa/low-lying placenta were associated with vasa previa [odds ratio (OR) 21.9 and 28.0]. While the frequency of velamentous cord insertion was 1.6% in the controls, it was 90% in the cases with vasa previa (OR 552). In addition, low cord insertions in the uterus were observed in 90% of the patients with vasa previa and only in 0.4% of the controls (OR 2470). Descending cords were also frequently observed in patients with vasa previa (OR 89.8). Finally, a multivariable regression analysis demonstrated an OR of 65.1 (95% confidence interval (CI) 5.8-733) for velamentous cord insertion and an OR of 344.7 (95% CI 31-3838) for low cord insertion with regard to the risk of vasa previa. Conclusion: Our results suggest that confirmation of the placental cord insertion, including not only velamentous cord insertion but also the cords located on the lower uterine segment, is the best way to detect vasa previa. Copyright © 2010 John Wiley & Sons, Ltd.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *John Wiley and Sons* in [Prenatal Diagnosis](#)

Available from *John Wiley and Sons* in [Prenatal Diagnosis](#)

Title: The cost-effectiveness of targeted or universal screening for vasa praevia at 18-20 weeks of gestation in Ontario.

Citation: BJOG : an international journal of obstetrics and gynaecology, Aug 2010, vol. 117, no. 9, p. 1108-1118, 1471-0528 (August 2010)

Author(s): Cipriano, L E, Barth, W H, Zaric, G S

Abstract: To estimate the cost-effectiveness of targeted and universal screening for vasa praevia at 18-20 weeks of gestation in singleton and twin pregnancies. Cost-utility analysis based on a decision-analytic model comparing relevant strategies and life-long outcomes for mother and infant(s). Ontario, Canada. A cohort of pregnant women in 1 year. We constructed a decision-analytic model to estimate the lifetime incremental costs and benefits of screening for vasa praevia. Inputs were estimated from the literature. Costs were collected from the London Health Sciences Centre, the Ontario Health Insurance Program, and other sources. We used one-way, scenario and probabilistic sensitivity analysis to determine the robustness of the results. Incremental costs, life expectancy, quality-adjusted life-years (QALY) and incremental cost-effectiveness ratio (ICER). Universal transvaginal ultrasound screening of twin pregnancies has an ICER of \$5488 per QALY-gained. Screening all singleton pregnancies with the risk factors low-lying placentas, in vitro fertilisation (IVF) conception, accessory placental lobes, or velamentous cord insertion has an ICER of \$15,764 per QALY-gained even though identifying some of these risk factors requires routine use of

colour Doppler during transabdominal examinations. Screening women with a marginal cord insertion costs an additional \$27,603 per QALY-gained. Universal transvaginal screening for vasa praevia in singleton pregnancies costs \$579,164 per QALY compared with targeted screening. Compared with current practice, screening all twin pregnancies for vasa praevia with transvaginal ultrasound is cost-effective. Among the alternatives considered, the use of colour Doppler at all transabdominal ultrasound examinations of singleton pregnancies and targeted use of transvaginal ultrasound for IVF pregnancies or when the placenta has been found to be associated with one or more risk factors is cost-effective. Universal screening of singleton pregnancies is not cost-effective compared with targeted screening.

Source: Medline

Full Text:

Available from *John Wiley and Sons* in [BJOG: An International Journal of Obstetrics and Gynaecology](#)

Available from *John Wiley and Sons* in [BJOG: An International Journal of Obstetrics and Gynaecology](#)

Title: Third trimester fetoscopic laser ablation of type II vasa praevia.

Citation: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians, May 2010, vol. 23, no. 5, p. 459-462, 1476-4954 (May 2010)

Author(s): Chmait, Ramen H, Chavira, Emiliano, Kontopoulos, Eftichia V, Quintero, Rubén A

Abstract: Vasa praevia is associated with increased perinatal morbidity and mortality because of fetal exsanguination at time of membrane rupture. We report our experience in the treatment of type II vasa praevia via in utero laser ablation in the third trimester. Two cases of type II vasa praevia were identified via endovaginal ultrasound in the second trimester and treated via third trimester fetoscopic laser ablation. In case 1, fetoscopic laser ablation of the vasa praevia was performed without complication at 28 3/7 weeks' gestation as a prophylactic measure. The patient delivered at 33 3/7 weeks' gestation after rupture of membranes without sequelae with good perinatal outcome. In case 2, expectant management of twins with a vasa praevia was planned. However, significant cervical shortening and funneling was documented at 30 5/7 weeks', and the risk of membrane rupture was deemed relatively high. As a therapeutic alternative to outright preterm delivery, the patient underwent uncomplicated laser ablation of the vasa praevia. Delivery occurred at 34 3/7 weeks' after rupture of membranes, and the twins did well. We suggest that type II vasa praevia can be definitively treated in utero by laser photocoagulation in the third trimester. Ablation of the vasa praevia may be performed prophylactically or as a therapeutic measure to delay delivery if symptoms of preterm labor and/or cervical shortening develop.

Source: Medline

Full Text:

Available from *Taylor & Francis* in [Journal of Maternal-Fetal and Neonatal Medicine, The](#)

Title: Is neonatal risk from vasa previa preventable? The 20-year experience from a single medical center

Citation: Journal of clinical ultrasound : JCU, March 2010, vol./is. 38/3(118-122), 1097-0096 (2010 Mar-Apr)

Author(s): Smorgick N., Tovbin Y., Ushakov F., Vaknin Z., Barzilay B., Herman A., Maymon R.

Language: English

Abstract: BACKGROUND: Vasa previa is a rare condition associated with neonatal morbidity and mortality that may be diagnosed prenatally using transvaginal sonography. The aim of this study was to assess the prenatal detection of vasa previa and its subsequent impact on neonatal outcomes in two 10-year periods (1988-1997 versus 1998-2007). METHOD: Retrospective review of all cases of vasa previa. Data on obstetrical history, modes of conception, sonographic scans, delivery mode, and neonatal outcome were retrieved and recorded. RESULT: There were 19 pregnancies (21 neonates) with confirmed vasa previa (overall incidence of 1.7/10,000 deliveries). Vasa previa were diagnosed prenatally in 10 (52.6%) cases. In cases without prenatal diagnosis, there was a higher proportion of neonates with 1' Apgar score ≤ 5 and cord blood pH < 7 compared with cases diagnosed prenatally (66.7% versus 10%, $p \leq 0.05$, and 33.3% versus 0%, $p < 0.05$, respectively). The prenatal detection rate of vasa previa increased from 25 to 60% between the 2 time periods ($p > 0.05$), whereas perinatal mortality and 1' Apgar scores ≤ 5 decreased from 25 to 0% and from 50 to 33.3% ($p > 0.05$). CONCLUSION: Prenatal sonographic screening using targeted scans for vasa previa in women at risk or as part of routine mid-gestation scanning may significantly impact its obstetric manifestations. Copyright 2010 Wiley Periodicals, Inc.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *John Wiley and Sons* in [Journal of Clinical Ultrasound](#)

Available from *John Wiley and Sons* in [Journal of Clinical Ultrasound](#)

Title: Diagnosis and management of vasa previa: a questionnaire survey

Citation: Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology, February 2010, vol./is. 35/2(205-209), 1469-0705 (Feb 2010)

Author(s): Ioannou C., Wayne C.

Language: English

Abstract: OBJECTIVES: Our aim was to assess the current use of obstetric ultrasound imaging for the diagnosis of asymptomatic vasa previa. We also investigated obstetricians' views on the feasibility of a screening policy and their awareness of risk factors associated with this condition. METHODS: A national postal survey was conducted between March and July 2006. A total of 234 questionnaires were sent to obstetric and fetomaternal consultants across England and Wales. In all, 128 questionnaires were returned, a response rate of 55%. RESULTS: Most respondents (85%) stated that in their hospital they do not report velamentous cord insertions at the anomaly scan. However, 73% occasionally or routinely document the presence of succenturiate lobes. Only 33% of respondents offered transvaginal scanning for the identification of vasa previa within their hospital, whereas only 6% had ever referred women to a tertiary center for this indication. In all, 34% of the respondents did not identify any risk factor for the condition. Most respondents (80%) would offer an elective Cesarean section if vasa previa was suspected antenatally; the majority would perform it at 38 weeks' gestation. However, only 20% of respondents felt that an effective screening policy is possible. CONCLUSIONS: Despite evidence that perinatal death can be prevented by antenatal diagnosis of vasa previa, most obstetricians in England and Wales feel that a screening policy is not possible. The majority of them would offer an elective Cesarean section for vasa previa at around 38 weeks. There is a need to increase awareness and understanding of the major risk factors for this condition.

Publication Type: Journal: Article

Source: EMBASE

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Available from *John Wiley and Sons* in [Ultrasound in Obstetrics and Gynecology](#)

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Available from *Wiley-Blackwell Free Backfiles NHS* in [Ultrasound in Obstetrics and Gynecology](#)

Available from *John Wiley and Sons* in [Ultrasound in Obstetrics and Gynecology](#)

Title: Life threatening vasa praevia: Three different cases and outcomes

Citation: *Gynaecologia et Perinatologia*, January 2010, vol./is. 19/1(37-39), 1330-0091 (January-March 2010)

Author(s): Blagaic V., Ivkovic I.E., Veccek N., Kopljar M., Zalac D., Miskovic B.

Language: English

Abstract: Objective: To enlighten vasa praevia as a rare complication of pregnancy associated with a high rate of fetal and neonatal mortality. Early detection of this condition is crucial for planning the therapeutic approach to prevent fetal and neonatal risks. Methods and Results: We report three different cases of vasa praevia: the one that was recognized during labor immediately after amniotomy, causing life threatening hemorrhage and

emergency cesarean section with good neonatal outcome; second case where vasa praevia were diagnosed in prenatal period during amnioscopy confirmed by color doppler sonography, enabling elective cesarean section with no consequences; the third case were un-recognized vasa praevia followed by emergency cesarean section and neonatal death. Conclusion: Vasa praevia remains an unpredictable cause of fetal or neonatal death even though it can be relatively easily diagnosed in prenatal period either by color doppler sonography, amnioscopy or magnetic resonance.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *Free Access Content* in [Gynaecologia et Perinatologia](#)

Title: SOGC CLINICAL PRACTICE GUIDELINE: guidelines for the management of vasa previa.

Citation: International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics, Jan 2010, vol. 108, no. 1, p. 85-89, 1879-3479 (January 2010)

Author(s): Gagnon, Robert, Morin, Lucie, Bly, Stephen, Butt, Kimberly, Cargil, Yvonne M, Denis, Nanette, Hietala-Coyle, Marja Anne, Lim, Kenneth Ian, Ouellet, Annie, Racicot, Maria-Hélène, Salem, Shia, Hudon, Lynda, Basso, Melanie, Bos, Hayley, Delisle, Marie-France, Farine, Dan, Grabowska, Kirsten, Menticoglou, Savas, Mundle, William, Murphy-Kaulbeck, Lynn, Pressey, Tracy, Roggensack, Anne, Diagnostic Imaging Committee, Maternal Fetal Medicine Committee

Abstract: To describe the etiology of vasa previa and the risk factors and associated condition, to identify the various clinical presentations of vasa previa, to describe the ultrasound tools used in its diagnosis, and to describe the management of vasa previa. Reduction of perinatal mortality, short-term neonatal morbidity, long-term infant morbidity, and short-term and long-term maternal morbidity and mortality. Published literature on randomized trials prospective cohort studies, and selected retrospective cohort studies was retrieved through searches of PubMed or Medline, CINAHL, and the Cochrane Library, using appropriate controlled vocabulary (e.g., selected epidemiological studies comparing delivery by Caesarean section with vaginal delivery studies comparing outcomes when vasa previa is diagnosed antenatally vs.intrapartum) and key words (e.g. vasa previa). Results were restricted to systematic reviews, randomized control trials/controlled clinical trials, and observational studies. Searches were updated on a regular basis and incorporated into the guideline to October 1, 2008. Grey (unpublished) literature was identified through searching the websites of health technology assessment and health technology assessment-related agencies,clinical practice guideline collections, clinical trial registries, and from national and international medical specialty societies. The evidence collected was reviewed by the Diagnostic Imaging Committee and the Maternal Fetal Medicine Committee of the Society of Obstetricians and Gynaecologists of Canada (SOGC) and quantified using the evaluation of evidence guidelines developed by the Canadian Task Force on Preventive Health Care.

The benefit expected from this guideline is facilitation of optimal and uniform care for pregnancies complicated by vasa previa. The Society of Obstetricians and Gynaecologists of Canada.

Source: Medline

Title: The association between vasa previa, multiple gestations, and assisted reproductive technology

Citation: American Journal of Perinatology, October 2008, vol./is. 25/9(587-589), 0735-1631;1098-8785 (October 2008)

Author(s): Gandhi M., Cleary-Goldman J., Ferrara L., Ciorica D., Saltzman D., Rebarber A.

Language: English

Abstract: Patients with multiple gestations, low-lying placentas, velamentous cord insertions, and history of assisted conception should be evaluated carefully for a vasa previa. Serial surveillance for signs of preterm labor and elective cesarean delivery at 34 to 35 weeks after corticosteroids for fetal lung maturity is a reasonable management strategy for vasa previa in multiple gestations. Copyright © 2008 by Thieme Medical Publishers, Inc.

Publication Type: Journal: Article

Source: EMBASE

Title: Vasa praevia: A missed diagnosis

Citation: Journal of Obstetrics and Gynaecology, August 2008, vol./is. 28/6(600-603), 0144-3615;1364-6893 (August 2008)

Author(s): Sinha P., Kaushik S., Kuruba N., Beweley S.

Language: English

Abstract: Vasa praevia is an uncommon obstetric complication, which if undiagnosed is associated with a high fetal mortality because of the rapid haemorrhage from tearing of fetal vessels resulting in fetal exsanguinations. Antenatal diagnosis in most cases is not made and therefore prevention of fetal death is not possible. Outcome depends primarily on prenatal diagnosis and caesarean delivery at 36 weeks or even earlier. Advances in ultrasound have led to an improved ability to diagnose this condition. Evaluation of high-risk patients with transvaginal colour flow Doppler ultrasound should be considered and should be included in the protocol for routine obstetrics scan. We report three cases of vasa praevia presenting as ante-partum and intra-partum bleeding. Two of them had associated

suspected low-lying placenta. This occurred within 4 years (2002-2006) in a small DGH with a delivery rate of 1,800 per year. The purpose of writing these case reports is to warn others of the need for vigilance antenatally, especially with a low-lying placenta, velamentous insertion of cord, IVF and multiple pregnancy. Colour Doppler should be used to visualise blood vessels in these high-risk cases and elective caesarean section should be performed at 35-36 weeks in cases diagnosed as vasa praevia. © 2008 Informa Healthcare USA, Inc.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *Taylor & Francis* in [Journal of Obstetrics and Gynaecology](#)

Title: In utero laser treatment of type II vasa previa.

Citation: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians, Dec 2007, vol. 20, no. 12, p. 847-851, 1476-7058 (December 2007)

Author(s): Quintero, Rubén A, Kontopoulos, Eftichia V, Bornick, Patricia W, Allen, Mary H

Abstract: Vasa previa, defined as fetal vessels coursing within the membranes between the presenting part and the cervix, occurs in approximately 1:2500-5000 pregnancies. Type II vasa previa consists of fetal vessels crossing over the internal os connecting a bilobed placenta or a succenturiate lobe with the main placental mass. These vessels are prone to compression during labor or may tear when membranes rupture potentially resulting in fetal exsanguination and neonatal death. This complication could be avoided altogether if the vessels could be obliterated in utero. The purpose of this communication is to report the successful in utero laser ablation of type II vasa previa at 22.5 weeks of gestation. Subsequent ruptured membranes did not result in untoward fetal consequences. Risks and benefits of this novel procedure are discussed.

Source: Medline

Full Text:

Available from *Taylor & Francis* in [Journal of Maternal-Fetal and Neonatal Medicine, The](#)
Available from *ProQuest* in [Journal of Maternal - Fetal and Neonatal Medicine](#)

Title: Umbilical cord insertion to the lower uterine segment is a risk factor for vasa previa

Citation: Fetal Diagnosis and Therapy, August 2007, vol./is. 22/5(358-360), 1015-3837 (August 2007)

Author(s): Hasegawa J., Matsuoka R., Ichizuka K., Fujikawa H., Sekizawa A., Okai T.

Language: English

Abstract: The perinatal mortality rate of vasa previa is high if it is not prenatally diagnosed. Systematic strategies for vasa previa screening have been recommended. In this paper, three cases of vasa previa diagnosed prenatally, with umbilical cord inserted to the lower segment of the uterus, are presented. It should be considered that umbilical cord insertion to the lower uterine segment is a high risk for vasa previa. Ultrasound screening for cord insertion will make it possible to do efficient and certain detection of vasa previa. Copyright © 2007 S. Karger AG.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *ProQuest* in [Fetal Diagnosis and Therapy](#)

Title: Prenatal ultrasound diagnosis of vasa praevia and analysis of risk factors

Citation: Prenatal Diagnosis, July 2007, vol./is. 27/7(595-599), 0197-3851;1097-0223 (July 2007)

Author(s): Baulies S., Maiz N., Munoz A., Torrents M., Echevarria M., Serra B.

Language: English

Abstract: Objective: To evaluate the role of ultrasound in prenatal diagnosis of vasa praevia (VP) and to assess the risk of VP associated with different causal factors. Material and Methods: A retrospective study of the incidence of VP in a series of 12 063 deliveries between January 2000 and March 2005. We also studied the factors that predisposed for VP and the perinatal outcome of pregnancies. Results: The prevalence of VP in our centre during this period was 0.07% (9 cases). All cases were prenatally diagnosed. The mean gestational age at diagnosis was 26 weeks. Multivariate analysis revealed the following associated factors: IVF pregnancies, bilobate or succenturiate placenta, and second-trimester placenta praevia, with an odds ratio of 7.75, 22.11 and 22.86, respectively. Conclusions: In our series, the prenatal diagnosis of all cases of VP achieved during the second-trimester scan allowed us to avoid any prenatal death related to this condition. Copyright © 2007 John Wiley & Sons, Ltd.

Publication Type: Journal: Article

Source: EMBASE

Full Text:

Available from *John Wiley and Sons* in [Prenatal Diagnosis](#)

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Title: An easy-to-use method for detecting fetal hemoglobin--a test to identify bleeding from vasa previa.

Citation: European journal of obstetrics, gynecology, and reproductive biology, Apr 2007, vol. 131, no. 2, p. 151-153, 0301-2115 (April 2007)

Author(s): Lindqvist, Pelle G, Gren, Peter

Abstract: Vasa previa is a rare but potentially dangerous fetal condition that may occur during pregnancy. Ideally, all cases such as these are detected antenatally, but many present as late vaginal hemorrhaging. At the current time, there is no test for fetal hemoglobin (HbF) in general use. A modified method of identifying HbF is presented. Five milliliters of 0.14 M NaOH was combined with 50 microl of a mixture of fetal and maternal blood. After 2 min, it was judged if the solution still had a red tone or not. The sensitivity of this method for detecting HbF was assessed. All 15 clinical personnel could identify both 69% and 34% HbF mixed with adult hemoglobin (100% sensitivity), 14 out of 15 could identify 17% HbF (93% sensitivity), and 12 out of 15 could identify a mixture containing 8% HbF (80% sensitivity). Our rapid, simple test for HbF was at least as sensitive as slower, more cumbersome alkali denaturation tests in common use. It could prove to be a lifesaving tool in ruling out vasa previa bleeding in cases of unclear late pregnancy hemorrhages.

Source: Medline

Title: Vasa praevia after IVF: should there be guidelines? Report of two cases and literature review.

Citation: Reproductive biomedicine online, Mar 2007, vol. 14, no. 3, p. 372-374, 1472-6483 (March 2007)

Author(s): Al-Khaduri, Maha, Kadoch, Isaac Jacques, Couturier, Bernard, Dubé, Johanne, Lapensée, Louise, Bissonnette, François

Abstract: The paper gives an illustration and reminder of the risk of problems with placentation resulting from IVF and embryo transfer. Reported here is one neonatal death related to vasa praevia when the condition was not diagnosed antenatally and a neonatal survival when vasa praevia was detected antenatally. A search of the English literature was performed using PubMed for 'vasa praevia and in vitro fertilization'. There were four articles that directly addressed this relationship. Case reports of IVF-embryo transfer pregnancies with vasa praevia and also studies that look at the incidence of vasa praevia in such pregnancies are included in this report. Hence, since vasa praevia is thought to be caused by a disturbed orientation of the blastocyst at implantation, it is probably related to the IVF-embryo transfer procedure. Screening of all IVF-embryo transfer pregnancies with transvaginal sonography and colour Doppler to rule out vasa praevia is recommended in the second trimester.

Source: Medline

Title: Vasa previa.

Citation: Journal of prenatal medicine, Jan 2007, vol. 1, no. 1, p. 2-13, 1971-3282 (January 2007)

Author(s): Derbala, Yasmine, Grochal, Frantisek, Jeanty, Philippe

Source: Medline

Full Text:

Available from *National Library of Medicine* in [Journal of Prenatal Medicine](#)

Title: Placenta previa, placenta accreta, and vasa previa.

Citation: Obstetrics and gynecology, Apr 2006, vol. 107, no. 4, p. 927-941, 0029-7844 (April 2006)

Author(s): Oyelese, Yinka, Smulian, John C

Abstract: Placenta previa, placenta accreta, and vasa previa are important causes of bleeding in the second half of pregnancy and in labor. Risk factors for placenta previa include prior cesarean delivery, pregnancy termination, intrauterine surgery, smoking, multifetal gestation, increasing parity, and maternal age. The diagnostic modality of choice for placenta previa is transvaginal ultrasonography, and women with a complete placenta previa should be delivered by cesarean. Small studies suggest that, when the placenta to cervical os distance is greater than 2 cm, women may safely have a vaginal delivery. Regional anesthesia for cesarean delivery in women with placenta previa is safe. Delivery should take place at an institution with adequate blood banking facilities. The incidence of placenta accreta is rising, primarily because of the rise in cesarean delivery rates. This condition can be associated with massive blood loss at delivery. Prenatal diagnosis by imaging, followed by planning of peripartum management by a multidisciplinary team, may help reduce morbidity and mortality. Women known to have placenta accreta should be delivered by cesarean, and no attempt should be made to separate the placenta at the time of delivery. The majority of women with significant degrees of placenta accreta will require a hysterectomy. Although successful conservative management has been described, there are currently insufficient data to recommend this approach to management routinely. Vasa previa carries a risk of fetal exsanguination and death when the membranes rupture. The condition can be diagnosed prenatally by ultrasound examination. Good outcomes depend on prenatal diagnosis and cesarean delivery before the membranes rupture.

Source: Medline

Full Text:

Available from *Obstetrics and Gynecology* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *Ovid* in [Obstetrics and Gynecology](#)

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