
The routine prenatal ultrasound scan should be more comprehensive

OPINIONS

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A well-functioning placenta and umbilical cord are essential for a normal pregnancy. However, there is little focus on these organs in prenatal care.

Ultrasound examinations are important constituents of prenatal care and have strong popular support. In Norway, fetal ultrasound and Doppler examinations have helped to steadily reduce perinatal deaths despite the rising maternal age and morbidity rates among pregnant women ([1](#), [2](#)). All pregnant women are now offered an ultrasound during the first trimester in addition to the examination in week 18–19. Salvesen and Staff recently advocated for incorporating targeted screening for preeclampsia into the first-trimester examination ([3](#)). We believe that routine ultrasound examinations still have unrealised potential.

Examination of placenta and umbilical cord

Routine ultrasound examinations already include an assessment of the number of blood vessels in the umbilical cord and placental location. International recommendations stipulate that umbilical cord insertion should also be examined ([4](#)). The reason for performing an ultrasound examination of the placenta and umbilical cord is that it can identify variants associated with risk, such as when the placenta attaches low in the uterus (placenta previa) or where there is an abnormal number of blood vessels in the umbilical cord. In cases of velamentous cord insertion, the umbilical vessels are not protected by the umbilical cord or placenta and are therefore vulnerable to pressure and trauma.

High-risk pregnancy and fetal bleeding

Velamentous cord insertion is associated with a risk of adverse outcomes for both mother and child (5–8). In a small percentage of cases, the unprotected fetal blood vessels in the membranes lie across or near the internal os. This is known as vasa previa. When vasa previa is diagnosed, the goal is to deliver by caesarean section before spontaneous or induced rupture of the membranes. At term, a fetus has a blood volume of approximately 3–4 dL (110 ml/kg) and lacks adequate compensatory mechanisms if bleeding occurs. Within seconds, bleeding from a velamentous vessel can be fatal (9). Not surprisingly, the mortality rate for undiagnosed vasa previa is therefore high, up to 56 %, and if the child survives, there is a high risk of severe morbidity (10). However, if the condition is identified before birth, the survival rate is almost 100 %, with normal outcomes in the short and long term (11).

Velamentous vessels are more common in twin pregnancies, after assisted fertilisation and in older primiparous women. In Norway and most other countries, the prevalence of vasa previa at population level is unknown, but according to the literature, it occurs in between 1:365 and 1:5000 pregnancies (10). Interesting results were recently published from a study in which vasa previa was treated with fetoscopic ablation (12). This may enable women with vasa previa to have a normal delivery.

Diagnosing vasa previa

Although diagnosing vasa previa and velamentous vessels via ultrasound has been possible since the late 1980s, the routine examination in Norway does not include confirming or ruling out vasa previa. Transvaginal ultrasound has high sensitivity and specificity for diagnosing vasa previa (13), and false-positive and false-negative findings are rare. In addition, the examination is inexpensive, entails little patient discomfort, poses no risk to the fetus and is quick to perform (a few minutes) (Figure 1) (see the video at tidsskriftet.no).

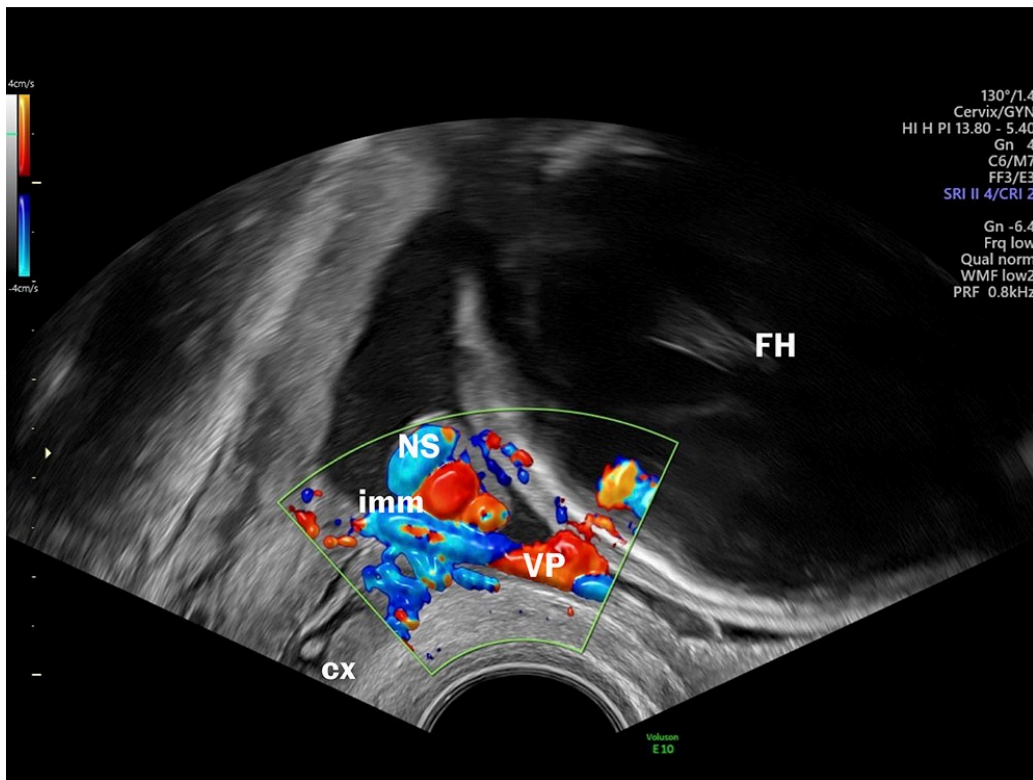


Figure 1 Vasa previa. Ultrasound image and video from a transvaginal ultrasound examination showing the cervix, lower edge of the placenta, fetal head, umbilical cord and blood vessels lying across the membranes, adjacent to the opening of the cervix. imm=internal cervical os, VP=vasa previa, NS=umbilical cord, cx=cervix, FH=fetal head

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«Why is there no systematic screening for vasa previa, when this simple and effective examination can save lives and improve quality-adjusted life years?»

So why is there no systematic screening for vasa previa, when this simple and effective examination can save lives and improve quality-adjusted life years? There has been little focus on this topic in Norway, which may be due to resistance to medicalising pregnancy and excessive use of technology in prenatal care. Perhaps there is concern that the examination will lead to unnecessary caesarean sections and cause anxiety among patients, their family and healthcare personnel? Do midwives and obstetricians who perform ultrasounds lack confidence in carrying out transvaginal ultrasounds to confirm or rule out vasa previa?

The routine fetal ultrasound examination is a golden opportunity to further reduce risks during pregnancy. Since few fetal examinations have as great an impact on the outcome as diagnosing vasa previa, we believe it is time to systematically screen for this condition in prenatal care.

The patient has consented to publication of the image and video.

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Publisert: 19 March 2024. Tidsskr Nor Legeforen. DOI: 10.4045/tidsskr.24.0042
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