

Identifying placenta accreta/percreta using generalized ultrasound signs



Women's Health



Dr. Gilles Grangé and Dr. Penelope Noble discuss the importance of assessing placenta accreta and percreta, and how this can be achieved using ultrasound signs in 2D and colour Doppler. This webinar was recorded in October 2021 for the International Society of Ultrasound in Obstetrics and Gynecology World Congress on Ultrasound in Obstetrics and Gynaecology.

Background

Placenta accreta is a condition where the placenta invades the maternal bladder. In more severe cases, known as placenta percreta, other nearby structures are also affected due to the placenta growing through the myometrium and the uterine serosa, and attaching itself to adjacent organs. This complicates the delivery – making it difficult to gain access to the baby – and can lead to the mother suffering bladder injuries and severe haemorrhage, requiring blood transfusions and admission to the ICU. As a result, it is often necessary to surgically remove parts of the placenta and affected uterus during delivery and, in worst case scenarios, a hysterectomy might be required.

Diagnosis and treatment

The high degree of maternal morbidity and mortality associated with abnormally invasive placenta makes diagnosis extremely important. An ultrasound scan can be used for this purpose, but this method is subjective, and greatly depends on the operator's skill, as the correct instrument settings are crucial for a successful examination. International Federation of Gynaecology and Obstetrics (FIGO) has therefore proposed a standardized terminology to categorise placenta accreta/percreta using three groups of ultrasound signs: 2D grayscale, 2D colour Doppler and 3D imaging, of which the first two are summarized below.

2D grayscale

When using 2D ultrasound imaging, one should first and foremost look at the location of the placenta to determine whether it is anterior or posterior, and if it is covering the cervical os. It is also important to check for a clear plane between the placenta and the myometrium, as its absence should be a cause for concern. The examination is more successful if the mother has a full bladder as, although this can be extremely uncomfortable, it provides a good view of the placenta, myometrium and bladder wall.

A more detailed assessment can be achieved by looking at the placental lacunae, which are irregular hypoechoic areas that can be present with or without a halo. If there is swirling inside a lacuna, and it spans from the base plate to the surface of placenta, it can be deemed safe. However, if the lacuna is more localised, it becomes more worrying, especially if it does not have a hyperechoic halo around it.

The next part of the examination should focus on the maternal bladder wall, to determine if there is any interruption or discontinuity within the hypoechoic line between the bladder and the uterus. One should also check if there is a placental bulge of the uterine serosa into the maternal bladder. This last sign, together with placental invasion into the bladder, would be strong indications of a placenta percreta.

2D colour Doppler

This examination should begin by assessing the hypervascularity in the sub-placental and uterovesical regions, or more precisely, the vessels between the placenta, bladder wall and the myometrium. One should also check the adjacent organs and the bridging vessels that run perpendicular to the base plate, as well as feeder vessels in placental lacunae. Here it is important to keep track of the PRF settings, as it is not only the direction of the vessels, but also the velocity of the flow within them that is important to consider, as a high speed indicates that something is wrong.

Additional checks

Aside from the above-mentioned main ultrasound signs chosen by FIGO, one can also look for the presence of calcification in the base plate or an area that looked suspicious during the 2D grayscale examination. Calcification is deemed a good sign, as it is uncommon for placenta percreta to have this feature. Venous return is another aspect that is useful to look at during ultrasound, as well as mobilisation of the uterus, which can be assessed if the mother is asked to take deep breaths. Furthermore, the mother should empty their bladder for the last part of the examination, as it makes it possible to see if there is any adherence between the maternal bladder and the uterus. All this information can be summarised in a diagram which will be of great use to the delivery team, especially in an emergency situation. The diagram should show the orientation of the baby in the uterus, the umbilical cord and the extension of the placenta, as well as the area where it is accreta/percreta.

Conclusion

Abnormally invasive placenta is associated with high-risk pregnancies, as well as maternal morbidity and mortality, making it essential to screen pregnancies to find any issues at an early stage, referring the women to a multidisciplinary specialist team if necessary. It is therefore important to check for specific signs associated with abnormally invasive placenta during ultrasound examination. These include numerous placental lacunae and loss of the clear zone between the placenta and the myometrium, as well as irregular hypoechoic areas, placental bulge of the uterine serosa and high velocity inside the blood vessels.

The webinar is available to watch at
<https://www.youtube.com/watch?v=pzAHKJntAFc>

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