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NHS
Norfolk and Norwich University Hospitals
NHS Foundation Trust

Trust Guideline for the 18-20 Weeks Fetal Anomaly Scan

For use in:	Maternity services
By:	Sonographers/Midwives/Obstetricians/ Neonatologists
For:	Women undergoing a 18-20 week fetal anomaly scan
Division responsible for document:	Women and Children's Services
Key words:	Screening test, fetal anomaly, soft marker, ultrasound scan
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Version Number	Date of Update	Change Description	Author
6	23/04/2021	Changes to audit standards and the fetal referral form updated	Michelle Drolet, Anna Haestier
7	09/08/2021	Change to fetal referral form and GOSH referral pathway	Richard Smith Rachel Appleton

This is a Controlled Document

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1. Introduction

Ultrasound scanning in the second trimester of pregnancy to detect structural abnormalities has been undertaken in the UK since the 1980s.

It is important that both the women and health professionals appreciate that the scan is a screening test and because of that it has limitations, so inevitably some conditions will be missed or misidentified. Therefore, women should receive comprehensible information before the scan and if a woman chooses to decline the screening test, then this must be respected.

2. Aims of Guideline

Ensure access to a uniform screening programme which conforms to an agreed level of quality.

Identify serious fetal abnormalities, either incompatible with life or associated with morbidity, allowing women to make reproductive choices.

Identify certain abnormalities that may benefit from antenatal intervention.

Identify certain abnormalities that require early intervention following delivery.

3. Objective of Guideline

This guideline's objective is to make the purpose of the scan more focused by identifying the main structures that need to be assessed. These key structures lend themselves to identifying a number of conditions that should be screened for. These abnormalities and their expected detection rates form the basis of the NHS Fetal Anomaly Screening Programme (FASP).

Other conditions may be detected using ultrasound at this gestational age, but there is insufficient data to predict clear standards which should be achieved.

4. Recommendations

The scan should be performed within $18+^{0}$ - $20+^{6}$/40 gestational age.

All women should be given an information leaflet about the fetal anomaly scan at the time of the first trimester scan detailing its purpose and limitations.

A 30 minutes appointment time should be scheduled for a singleton pregnancy and 60 minutes for a twin pregnancy anomaly scan.

The 11 conditions that should be screened for as a minimum from 2010 (with expected detection rates in brackets):

Anencephaly (98%)

Open spina bifida (90%)

Cleft lip (75%)

Diaphragmatic hernia (60%)

Gastroschisis (98%)

Exomphalos (80%)

Serious cardiac anomalies (50%)

Bilateral renal agenesis (84%)

Lethal skeletal dysplasias (60%)

Edwards' Syndrome- Trisomy 18 (95%)

Patau's syndrome- Trisomy 13 (95%)

Fetal growth measurements should be taken and the liquor volume recorded.

5. 18-20 weeks fetal anomaly base menu

No	Area	Structure	View
1	Head and Neck	Skull: Neck- skin fold Brain: Cavum septum pellucidum Ventricular atrium Cerebellum	Shape Subjective- measure NT if looks increased
2	Face	Lips	Coronal View
3	Chest	Heart 4-chamber view Outflow tracts 3 vessel view (3VV) Lungs	 Situs/Laterality- should occupy 1/3 of thorax. Apex should point to left 2 atria- equal size 2 ventricles- equal size 2patent AV valves of equal size (offset) Aorta arises from the left ventricle and the pulmonary trunk from the right ventricle This shows the outflow tract from the right ventricle including the pulmonary artery, the aorta and the superior vena cava

4	Abdomen	Stomach and intrahepatic section of the umbilical vein Abdominal wall Bowel Renal pelvis Bladder	Transverse, sagittal Transverse Transverse- measure AP if it appears increased Transverse and sagittal
5	Spine	Vertebrae Skin covering	Sagittal and transverse Sagittal and transverse
6	Limbs (a) Limbs (b)	Femur, tibia and fibula Arms- radius and ulna (right and left) Hands- metacarpals (right and left) Feet- metatarsals (right and left)	Length- one leg only Visible- not counted Visible- not counted
7	Uterine cavity	Amniotic fluid Placenta	Subjective volume Visible and position noted

If the above anatomy is clearly seen and appears normal, then the 'normal' boxes can be ticked on Astraia.

6. Placental Site

The placental site must be reported at the fetal anomaly scan. If the placenta overlaps or covers the internal os this is known as placenta praevia and a low-lying placenta is where the placental edge within 20mm of the internal os on ultrasound scan (either transabdominal, TAS or transvaginal, TVS) at more than 16 weeks gestation.

Repeat ultrasound scan at 32 weeks should be done for all women with low lying placenta or placenta praevia detected at the mid-pregnancy fetal anomaly scan.

If the placenta is persistently low lying or classified as praevia at a 32 week scan, then a further scan must be booked for 36 weeks gestation.

If the placenta is anterior, the sonographer will ask the patient if she has previously had a Caesarean section as this increases index of suspicion for placenta accreta spectrum (abnormally invasive placenta). If ultrasound features of placenta accreta spectrum are suspected the patient should be referred to fetal medicine (see Appendix 4 for flow chart and Appendix 5 for signs of placenta accreta spectrum).

7. Normal Variants (Formally Known as 'Soft Markers')

Chromosomal abnormalities occur in 0.1%-0.2% of live births. The commonest clinically significant abnormality is Down's syndrome. Several sonographic markers (choroid plexus cysts, mild hydronephrosis, cardiac echogenic foci, echogenic bowel) have been reported to be associated with Down's syndrome.

There is limited understanding of the biology and natural history of these normal variants. While some markers are indeed transient findings and may resolve

spontaneously, for example, choroid plexus cysts, the distinction between a 'marker' and structural pathology is unclear. Many of these were reported in a biased manner and larger studies did not confirm their alleged predictive value. Some of these findings are therefore now considered as normal variants.

Women who are found to be 'low risk' through combined testing or women who have declined screening for Down's syndrome, **should not be referred to the fetal medicine unit** for further assessment of chromosomal abnormality even if normal variants such as the examples below (whether single or multiple) are found during the fetal anomaly scan:

1. Choroid plexus cyst(s).
2. Dilated cisterna magna.
3. Echogenic foci in the heart.
4. Two vessel cord.

The term 'soft marker' for these features is now discouraged.

The appearances listed below, however, (previously known as 'markers') are findings which **should be reported and the woman referred to the fetal medicine unit for further assessment using the Fetal Medicine Referral form (Appendix 1). See also the fetal anomaly screening pathway (Appendix 2).**

1. Nuchal fold ≥6mm.
2. Ventriculomegaly (atrium ≥10mm).
3. Echogenic bowel (with density equivalent to bone).
4. Small measurement compared with the dating scan (significantly less than the 5th centile).
5. Any of the 11 conditions listed above in section 4.
6. Any other fetal abnormalities that the sonographer or obstetrician believes may benefit from referral (the fetal medicine team may decline or give advice if appropriate).

Isolated unilateral renal pelvic dilatation (AP measurement >7mm) should have a follow up departmental scan at 32 weeks.

The appearances listed below, however, (previously known as 'markers') are findings which **should be reported and the woman referred to the fetal medicine unit for further assessment using the Fetal Medicine Referral form (Appendix 1). See also the fetal anomaly screening pathway (Appendix 2).**

7. Nuchal fold ≥6mm.
8. Ventriculomegaly (atrium ≥10mm).
9. Echogenic bowel (with density equivalent to bone).
10. Small measurement compared with the dating scan (significantly less than the 5th centile).
11. Any of the 11 conditions listed above in section 4.

12. Any other fetal abnormalities that the sonographer or obstetrician believes may benefit from referral (the fetal medicine team may decline or give advice if appropriate).

Isolated unilateral renal pelvic dilatation (AP measurement >7mm) should have a follow up departmental scan at 32 weeks.

8. Cardiac Abnormalities

Where a cardiac abnormality is suspected by the Sonographer, a direct referral to Fetal Cardiology at GOSH can be made following the "Direct GOSH Referral Pathway" (Appendix 3). Follow up with the Fetal Medicine team will be made once the outcome of the GOSH appointment is known.

9. Suboptimal Views

In cases where the investigation is limited by suboptimal views (i.e. secondary to increased body mass index (BMI), scar tissue, fibroids or fetal position), a further scan at 23 weeks gestation should be offered to attempt to complete the base menu requirements. A further scan will not be offered to determine fetal gender if not ascertained during the fetal anomaly scan.

10. Clinical Audit Standards Derived from Guideline

Performance is monitored through Key performances Indicators submitted quarterly as part of the Antenatal and Newborn Screening Programme, and annual returns from the national Congenital Anomaly and Rare Disease Registration Service.

Audit standards derived from this guideline should include:

1. Detection rate of the 11 national screening conditions (as listed in section 4, above).
2. Documentation of the fetal anomaly base menu.
3. Referral rates to fetal medicine.
4. Outcomes for fetuses where appearance previously known as 'markers' have been detected (as listed in section 7).

11. Summary of Development and Consultation Process Undertaken Before Registration and Dissemination

During the development of this guideline, advice has been sought from sonographers, fetal medicine sub-specialists, obstetricians and neonatologists.

12. Distribution List / Dissemination Method

Available via the Trust Intranet.

13. References/ Source Documents

Public Health England. Fetal Anomaly Screening Programme Standards: 2015 to 2016.

Public Health England. NHS Fetal Anomaly Screening Programme (FASP): 18-20 weeks Fetal Anomaly Scan National Standards and Guidance for England 2010.

Public Health England. NHS Fetal Anomaly Screening Programme Handbook. August 2018.

Public Health England. NHS Public Health Functions Agreement 2019-20: Service Specification no. 17. NHS Fetal Anomaly Screening Programme- 18+0 to 20+6 Week Fetal Anomaly Scan. July 2019.

RCOG Green-top Guideline 27a. Placenta Praevia, and Placenta Accreta: Diagnosis and Management. 2018.

Appendix 1

Our Vision
To provide every patient with the care we want for those we love the most

NHS
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DEPARTMENT OF OBSTETRICS and GYNAECOLOGY

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REFERRER DETAILS

Date …… Referrer…… Named Consultant/CLC ……

PATIENT DETAILS

Patient Identifier label

Patient Tel No(s) ……

Interpreter required: Y / N

DETAILS OF PREGNANCY

EDD …… Gestation …… Blood Group ……

Screening for Down Syndrome in this pregnancy? Accepted / Declined

Result: Low Risk / High Risk

Reason for Referral (attach copy of scan report and GROW chart if applicable)

……

……

……

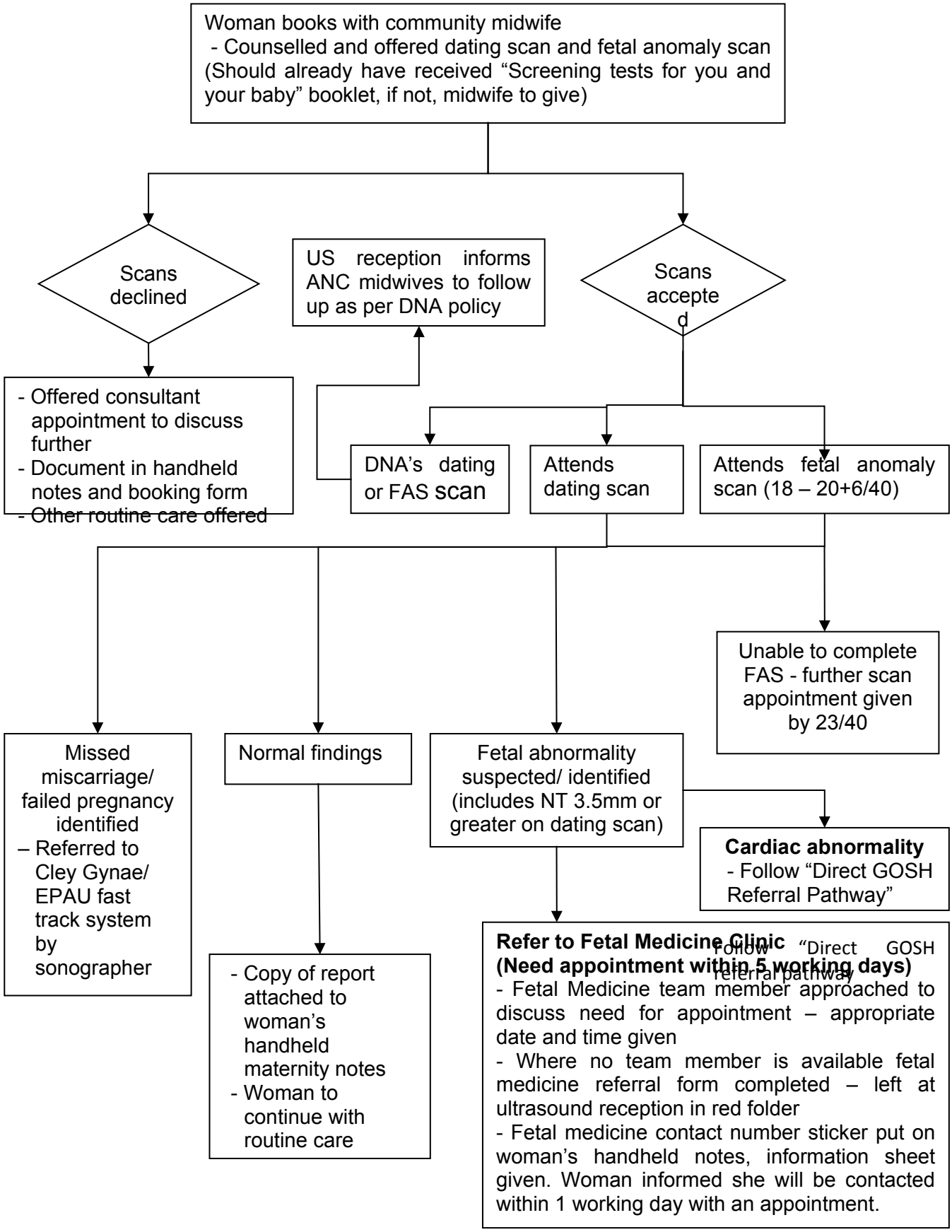
For Fetal Med use only: Is this a newly suspected/diagnosed major fetal abnormality or other life threatening fetal condition to see within 3 working days? (SSQD submission) YES $\frac{1}{2\pi}$

Additional FM Team Instructions:

Appointment: **Patient advised:** $\frac{1}{2\pi}$

Fetal Anomaly Screening (FAS) Pathway

Appendix 2



Appendix 3

Trust Guideline for the 18-20 Weeks Fetal Anomaly Scan

Direct Great Ormond Street Hospital (GOSH) Referral Pathway

Patient attends fetal anomaly scan
- cardiac abnormality suspected

SONOGRAPHERS

Sonographer
- Complete Fetal Medicine (FM) Referral Form document "Direct GOSH referral"
- Attach USS report including details of suspected abnormality
- Inform Fetal Medicine midwife/Screening Coordinator re referral requiring action
    - If not available – leave message on answerphone, Ext 3949

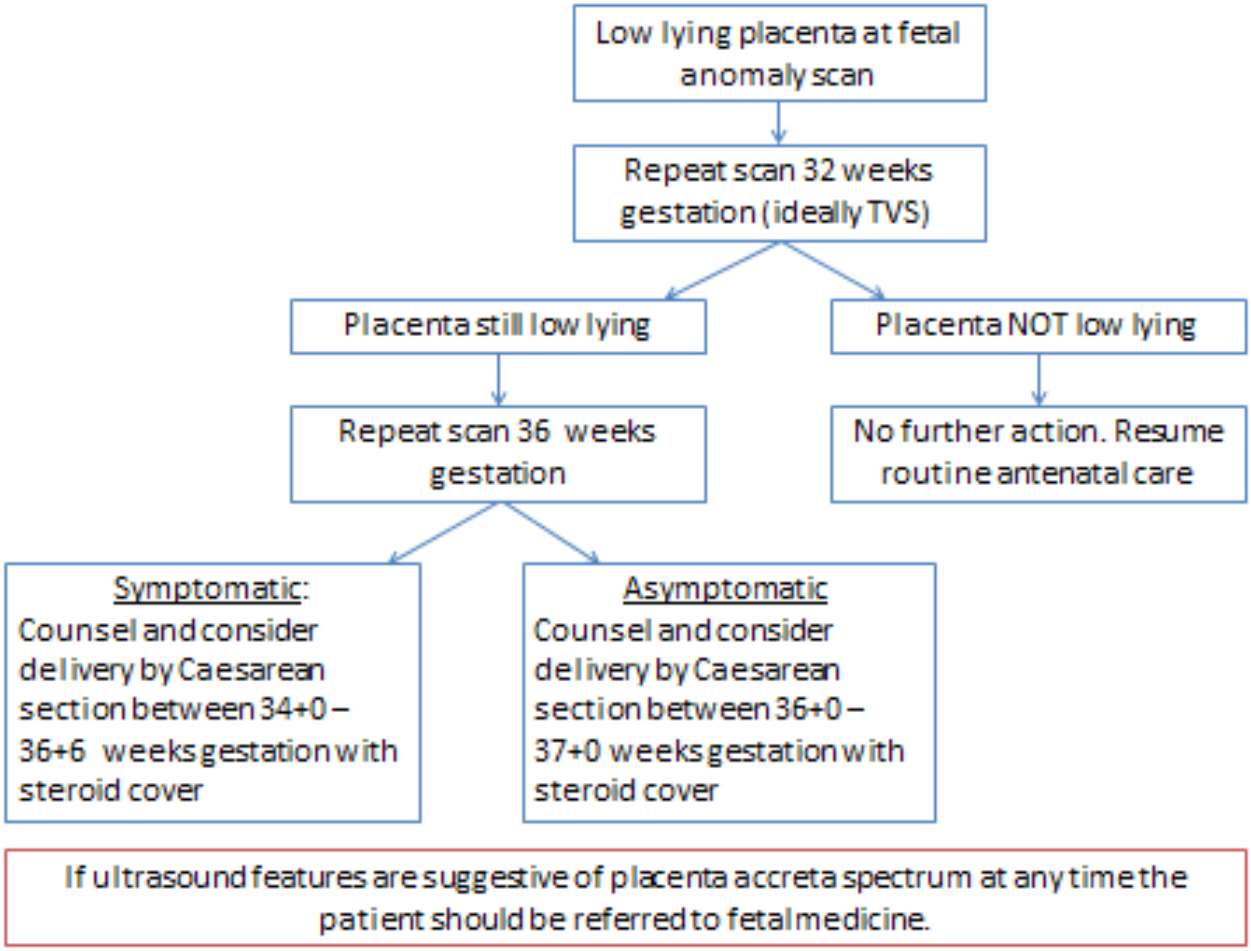
If no FM midwife/Screening Coordinator available
- Give travel map with contact details for GOSH and FM midwives
- Tell woman to contact FM midwives if not heard re GOSH appointment by noon of next working day
- Tell woman to contact FM midwives following appointment to

FM MIDWIFE

If FM midwife available
- See woman and inform as above
- Complete GOSH referral and send with scan report via NHS.net (or ask FM sec to send)
- Arrange Fetal Medicine follow up once outcome known from GOSH appt.

If FM midwife available
- See woman and inform as above
- Complete GOSH referral and send with scan report via NHS.net (or ask FM sec to send)
- Arrange Fetal Medicine follow up once outcome known from GOSH appt.

Appendix 4


Low lying placenta at fetal anomaly scan
Repeat scan 32 weeks gestation (ideally TVS)
Placenta still low lying
Placenta NOT low lying
Repeat scan 36 weeks gestation
No further action. Resume routine antenatal care
Symptomatic:
Counsel and consider delivery by Caesarean section between 34+0 – 36+6 weeks gestation with steroid cover
Asymptomatic
Counsel and consider delivery by Caesarean section between 36+0 – 37+0 weeks gestation with steroid cover
If ultrasound features are suggestive of placenta accreta spectrum at any time the patient should be referred to fetal medicine.

Appendix 5

Ultrasound Signs of Placenta Accreta (from RCOG Green-top Guideline 27a)

Ultrasound imaging signs	Description
2D greyscale signs	
Loss of the 'clear zone'	Loss or irregularity of the hypoechoic plane in the myometrium underneath the placental bed (the 'clear zone').
Abnormal placental lacunae	Presence of numerous lacunae, including some that are large and irregular (Finberg grade 3), often containing turbulent flow visible in greyscale imaging.
Bladder wall interruption	Loss or interruption of the bright bladder wall (the hyperechoic band or 'line' between the uterine serosa and the bladder lumen).
Myometrial thinning	Thinning of the myometrium overlying the placenta to less than 1 mm or undetectable.
Placental bulge	Deviation of the uterine serosa away from the expected plane, caused by an abnormal bulge of placental tissue into a neighboring organ, typically the bladder. The uterine serosa appears intact but the outline shape is distorted.
Focal exophytic mass	Placental tissue seen breaking through the uterine serosa and extending beyond it. Most often seen inside a filled urinary bladder.
2D colour Doppler signs	
Uterovesical hypervascularity	Striking amount of colour Doppler signal seen between the myometrium and the posterior wall of the bladder. This sign probably indicates numerous, closely packed, tortuous vessels in that region (demonstrating multidirectional flow and aliasing artifact).
Subplacental hypervascularity	Striking amount of colour Doppler signal seen in the placental bed. This sign probably indicates numerous, closely packed, tortuous vessels in that region (demonstrating multidirectional flow and aliasing artifact).
Bridging vessels	Vessels appearing to extend from the placenta, across the myometrium and beyond the serosa into the bladder or other organs. Often running perpendicular to the myometrium.
Placental lacunae feeder vessels	Vessels with high velocity blood flow leading from the myometrium into the placental lacunae, causing turbulence upon entry.
3D colour Doppler signs	
Intraplacental hypervascularity (power Doppler)	Complex, irregular arrangement of numerous placental vessels, exhibiting tortuous