Second Trimester Anomaly Screening Protocol
18+0 - 20+6 weeks

OVERVIEW

The purpose of this protocol is to enable sonographers to safely complete the twenty-week anomaly scan, incorporating the NHS Fetal Anomaly Screening Programme, SBLCB v3.1 and local guidance.

This protocol applies to: Sonographers when completing the anomaly scan.

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1.0 INTRODUCTION

The purpose of this protocol is to enable sonographers to safely complete the twenty week anomaly scan, incorporating the NHS Fetal Anomaly Screening Programme, SBLCB v3.1 and local guidance.

2.0 DEFINITIONS AND ABBREVIATIONS USED IN THIS DOCUMENT

AC Abdominal Circumference	**ANC** Antenatal Clinic
DAU Day Assessment Unit	**ANST** Antenatal Screening Team
AP Anterior posterior	**BPD** Bi parietal Diameter
BMI Body mass Index	**DCDA** Dichorionic Diamniotic
EDD Expected Date of Delivery	**PI** Pulsatile Index
FL Femur Length	**FMU** Fetal medicine Unit
FMC Fetal Medicine Consultant	**HC** Head Circumference
MCDA Monochorionic Diamniotic	**MCMA** Monochorionic Monoamniotic
NF Nuchal Fold	**RSI** Repetitive strain injury
NSC National Screening committee	**NT** Nuchal Translucency
PACS Picture Archive and Communication system	**FASP** Fetal Anomaly Screening programme
RCOG Royal college of Obstetricians and Gynaecologist	**NICE** National Institute of Clinical Excellence
SGH St Georges Hospital	**TAS** Trans Abdominal scan
TCD Trans Cerebral Diameter	**T21** Trisomy 21 (Chromosome abnormality)
TVS Trans vaginal Scanning	**UAD** Umbilical Artery Doppler's

3.0 CONTENTS

- All pregnant women and birthing people in UH Sussex West are offered a 18-20+6 week anomaly scan to screen for structural anomalies; locate the placenta and check the growth of the fetus in accordance with NICE and PHE NHS Fetal Anomaly Screening Programme recommendations.
- The scan is performed by an appropriately trained member of staff (min Pg Cert, DMU or equivalent) and in accordance with all Trust protocols and NHS Fetal Anomaly Screening Programme.
- The pregnant woman or birthing person should be appropriately counselled by their midwife prior to the examination using screening consent check list – on Badgernet.
- Midwives or obstetricians requesting an ultrasound (USS) should ensure the ICE request form is fully completed. Forms with insufficient information may be rejected, causing delay in the pregnant women and birthing people having their USS.
- The member of staff performing the scan must obtain informed verbal consent for the examination prior to starting the scan.
- The pregnant women and birthing people have the option to decline the scan and if so should be referred to ANST. The sonographer must document that the pregnant woman or birthing person has declined screening and inform the ANST.

- One person may accompany the pregnant woman or birthing person into the scan room for their pregnancy scans. See Appendix 9.
- A print of the baby can be requested at this scan for which a donation to the hospital charity is requested. The picture is supplied on the understanding that the image is non-diagnostic and for personal use only. See Appendix 8.
- The person scanning must check the pregnant woman or birthing person's name, date of birth, hospital number and gestational age. All results must be accurately recorded on Viewpoint, images on PACS or other computer storage system, and examinations on CRIS. The name of the person scanning, and any assistant, must appear on the Viewpoint report and be recorded on CRIS.
- The report is entered on to both Viewpoint and Badgernet reporting systems.

4.0 DUTIES AND RESPONSIBILITIES

All staff working in the Trust	• To access, read, understand and follow this protocol. • To use their professional judgement in application of this protocol.
Managers	• To ensure the protocol is reviewed as required in line with Trust and National (NHS FASP) recommendations. • To ensure the protocol is accessible to all relevant staff.
Other posts	Sonographers responsibility to adhere to this protocol.
Committees	

5.0 THE 11 CONDITIONS LOOKED FOR IN THE ANOMALY SCAN

Conditions	Detection Rate (%)
Anencephaly	98
Open spina bifida	90
Cleft lip	75
Diaphragmatic hernia	60
Gastroschisis	98
Exomphalos	80
Serious cardiac anomalies include the following: • Transposition of the Great Arteries (TGA) • Atrioventricular Septal Defect (AVSD) • Tetralogy of Fallot (TOF) • Hypoplastic Left Heart Syndrome (HLHS)	50
Bilateral renal agenesis	84
Lethal skeletal dysplasia	60
Edwards' syndrome (Trisomy 18)	95
Patau's syndrome (Trisomy 13)	95

6.0 ANATOMY TO BE EXAMINED AND RECORDED

Please note all anatomy detailed in BOLD is to be recorded as an image on PACS:

University Hospitals Sussex SRH & WH update NCARDS monthly.

6.1 Head and neck examination

Head, shape and brain. measure, record & image:

- **Head Circumference with Cavum Septum Pellucidum, and posterior horn of the lateral ventricle,** all visible on the same image.
- **Posterior horn of the lateral ventricle (Vp**) including choroid plexus. Normal range= up to and including 10 mm (measured from the same image as the HC). Please see appendix 3.
- **Cerebellum (TCD) with cavum septum pellucidum** and check its shape and size.

6.2 Neck & skin

Nuchal skin fold < 6mm with skin surface seen (measured from same image as HC)**.** Refer to fetal medicine if nuchal fold is over 6mm.

6.3 Face examination

Lips: Use coronal view only. **Upper lip and both nostrils in the same view.**

Profile: sagittal view.

6.4 Chest (Heart Examination)

The heart is assessed and imaged for:

- **Situs, including the stomach (to include RT or LT annotation).**
- **Movement and rhythm.**
- **Four chamber view.**
- **Aorta / Left ventricular outflow tract.**
- **Pulmonary / right ventricular outflow tract.**
- **Three vessel view or bifurcation of the pulmonary artery.**
- **Three vessel and tracheal view.**
- **Colour Flow Doppler images of the 4CV, LVOT, RVOT and 3VV (3VT if possible).**
- **Thorax – coronal view if possible.**

Please refer to 8.0 Fetal Cardiac Protocol for further information on cardiac assessment.

6.5 Abdominal examination

Abdominal circumference: Rib, Stomach and short intrahepatic section of umbilical vein in transverse section. If the AC is increased >95 percentile please refer to ANC midwives for assessment & rescan at 28 weeks.

Abdominal wall: Transverse section of the cord insertion.

- **Stomach** – fluid filled, situs, size.
- Aorta situs
- Longitudinal axis abdominal – thoracic appearance.
- **Umbilical cord insertion.**
- **Three vessel cord** – document on report if 2VC and do Uterine Artery Dopplers refer to ANC midwife for risk pathway assessment, but no further scans are indicated as per FASP. Any vessel cord anomalies or vascular malformations refer to the Antenatal Screening Team.
- Bowel. Record image and report if echogenic, do Uterine Artery Dopplers. Please see appendix 1 for fetal echogenic bowel pathway.

6.6 Kidneys & bladder

Image a transverse cross section demonstrating both kidneys. The AP diameter of the renal pelvis is normal up to 7mm. Above 7mm refer to ANST.

Image the filled bladder in transverse section.

Please see appendix 2 for renal flow chart.

* *Hydronephrosis is associated with other chromosomal abnormalities e.g dilated ureters, distended bladder or reduced liquor volume – these and any other renal anomalies should be referred to ANST.*

6.7 Thorax

Image to include **stomach seen below diaphragm and heart to the left and occupying 1/3rd of the thorax with no mediastinal shift.**

6.8 Spinal examination

Normal scan appearance in transverse**, coronal** and **sagittal** views. Refer any suspected spinal defects to the Antenatal Screening Team.

6.9 Limbs

- Measure and record an accurate **Femur length.**
- If the femur length is between the 5th and 3rd centile with otherwise normal morphology and ossification then rescan in 4 weeks. If the FL is below the 3rd centile and/or has abnormal morphology and ossification then refer to Fetal Medicine.
- Assess the: Femora, tibiae, fibulae, **metatarsals- footprint** and **the carrying angle of the feet.** Please see appendix 4.
- Assess the: Humerii, ulnae, radai, **metacarpals** and **carrying angle of the hands:** clenched fist is acceptable.
- Appearance of the skeleton.

6.10 Genitalia

The sex of the fetus may be determined at the time of the 20 week scan if requested by the pregnant woman or birthing person. It should be made clear that this is only an opinion and may be only 95% correct. This opinion is given verbally or written down at the pregnant woman or birthing person's request.

Pregnant women and birthing people will not be rescanned if the sex is not visible unless there is a medical indication.

6.11 Uterine cavity

- **Amniotic bands, amniotic folds & uterine synechiae.** Images are to be stored on PACS and ANST asked to arrange Fetal Medicine Consultant to review the images. Please see Appendix 7 for more information.
- **Fibroids:** position and size to be documented on the Viewpoint report and images to be saved.
- If at anomaly scan, a fibroid is noted in the lower segment of the uterus, follow-up should be arranged as per local protocol. If the sonographer has any concerns about other fibroids (size and location) please seek a second opinion.
- If fibroids are high and are not located close to the cervix, a rescan is not required. This should be documented on viewpoint. A referral to the consultant should be arranged. Serial growth scans are not routinely performed for fibroids. Pregnant women and birthing people should be clinically assessed and scans arranged as clinically indicated.

7.0 FASP

FASP require images of 6 specific anatomical sections to be archived.

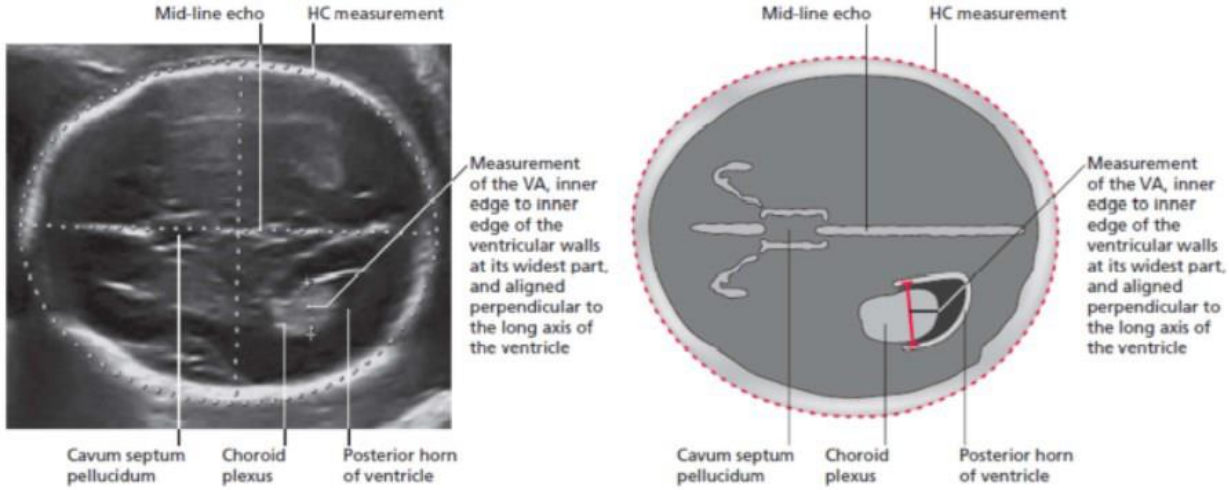
These are:

- Head circumference (HC) measurement and the atrium of the lateral ventricle.
- Suboccipitobregmatic view demonstrating measurement of the transcerebellar diameter.
- Coronal view of lips with nasal tip.
- Abdominal circumference (AC) measurement.
- Femur length (FL) measurement.
- Sagittal (preferred) or coronal view of spine including sacrum.

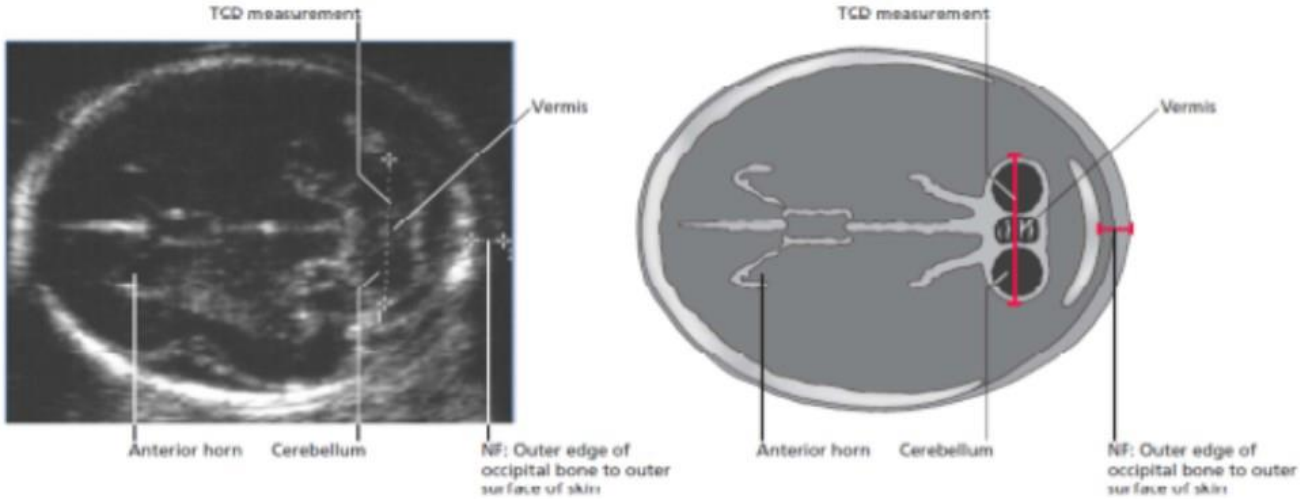
Examples of these images are included below, along with corresponding schematic diagrams.

The HC, AC and FL measurements should be taken to assess growth velocity. The British Medical Ultrasound Society (BMUS) Fetal size and dating: charts recommended for clinical obstetric practice (2009) guidelines provide guidance on how to date a pregnancy where the estimated due date (EDD) was not previously assigned.

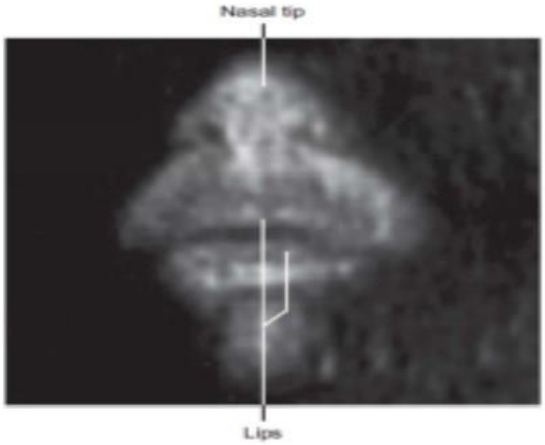
7.1 Head circumference demonstrating HC measurement and measurement of the atrium of the lateral ventricle

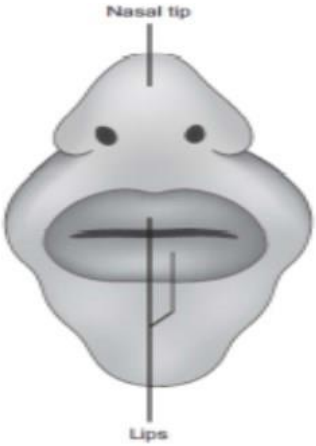


7.2 Suboccipito-bregmatic view demonstrating measurement of the transcerebellar diameter

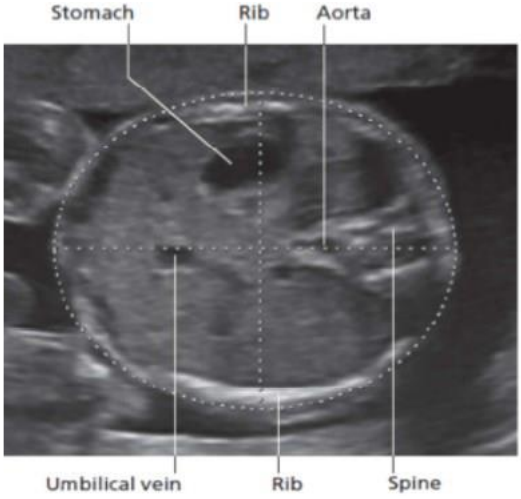


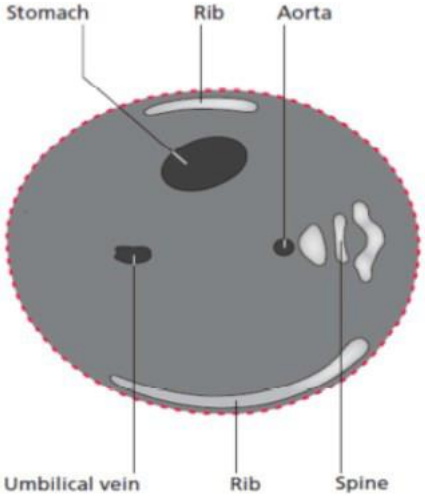
7.3 Coronal view of lips with nasal tip



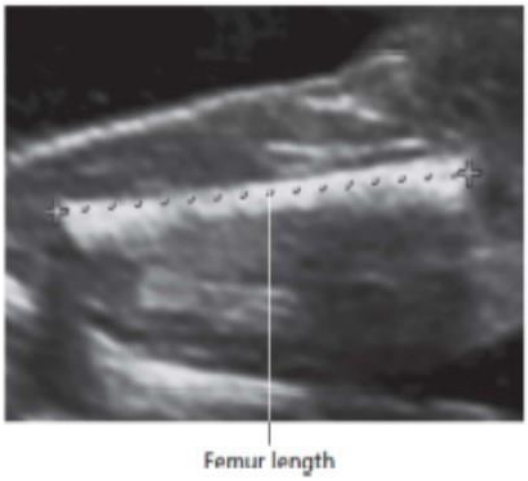


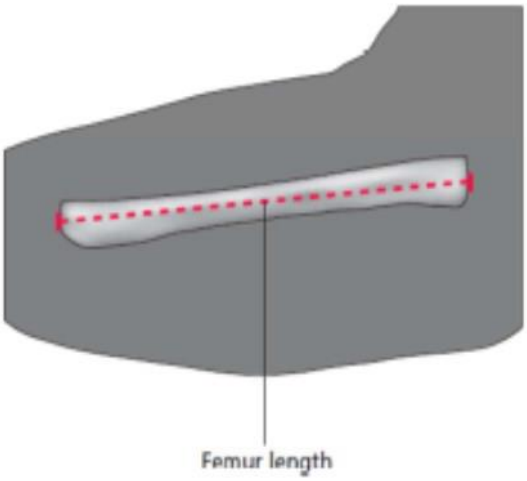
7.4 Abdominal circumference demonstrating AC measurement



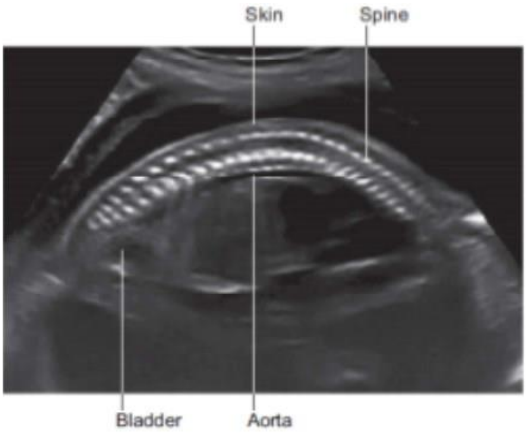


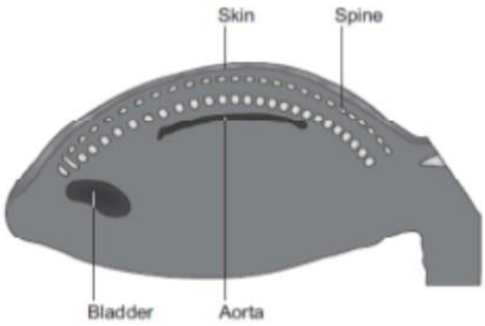
7.5 Femur Length demonstrating FL measurement



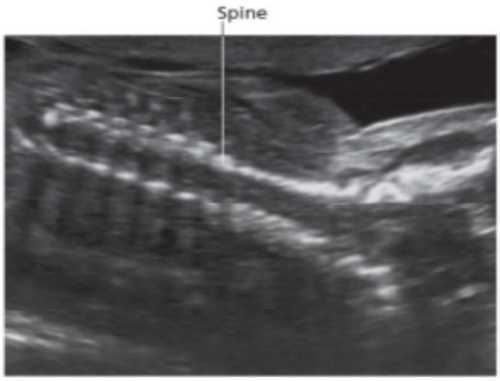


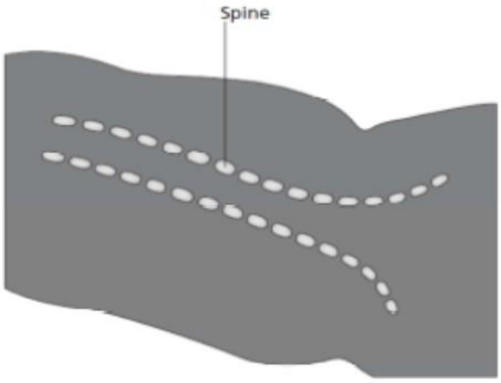
7.6 Sagittal view of spine including sacrum and skin covering



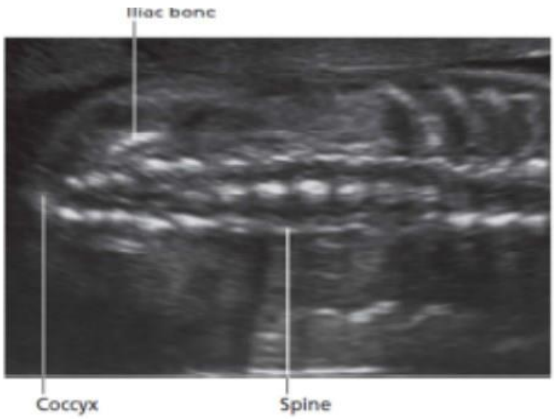


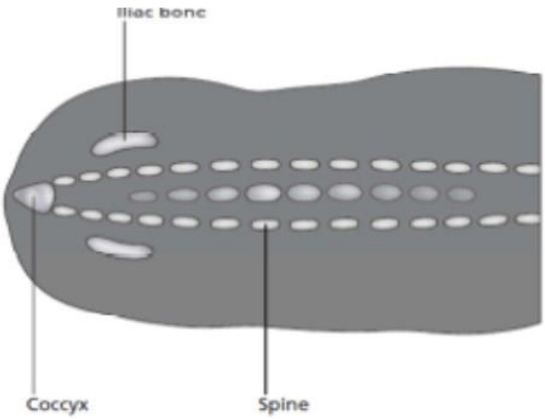
7.7 Coronal upper spine





7.8 Coronal lower spine





8.0 FETAL CARDIAC PROTOCOL: STRUCTURES TO BE EXAMINED & IMAGES STORED

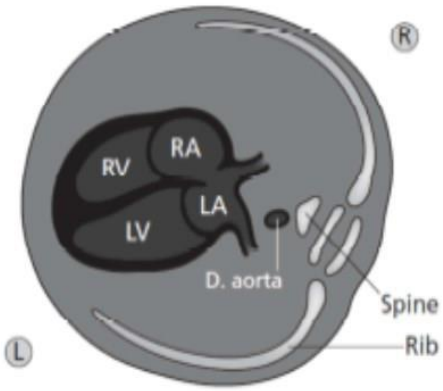
It is acknowledged that cardiac scanning is a dynamic study and that still images may be suboptimal. Images and dynamic assessment to be made in accordance with Fetal Cardiac protocol (FASP 2023)

The views required are:

8.1 Situs/Laterality

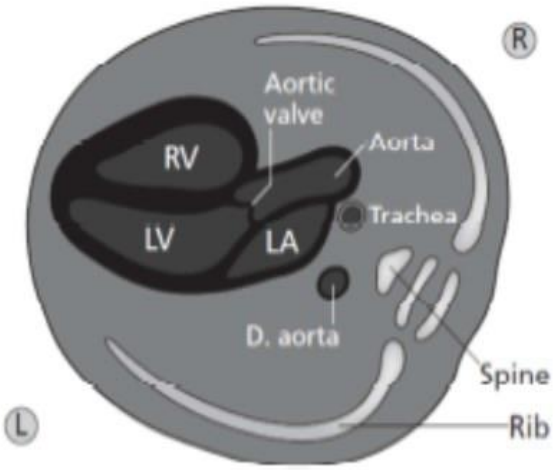
8.2 Four-Chamber

This view shows the transverse section of the thorax including a complete rib and crux of the heart.



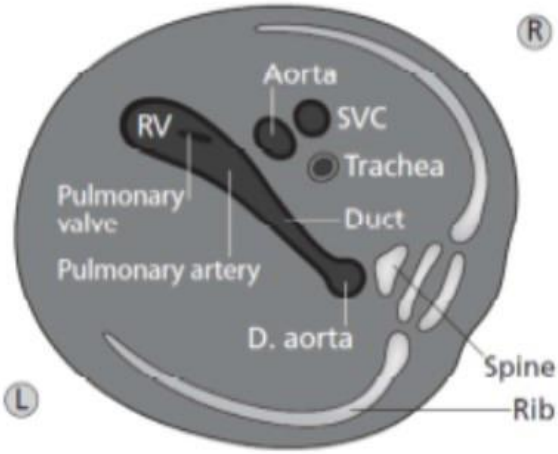
8.3 Aorta/Left Ventricular Outflow Tract

This view shows the outflow tract of the left ventricle.



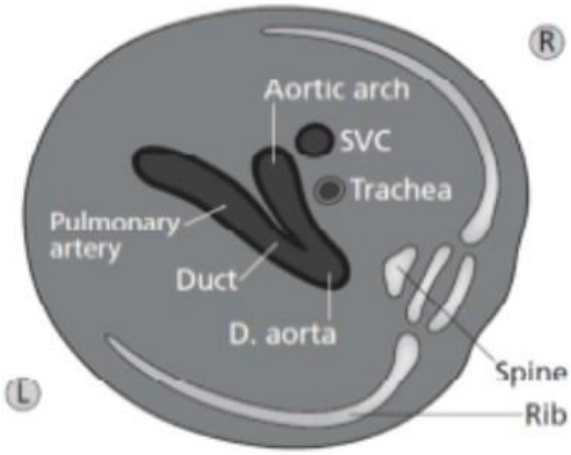
8.4 Pulmonary/Right Ventricular Outflow Tract

This view shows the outflow tract of the right ventricle only or the Three-Vessel View (3VV): This view shows the outflow tract of the right ventricle including the pulmonary artery.



8.5 The 3 vessel and trachea view (3VT)

A transverse view of the fetal upper mediastinum; it depicts the main pulmonary artery in direct communication with the ductus arteriosus, the transverse aortic arch and the superior vena cava.



9.0 SUBOPTIMAL VIEWS

A single repeat scan must be offered and completed by 23+0 weeks gestation. In cases where the image quality of the first examination is compromised by one of the following:

- Increased maternal body mass index (BMI)
- Uterine fibroids
- Abdominal scarring
- Sub-optimal fetal position

The pregnant woman or birthing person should be rescanned on the same day or offered a new appointment according to local clinical assessment.

If first examination is sub-optimal and the sonographer is suspicious of a possible fetal abnormality, a second opinion may be sought and documented if done so.

Where an adequate assessment of the fetal anatomy remains compromised after the repeat scan, the pregnant woman or birthing person should be referred to ANST.

10.0 HIGH RISK PREGNANT WOMEN AND BIRTHING PEOPLE

Uterine artery Dopplers should be completed at the anomaly scan for the following indications:

Previous Pregnancy:

- Hypertensive disease in previous pregnancy
- Previous IUGR
- Previous SGA stillbirth

Current Pregnancy:

- Low PAPP-A < 5th centile
- EFW below 10th centile at anomaly scan
- Echogenic Bowel
- 2 vessel cord
- Significant bleeding

Medical conditions:

- Chronic kidney disease
- Hypertension
- Auto immune disease
- Post Fontan (HLHS repair)

Measuring Uterine Artery mean PI:

- To calculate the mean PI, add left & right PI together then divide by 2.
- If this figure is less than the 95th centile for correct gestational age, this is normal.
- If raised refer to ANST.
- Whether there are notches or not, is irrelevant.

Table 2: Reference intervals for mean uterine artery pulsatility index.

GA (weeks)	5th centile	50th centile	95th centile
11	1.18	1.79	2.7
12	1.11	1.68	2.53
13	1.05	1.58	2.38
14	0.99	1.49	2.24
15	0.94	1.41	2.11
16	0.89	1.33	1.99
17	0.85	1.27	1.88
18	0.81	1.2	1.79
19	0.78	1.15	1.7
20	0.74	1.1	1.61
21	0.71	1.05	1.54
22	0.69	1	1.47
23	0.66	0.96	1.41
24	0.64	0.93	1.35
25	0.62	0.89	1.3
26	0.6	0.86	1.25
27	0.58	0.84	1.21
28	0.56	0.81	1.17
29	0.55	0.79	1.13
30	0.54	0.77	1.1
31	0.52	0.75	1.06
32	0.51	0.73	1.04
33	0.5	0.71	1.01
34	0.5	0.7	0.99
35	0.49	0.69	0.97
36	0.48	0.68	0.95
37	0.48	0.67	0.94
38	0.47	0.66	0.92
39	0.47	0.65	0.91
40	0.47	0.65	0.9
41	0.47	0.65	0.89

11.0 SUSPECTED FETAL ABNORMALITIES

If an abnormality is found or suspected the sonographer should communicate the results of the scan to the pregnant woman or birthing person (and partner) as soon as possible in an appropriate format/language, enabling the pregnant woman or birthing person to understand there are concerns. The anomaly should be documented on Viewpoint / Badgernet and images stored on PACS.

To adhere to National guidelines (PHE SO8a/SO8b) ANST will arrange for the pregnant woman or birthing person to be referred to a Fetal Medicine Specialist or Tertiary centre if an abnormality is suspected.

- Fetal Medicine Consultant (FMC): seen within 3 working days.
- Fetal Medicine unit (FMU) Tertiary unit: seen within 5 working days.

FASP requires the scan findings listed below to be reported and the pregnant woman or birthing person referred for further assessment, however this is not an exhaustive list and ALL concerns re; abnormal appearances should be reported.

- Nuchal fold (greater than 6mm).
- Ventriculomegaly (atrium greater than 10mm).
- Echogenic bowel (with density equivalent to bone).
- Renal pelvic dilatation (AP measurement greater than 7 mm).
- Small measurements of HC, AC and/or FL (below the 5th centile on fetal biometry charts).

12.0 THE NORMAL VARIANT

If one or more of the normal variants listed below (other than two vessel cord) are seen, this does not need to be reported nor does the pregnant woman or birthing person need referral for further assessment as part of the NHS FASP:

- Choroid plexus cyst(s)
- Dilated cisterna magna
- Echogenic foci in the heart
- Two vessel cord

Although not part of NHS FASP, some scan findings can be associated with an increased risk of fetal growth restriction (FGR). The Royal College of Obstetricians and Gynaecologists (RCOG) guidance and the NHS England Saving Babies' Lives Care Bundle (SBLCB) require additional assessment for FGR. This includes uterine artery Doppler assessment and an individualised plan of care. The scan findings that require referral for additional assessment for FGR are:

- Echogenic bowel.
- Estimated fetal weight below the 10th centile.
- Single umbilical artery (2 vessel cord).

If these findings are seen during the anomaly scan, referral to ANC M/W should be made in order that the correct risk pathway is then followed.

13.0 SGA/IUGR

Small fetuses are divided into:

- Normal (constitutionally) small.
- Non–placenta mediated growth restriction, for example; structural or chromosomal anomaly, inborn errors of metabolism and fetal infection.
- Placenta mediated growth restriction.

Pragmatically, fetuses with a placenta mediated growth problem are classified as being either:

- **Small for Gestational Age** (SGA) defined as fetuses with an estimated fetal weight between the 3rd and 10th centile and normal Doppler indices - of which an estimated 70% will be constitutionally small.
- **Fetal Growth Restriction** (FGR) - defined as either of the following: EFW or abdominal circumference (AC) <3rd centile OR EFW or AC <10th centile with evidence of placental dysfunction (abnormal uterine artery Doppler (mean pulsatility index >95th centile).

If at anomaly scan the EFW or AC is <10th centile, do Uterine Artery Dopplers and refer to ANST for appropriate risk pathway assessment.

14.0 PLACENTA

14.1 Placenta Site Assessment

- Image and label the lower section, showing the placental site in relation to the internal os and demonstrating maternal or birthing person bladder if possible.
- If not low ie > 20 mm from the internal os, classify and image the placenta as fundal, left lateral, right lateral, posterior high or anterior high.
- If the placenta appears low on TAS, a transvaginal scan should be performed at the time of the anomaly scan.
- If TVS is declined this must be recorded on the report.

14.2 Low-lying placenta - TVS

- If the placenta is 20mm or less from the internal os, it is categorised as a low-lying placenta.
    - If the placenta is anterior with no previous caesarean section scar; or a posterior placenta, then inform the antenatal clinic midwife.
    - If it is an anterior placenta and there is a previous history of a caesarean section; or previous history of placenta accreta, then scan for signs of placenta accreta (see section 14.4).
- All pregnant women and birthing people with low-lying placentas at their anomaly scan must be sent to the ANC midwife, who will arrange a follow-up scan at 32 weeks. Record

on Viewpoint that the pregnant woman or birthing person has been referred to a midwife. Please refer to the placenta flowchart in appendix 6.

14.3 Placenta praevia – TVS

- If the placenta is covering the internal os, it is categorised as placenta praevia.
  - If the placenta is anterior with no previous caesarean section scar; or a posterior placenta, then inform the antenatal clinic midwife.
  - If it is an anterior placenta and there is a previous history of a caesarean section; or previous history of placenta accreta, then scan for signs of placenta accreta (see section 14.4).
- All pregnant women and birthing people with placenta praevia at their anomaly scan must be sent to the ANC midwife, who will arrange a follow-up scan at 32 weeks. Record on Viewpoint that the pregnant woman or birthing person has been referred to a midwife. Please refer to the placenta flowchart in appendix 6.

14.4 Placenta Accreta - TVS

- Placenta accreta occurs when all or part of the placenta attaches abnormally to the myometrium.
- At the anomaly scan, if the placenta is either low-lying or there is placenta praevia AND there is an anterior placenta and previous caesarean section, OR a previous history of placenta accreta, then pregnant women and birthing people are at risk of placenta accreta.
- Assess for signs of placenta accreta. Use colour Doppler.
- Ultrasound characteristics of accreta are:
  - Loss of myometrial thickness
  - Numerous, large placental lakes
  - Bladder wall interruption
  - Placental tissue extending beyond the uterus
  - Presence of mass-like tissue
  - Striking amount of colour Doppler between myometrium and posterior bladder wall
  - Striking amount of colour Doppler in the placenta bed
  - Bridging vessels extending from the placenta

14.5 Vasa Praevia – TVS

- Vasa Praevia is when there is a low placenta and fetal vessels course through the membranes over the internal cervical Os and below the fetal presenting part, unprotected by placental tissue or the umbilical cord.
- This can be secondary to a velamentous cord insertion in a single or bi-lobed placenta, or from fetal vessels running between lobes of a placenta with one or more accessory lobes (vasa praevia type 2).
- Use colour Doppler to differentiate fetal, and maternal and birthing person's vessels – maternal or birthing person's vessels will alter with maternal or birthing person's breathing.
- Refer the pregnant women and birthing people to ANST.

14.6 Placental Lakes

These are not thought to have any clinical significance and should be ignored unless they occupy more than 50% of placenta tissue. If this is found then the pregnant woman or birthing person should be referred to ANST.

14.7 Placental Masses

Any suspected placental masses should be referred to Fetal Medicine for further assessment.

14.8 Placental Anomalies

Report on any succenturiate or bi-lobar placentas that are noted and give detail of location. Check neither lobe is close to the internal os and assess for Vasa Praevia - record in Viewpoint report. Refer these pregnant women and birthing people to the ANC midwife to discuss findings.

15.0 LATE DATING

- If there have been no earlier scans and the pregnancy is dated at the anomaly scan by the HC – rescan in 3 weeks to check the growth velocity is normal.
- If an anomaly scan is not undertaken (eg: a pregnant woman and birthing person who books after 23 weeks), then a scan should be arranged as soon as possible for baseline measurements to be taken and documented, with a follow up scan 3 weeks later to check growth/dates - it should be explained that fetal maturity might compromise the amount of detail visible especially in the 3rd trimester.
- No repeat scan should be performed to complete fetal anomaly assessment in the third trimester unless an anomaly is suspected.

16.0 ADNEXAL MASSES

All adnexal masses and ovarian cysts should be reported on Viewpoint and local gynaecology pathway followed.

Please refer to appendix 5 for adnexal cysts/masses fibroids.

17.0 CERVIX ASSESSMENT

A cervical length scan is indicated in pregnant women and birthing people who are at risk of cervical insufficiency or preterm delivery. Transvaginal ultrasound is the gold standard for cervical length assessment and must be performed.

Pregnant women and birthing people's risk is categorised as **high** or **intermediate**. Pregnant women and birthing people identified as at high or intermediate risk will have been referred to the preterm birth prevention clinic (PTBC) by 12 weeks for risk assessment and be booked for cervical length assessment as part of the anomaly scan appointment. Urgent referral is only necessary if the cervical length is <25mm.

Please refer to Antenatal Clinic midwives to arrange senior obstetric review.

17.1 High risk

Pregnant women and birthing people identified as High risk of cervical incompetence or preterm delivery transvaginal cervical length assessment every 2-4 weeks between 16 and 24 weeks – as per NICE/SBLCB version 3.1.

Factors resulting in high risk include:

- Previous preterm birth or mid trimester loss between 16-34 weeks gestation.
- Previous preterm labour rupture of membranes before 34weeks gestation.
- Previous cervical cerclage.
- Intrauterine adhesions – Ashermanns syndrome.
- History of trachelectomy (surgical cervical removal for cervical cancer).
- Known uterine variant.

Pre term birth prevention clinic are primarily responsible for initial management and ongoing surveillance of high risk pregnant women and birthing people.

17.2 Intermediate risk

Pregnant women and birthing people identified as at intermediate risk of cervical insufficiency or preterm delivery require a single TVS scan performed between 18-22 weeks gestation as a minimum - as per NICE/SBLCB version 3.1.

Intermediate risk factors include:

- Previous birth by c-section at full dilatation
- History of significant cervical excisional event ie: LLETZ greater than15 mm depth removed or
- More than one LLETZ performed or
- Cone biopsy performed.

17.3 Cervical Length

- Important to ask the pregnant woman or birthing person to empty the bladder.
- Gently place the transvaginal probe in the anterior vaginal fornix to ensure a longitudinal view of the cervix is obtained.
- Positively identify the Internal Os, External Os, cervical canal and endo-cervical mucosa.
- The endo-cervical mucosa should be used to define the level of the Internal Os.
- Ensure minimal pressure on the cervix with the transvaginal probe as this will elongate the cervix.
- Image a true sagittal section of the cervix and magnify the image to between 50 & 75%.
- Measure the distance in a straight line (not trace) between the Internal and External Os. Take 3 measurements (store images) over a period of 3 minutes and record the best shortest measurement of the cervical length.

17.4 Normal Cervical Changes

After 20 weeks' gestation, the cervix appears to shorten slightly with increasing gestational age. Cervical effacement begins at the Internal Os, so funnelling is effacement in progress, as the cervix becomes shorter, the funnel disappears.

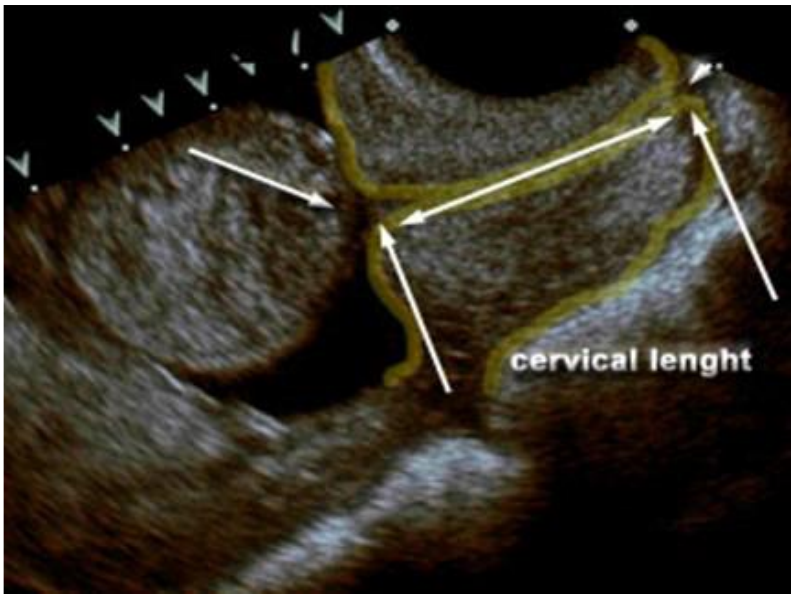
17.5 Abnormal Cervical Changes

The magnitude of endo-cervical funnelling and particularly the degree of cervical shortening appears to be correlated to the risk of preterm delivery.

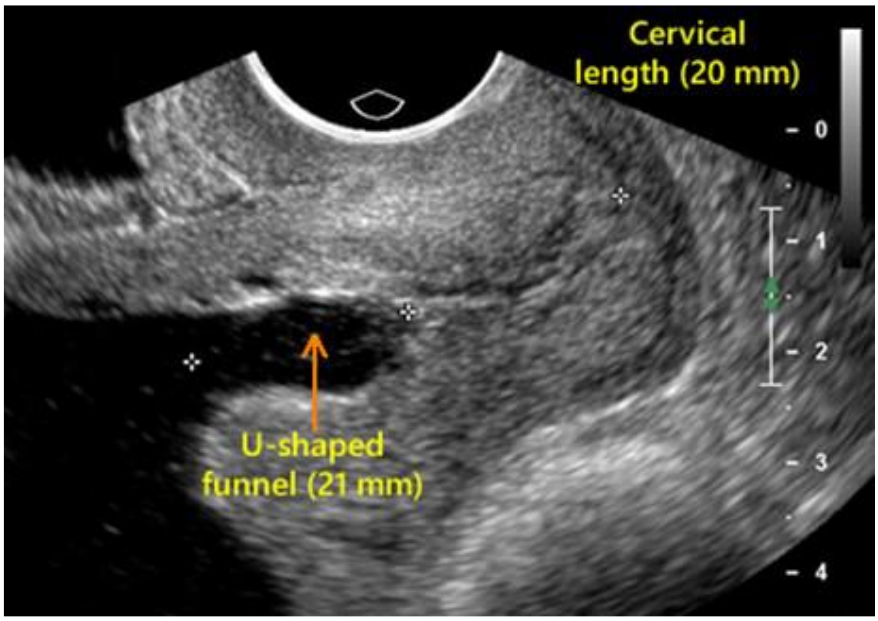
- Dilatation of the Internal Os with prolapsing membranes into the endo-cervical canal i.e. funnelling of the cervix.
- Cervical shortening, progressive shortening of the endo-cervical length to <25mm.

Important to recognise the differing appearance between cervical canal and a thickened lower uterine segment coming together in the midline; which gives a false impression of a longer canal.

- Ensure minimal pressure on the cervix with the transvaginal probe as this will elongate the cervix.
- Image a true sagittal section of the cervix and magnify the image to between 50 & 75%.
- Measure the distance in a straight line **(not trace)** between the Internal and External Os. Take 3 measurements (store images) over a period of 3 minutes and record the best shortest measurement of the cervical length.



Check the possible presence of funnelling at the internal os. The endo-cervical mucosa will give an accurate definition of the amount of funnelling.



Care should be taken with a thickened lower uterine segment as this can mimic a funnel. Check for the absence of the endo-cervical mucosa extending along the walls of the funnel.

- Check the possible presence of dynamic changes in the cervix, defined by the appearance and disappearance of funnelling during the scan.

Cervical length screening is used to identify pregnant women and birthing people who may require cervical cerclage and to try and avoid unnecessary insertion of sutures.

Cervical length <25mm requires urgent review to discuss the possibility of emergency cervical cerclage.

18.0 Monitoring

Issue being monitored	Monitoring method	Responsibility	Frequency	Reviewed by and actions arising followed up by
Anomaly USS carried out as per policy.	Audit	Superintendent Sonographer, Ultrasound Department	Three monthly	Each Sonographer receiving a copy of the assessment and comments from the SSS. Discrepancies are reported to the SS.

19.0 PROTOCOL VERSION CONTROL LOG

Change Log – Second Trimester Screening

Version	Date	Author(s)	Comment
1.0	November 2015	Rebecca Coombes	New guideline
2.0	January 2020	Rebecca Coombes	Review completed
2.1	May 2020	Rebecca Coombes	FASP reference added and updated review date.
3.0	May 2022	R. Coombes, Superintendent Sonographer	Appendices added for information on filming in scan rooms and other people in scan rooms added.
3.1	February 2023	Rebecca Coombes, Superintendent Sonographer Amanda Sutton, Sonographer	Updated for SBLCB v3.1
4.0	February 2024	Rebecca Coombes, Superintendent Sonographer Amanda Sutton, Sonographer	Updated to reflect FASP changes up to 23/11/23.
4.1	April 2025	Amanda Sutton, Sonographer	Minor amendment to wording in section 12.0 for clarity.

20.0 DUE REGARD ASSESSMENT TOOL

		Yes/No	Comments
1.	**Does the document affect one group less or more favourably than another on the basis of:**		
	Age	*No*	
	· Disability	*No*	
	· Gender (Sex)	*No*	
	· Gender Identity	*No*	
	· Marriage and civil partnership	*No*	
	· Pregnancy and maternity	*No*	
	· Race (ethnicity, nationality, colour)	*No*	
	· Religion or Belief	*No*	
	· Sexual orientation, including lesbian, gay and bisexual people	*No*	
2.	**Is there any evidence that some groups are affected differently and what is/are the evidence source(s)?**	*No*	
3.	**If you have identified potential discrimination, are there any exceptions valid, legal and/or justifiable?**	*NA*	
4.	**Is the impact of the document likely to be negative?**	*No*	
5.	**If so, can the impact be avoided?**	*NA*	
6.	**What alternative is there to achieving the intent of the document without the impact?**	*NA*	
7.	**Can we reduce the impact by taking different action and, if not, what, if any, are the reasons why the protocol should continue in its current form?**	*NA*	
8.	**Has the document been assessed to ensure service users, staff and other stakeholders are treated in line with Human Rights FREDA principles (fairness, respect, equality, dignity and autonomy)?**	*Yes*	

If you have identified a potential discriminatory impact of this protocol, please refer it to Rebecca Coombes, Superintendent Sonographer & Amanda Sutton, Sonographer, together with any suggestions as to the action required to avoid/reduce this impact. For advice in respect of answering the above questions, please contact uhsussex.equality@nhs.net 01273 664685).

21.0 TEMPLATE DISSEMINATION, IMPLEMENTATION AND ACCESS PLAN

	Dissemination Plan	Comments
1.	Identify:	
	Which members of staff or staff groups will be affected by this protocol?	Sonographers and maternity staff.
	How will you confirm that they have received the protocol and understood its implications?	Normal dissemination channels and audit.
	How have you linked the dissemination of the protocol with induction training, continuous professional development and clinical supervision as appropriate?	New starters are shown where to access guidance.
2.	How and where will staff access the document (at operational level)?	Accessed by staff via SharePoint

		Yes/No	Comments
3.	Have you made any plans to remove old versions of the protocol or related documents from circulation?	Yes	Previous version will be archived.
4.	Have you ensured staff are aware the document is logged on the organisation's register?	Yes	Dissemination plan includes notifying departmental lead that this protocol is now live. A summary of changes will be emailed to sonographers who carry out Anomaly USS.

22.0 ADDITIONAL GUIDANCE AND INFORMATION

Gregrory, V.1999. Occupational health and Safety update: Report on results of an Australian Sonography survey of prevalence of musculoskeletal disorders among Sonographers: cited in: Richens, Y. Lavender, T.2010. Care for the pregnant women who are obese. Quay books division. London.

Loughna P, Chitty L, Evans T, & Chudleigh T " Fetal size & dating: charts recommended for clinical obstetric practice" Ultrsound 2008 17(3) :160-166

Kirwin, D., 2010. NHS Fetal Anomaly screening programme – 18+0 – 20+6 weeks National Standards and guidance for England. London. British library cataloguing in Publication Data. British Library.

Public Health England. 2023. National screening guidelines NHS Fetal Anomaly Screening Programme.

National Institute of Clinical excellence. 2021. Antenatal care. London.

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NICE guidelines for antenatal care for cervical assessment 2011 (60)

NHS England. 2023. Saving babies Lives Care Bundle v 3.1

NHS England. 2024. 20 week scan Guidance

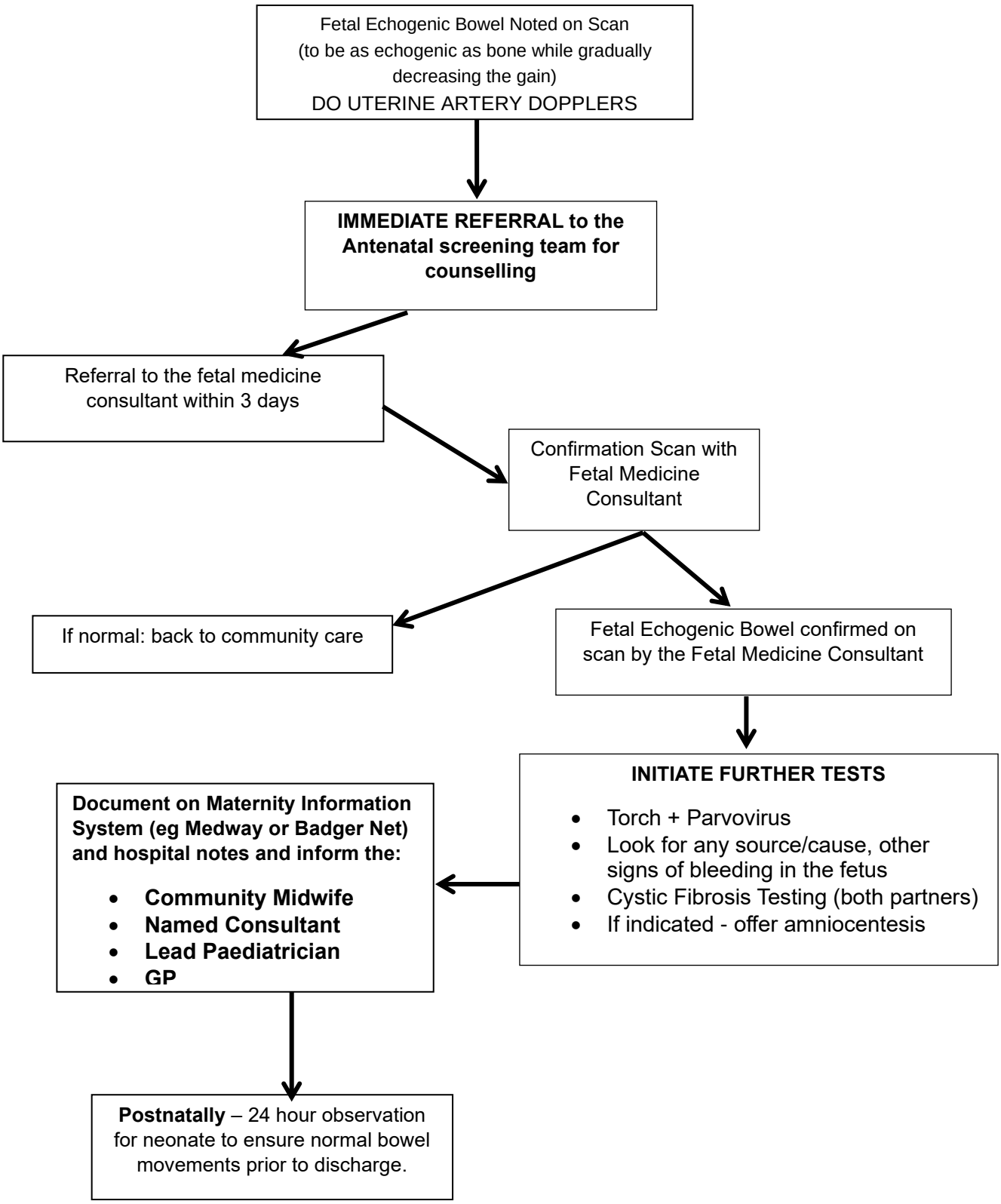
Richens, Y.& Lavender, T., 2010. Care for pregnant women who are obese. London. Quay books division.

Royal College of Obstetricians and Gynaecologists. 2018 Green top guideline 27a: Placenta Praevia and Placenta Accreta: Diagnosis and Management.

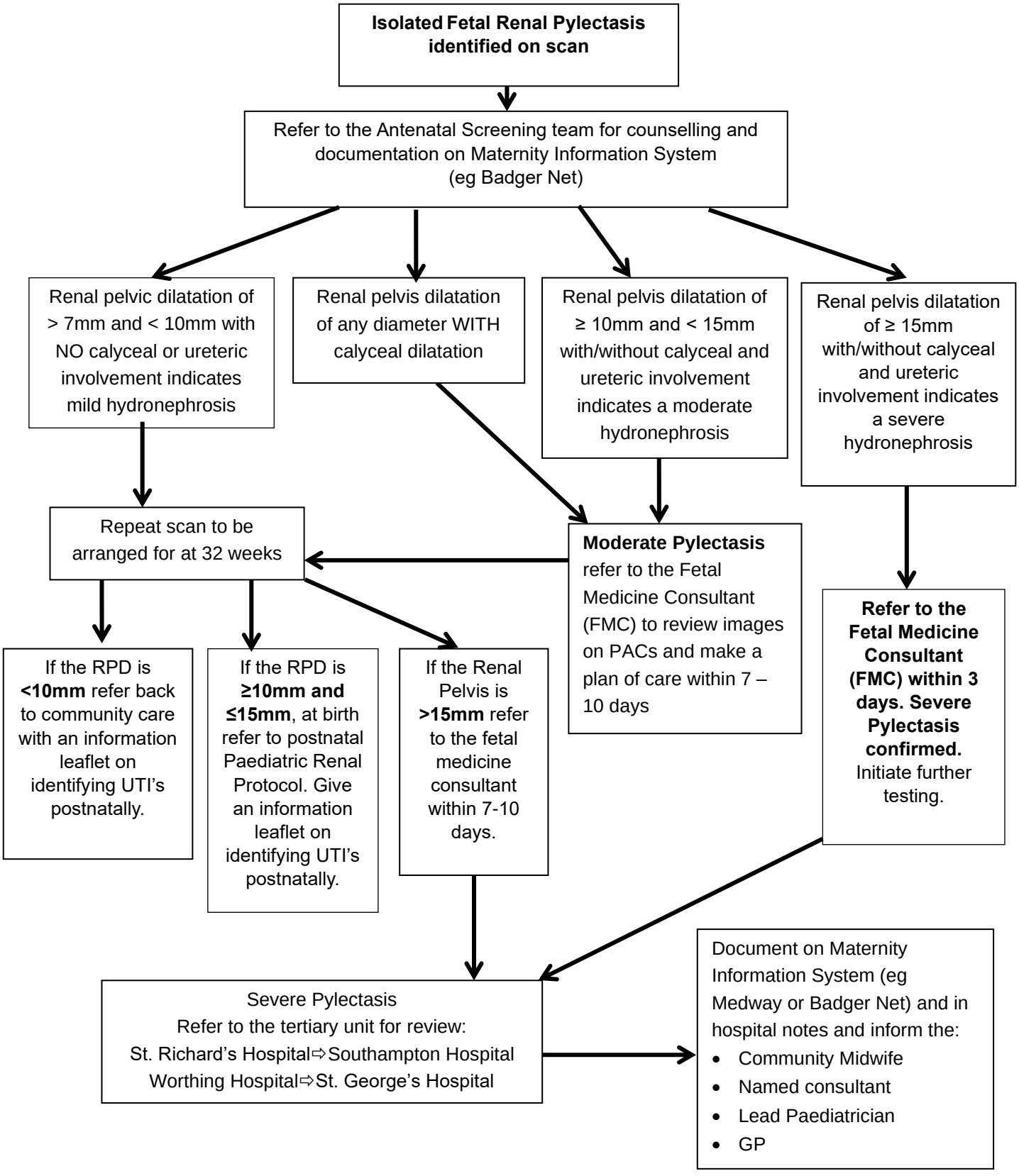
Wolfe, H.M., Sokol, T.J., Martier, S.M., et al. 1990. Maternity obesity: a potential source of error in sonographic prenatal diagnosis. Obstetric and gynaecology. 76, pp.339-42: cited in: Richens, Y. Lavender, T. 2010. Care for the pregnant women who are obese. Quay books division. London.

Wong, S.F., Chan, F.Y., Cinootta, R.B., et al. 2002. Routine Ultrasound screening in diabetic pregnancies. Ultrasound in Obstetric and Gynaecology: Cited in: Richens, Y. Lavender, T. 2010. Care for the pregnant women who are obese. Quay books division. London.

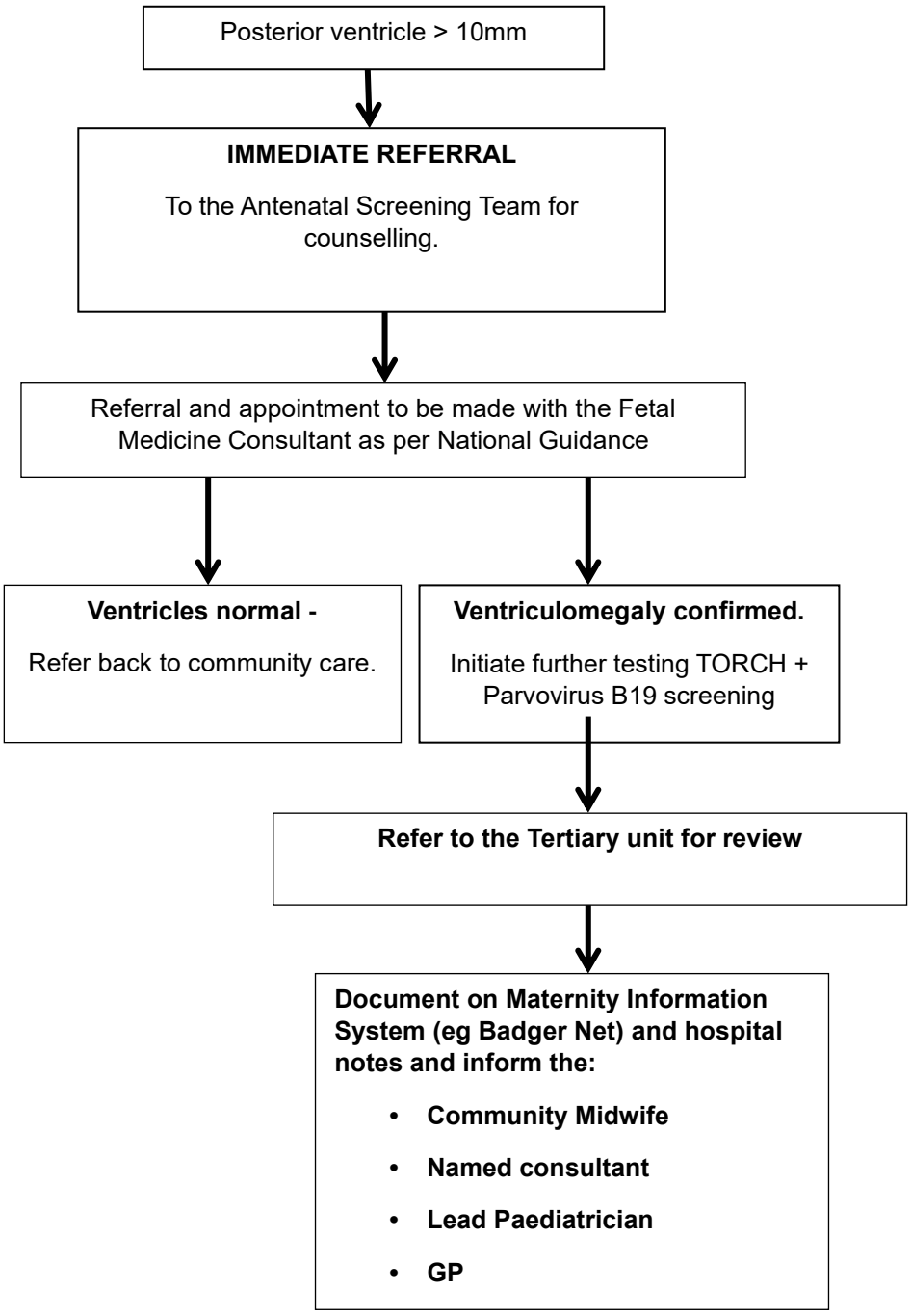
APPENDIX 1: PATHWAY FOR FETAL ECHOGENIC BOWEL



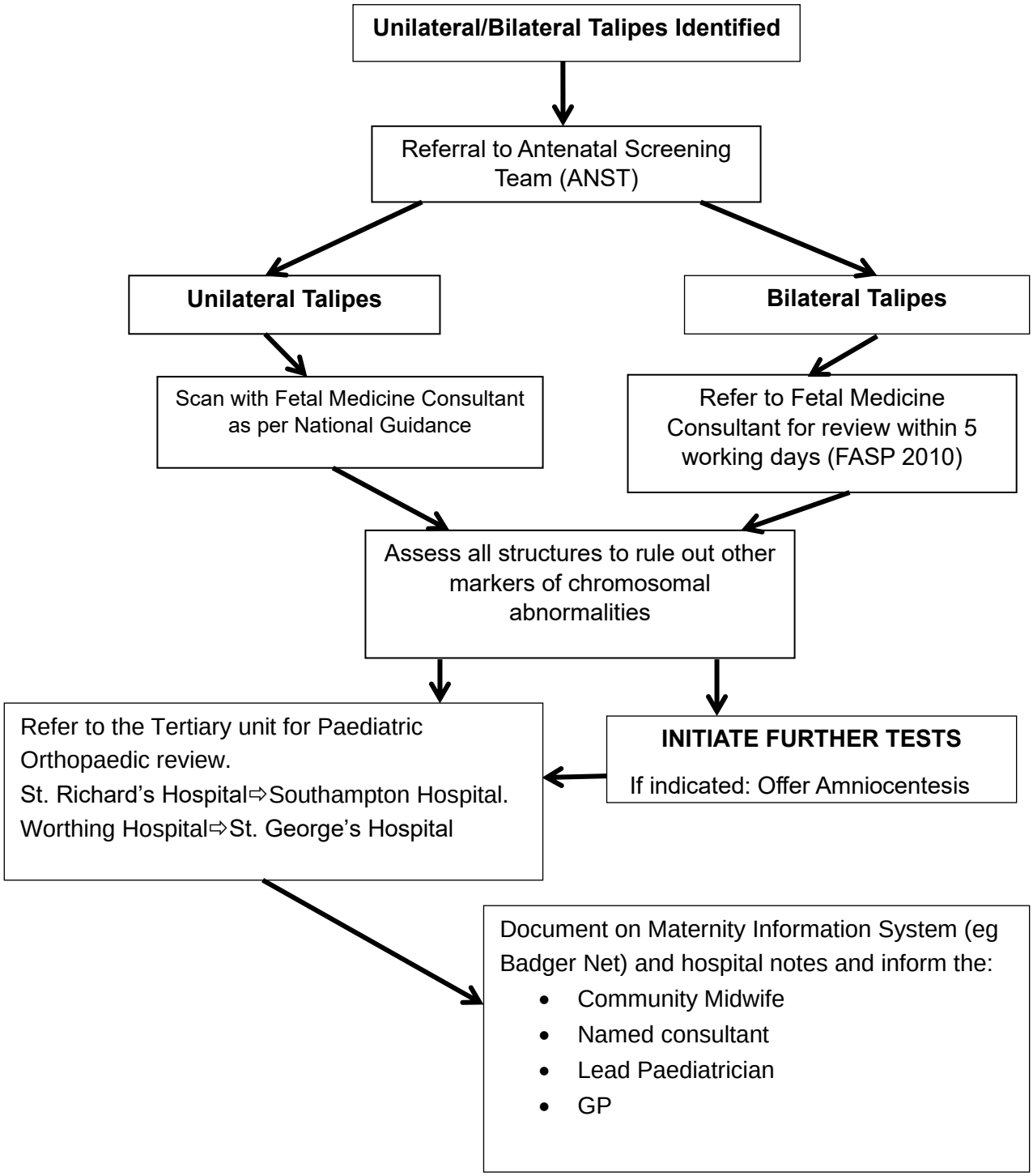
APPENDIX 2: PATHWAY FOR ISOLATED FETAL RENAL PYLECTASIA



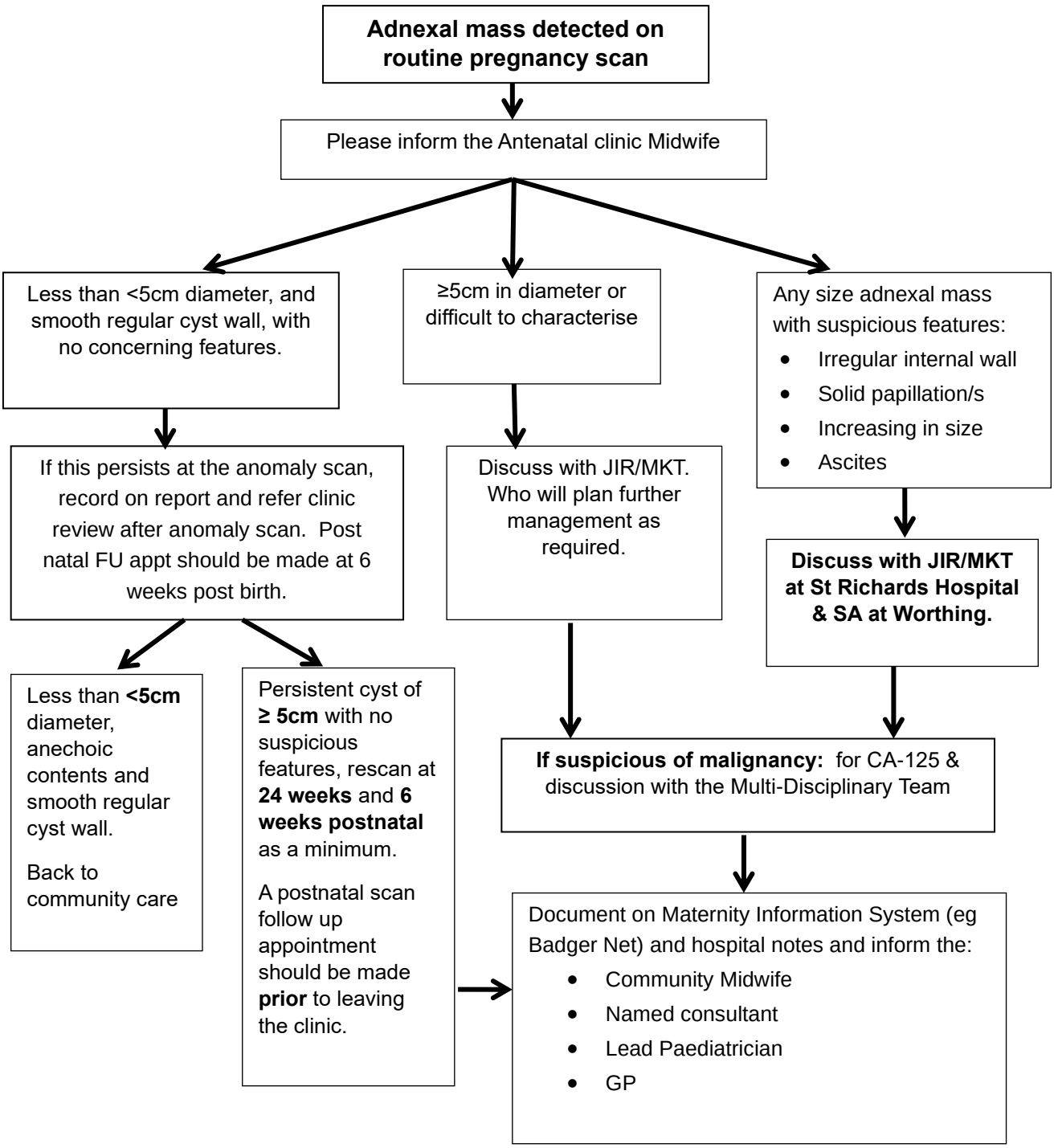
APPENDIX 3: PATHWAY FOR ISOLATED VENTRICULOMEGALY



APPENDIX 4: PATHWAY FOR THE DETECTION OF FETAL TALIPES

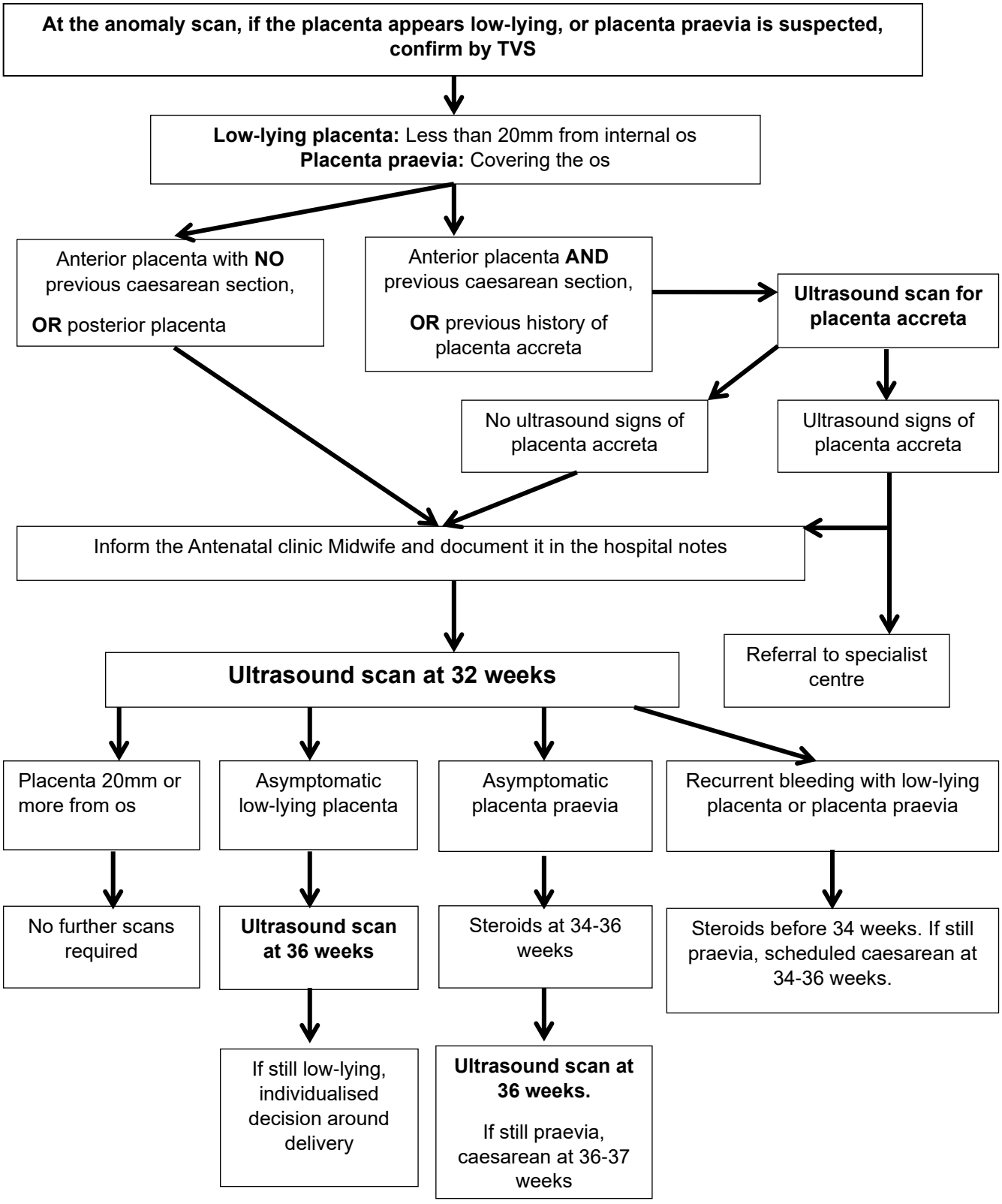


APPENDIX 5: PATHWAY FOR THE DETECTION OF AN ADNEXAL MASS DETECTED



- These scan criteria apply to ASYMPTOMATIC pregnant women and birthing people; prompt consultant review is required in the presence of pain/discomfort to formulate management plan regarding need for surgery.
- Pregnant women and birthing people with a cyst >5cm should be warned about the risk of torsion and advised to attend the hospital urgently if sudden onset pain.

APPENDIX 6: IMAGING PATHWAY FOR THE DETECTION OF PLACENTA PRAEVIA/ACCRETA



APPENDIX 7: AMNIOTIC BANDS, AMNIOTIC FOLDS AND UTERINE SYNECHAE

It is important to differentiate between amniotic bands and amniotic folding with or without uterine synechae as the risks to the fetus are very different.

Amniotic Band Syndrome is a group of congenital birth defects believed to be caused by entrapment of fetal parts (usually a limb or digits) in fibrous amniotic bands while in utero.

Amniotic Bands

The commonly accepted view is that ABS occurs when the inner membrane (amnion) ruptures without injury to the outer membrane (chorion), this exposes the baby to fibrous sticky tissue (bands) from the ruptured amnion which can float in the waters of the uterus, these fibrous tissues can entangle the baby reducing blood supply and causing congenital abnormalities. In some cases a complete “natural” amputation of a digit(s) or limb may occur before birth or the digit(s) or limbs may be necrotic (dead) and require surgical amputation following birth.

A strong relationship between ABS and clubfoot exists. A 31.5% of associated clubfoot deformity and ABS can be correlated with 20% occurring bilaterally. Other abnormalities found with ABS include: clubhands, cleft lip, and/or cleft palate, and hemangioma.

Ultrasound diagnosis Amniotic Bands

Amniotic bands are only of significance if they are attached to the fetus or amputation injuries are identified. If this is the case refer for urgent Fetal Medicine review.

Uterine Synechiae

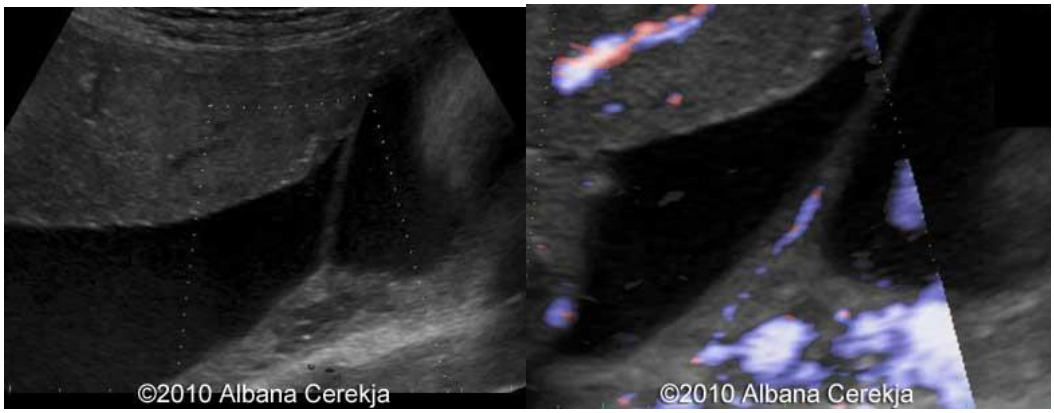
Synechiae is a term which means "adhesions" or a fibrous scars. Intrauterine adhesions resulting from the uterine trauma, such as curettage, are called Asherman syndrome. They may also result from other uterine interventions such as caesarian section and myomectomy. They rarely result from uterine infections such as chlamydia, tuberculosis, and schistosomiasis and the presence of the foreign body. However, it is not unusual to meet pregnant women and birthing people with

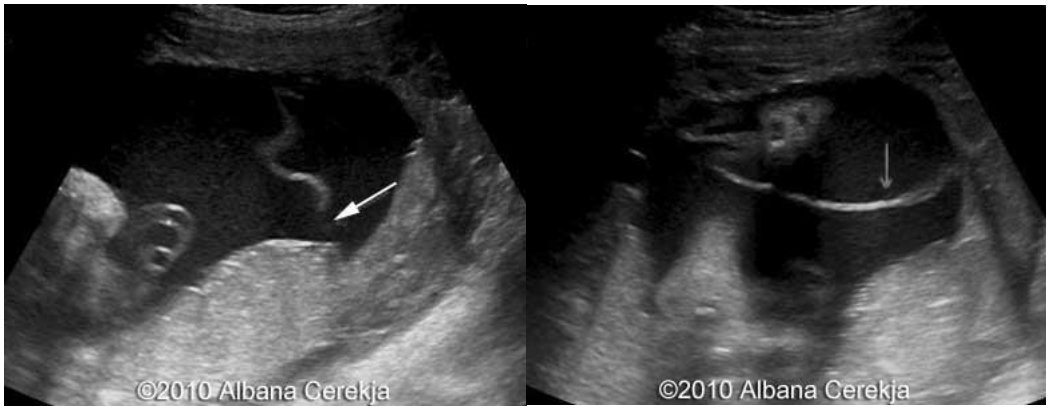
synechiae with lack of any previous relevant history.

Uterine synechiae in pregnancy have also been referred to as "amniotic sheets" or "amniotic folds". They are most commonly noted as an incidental finding during the ultrasound examination in pregnancy. In general, synechiae do not interfere with fetal development. Pregnant women and birthing people with uterine synechiae are more likely to have placental abruption (2.1% compared with 0.6%, adjusted odds ratio [OR] 3.25, 95% confidence interval [CI] 1.43-7.36), preterm premature rupture of membranes (5.5% compared with 2.3%, adjusted OR 2.51, 95% CI 1.51-4.18), and caesarean delivery for mal-presentation (5.1% compared with 3.0%, adjusted OR 1.75, 95% CI 1.04-2.95). The risks of placenta praevia, fetal growth restriction, stillbirth, and preterm delivery were not significantly different.

Diagnosis

Synechiae appear as thick bands connected to the uterine wall. In other words, a synechia has its base and a free edge. In pregnancy, this appearance is caused by a combination of the fibrous synechia itself, and the complete wrapping of fetal membranes around the synechia. Color Doppler shows blood flow in the majority of synechial bands. Inform obstetrician but Fetal Medicine review not required.





Images of Amniotic folds, Doppler imaging demonstrates vascularization.

Clinical protocol [CDL 4582] governance and approval

Owner	Tim Taylor
Author/further information	Rebecca Coombes, Superintendent Sonographer Amanda Sutton, Sonographer
Protocol version	v1.0
Related policies	N/A
Related documents	Labour Risk Assessment, Antenatal Care and Patient Information, Postnatal Care, Severely ill/High Dependency Care, Non Obstetric Emergency Care, Pre-term birth pathway
Standards	Screening standards for the NHS Fetal Anomaly Screening Programme (FASP) 26.7.2019
Superseded documents	N/A
Review due	February 2027

Approval

JOGG	**Date approved:**	21st February 2024
Women & Children's Clinical Effectiveness Meeting	**Date approved:**	21st March 2024

Consultation

Add relevant Trust-wide governance group (see table below)	**Date approved:**	N/A
Add other specialist teams or groups as appropriate	**Date approved:**	N/A

Ratification

Clinical Document Approval Group	Date approved:	19th April 2024

Consultation

Please select any appropriate consultation groups/ committees:

Trust Wide Governance Group	**Tick as required:**
Medicines Governance Committee (MGC - replaces 'Medicines Optimisation Committee' and 'Drug and Therapeutics Committee')	
Antimicrobial Stewardship Group	
Resuscitation Committee	
Resuscitation Operational Management Group (ROMG)	
Trust Transfusion Committee	
Trust Infection Prevention Committee (Chief Nursing Officer)	
Thrombosis Committee	
Health Records Committee	
BSUH Trauma Committee	
Major Trauma Committee	
Sussex Trauma Network	
Children's Safeguarding Strategy Committee	
Radiation Safety Committee	
Medical Devices & Equipment Committee	
Patient Blood Management Committee	
Patient Safety Committee	
BSUH Diabetes In-Patient Care Committee	
Carer and Patient Information Group (CPIG)	
Women's Safety and Quality Committee	
Food Improvement Group	
NIV Steering Group	
NMAHP Board	
Deteriorating Patient Group	
Other (please specify)	