



Promoting Excellence In Ultrasound

Policies and Statements

D12

Guidelines For The Performance Of Third Trimester Ultrasound

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November 1995, Revised October 1999, Revised July 2008

HISTORY

The last menstrual period (LMP) or previously calculated estimated date of delivery (EDD) and previous obstetric history should be noted. It is often useful to review any available ultrasound records. The indication for the examination should be carefully considered and the examination targeted to answer the clinical problem.

EQUIPMENT

Studies should be performed using high quality real time equipment with colour Doppler capability.

THE EXAMINATION

Full evaluation should include assessment of the following points. As stated previously each examination should be targeted to the requirements and needs of the patient and referring doctor. All points need not necessarily be assessed each time:

1. Fetal number, presentation and lie
2. Fetal cardiac activity
3. Measurements of fetal size
4. Fetal anatomy
5. Fetal wellbeing
6. Placental localisation
7. Amniotic fluid volume

COMMENTS

Calculation of Fetal Weight

The biparietal diameter, head circumference, femur length and abdominal circumference should be measured. Weight estimation should be given and the centile recorded. When dates are known reporting gestation age equivalent in weeks and days should be discouraged. When the dates are not known the wide variation of ultrasound estimation of gestational age in the third trimester should be indicated in the report.

No single formula for estimating fetal weight (EFW) has achieved accuracy across all gestational ages and populations to enable a recommendation to be made. However, the Hadlock C multi-parameter formula (HC, BPD, AC, FL) is the most widely used formula in current practice (precision within 10-15% of EFW) for fetal weights between 1000-4000g. The range of error increases outside these margins and deserve mention in the report. Separate formulas for very low birth weight infants may be considered depending on the clinical situation. For internal consistency, the Hadlock C formula should be used if the Hadlock EFW chart is used for plotting fetal weight

Plotting Fetal Growth

Charts for assessing fetal growth can be derived from sonographic measurements or from birthweight data. No EFW chart based on Australian sonographic measurements exists. A variety of Australian growth charts based on birth weight data are available. ASUM recommends Roberts & Lancaster

growth charts [1&2] for singleton and twin pregnancies.

Consistency of chosen weight formulas and growth charts within and between practises is recommended.

Fetal Anatomy

The extent of evaluation of the fetal anatomy will depend on the clinical indication for the scan, the result of any previous high quality fetal anatomy scan and the time elapsed since the last scan. Many parts of the fetal anatomy are not visible in the 3rd trimester but it is particularly important to examine organ systems where evolving lesions are known to develop; these include the brain, heart, stomach and kidneys. When these structures cannot be visualised however, it is usually not necessary to recall the patient.

Fetal Wellbeing

Interpretation should be based on an integrated assessment and not on one factor alone.

In addition to fetal size the following parameters should be assessed when clinically appropriate:-

- Fetal cardiac rate and rhythm.
- Some or all of fetal movement, respiratory movement, tone and amniotic fluid index.
- Umbilical artery waveform, including *the PI*, RI or S/D ratio and presence or absence of diastolic flow.
- Doppler assessment of the middle cerebral artery and ductus venosus have a specific role in evaluation of monochorionic twin pregnancies, fetal anemia and severe IUGR, but are not routinely indicated.

NB: Formal assessment of the parameters in point b, the biophysical profile, requires a strict protocol and up to 30 minutes observation time. Caution should be exercised in reporting abnormalities in shorter observation times.

Placental Localisation

The location of the placenta should be recorded. If it is low, great care must be taken to determine its relationship to the internal os.

Gently pushing the presenting part up out of the pelvis can sometimes help in determining the lower edge of the placenta.

Where a low lying placenta has been noted at the mid trimester examination, consideration should be given to the routine use of color Doppler assessment of the lower uterus to exclude vasa praevia.

A transvaginal or transperineal scan may be helpful in doubtful cases. Particular care is needed if transvaginal examination is performed on a patient who may have placenta praevia. If such an examination is proposed, it may be appropriate to discuss the matter first with the referring doctor.

Measurement of cervical length

The length of the cervix and evidence of funneling should be recorded up to 35 weeks gestation. If the cervix cannot be visualised at transabdominal examination, transvaginal examination should be considered.

Amniotic Fluid Volume

Evaluation of the amniotic fluid using either the 4 quadrant method (amniotic fluid index) or deepest vertical pool is preferred. The measurement should be correlated with the gestational age. Alternatively oligohydramnios can be recorded if no pockets of fluid are visible greater than 2cm vertical depth and polyhydramnios if pockets are greater than 10cm vertical depth.

[1] Australian national birth weight percentiles by gestational age.
Med J Aust. 1999 Feb 1;170(3):114-8. Roberts CL, Lancaster PA.

[2] National birth weight percentiles by gestational age for twins born in Australia
J.Paediatr Child Health. 1999 Jun;35(3):278-82. Roberts CL, Lancaster PA.



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