ASUM

Standards of Practice

Promoting ultrasound excellence



Guidelines, Policies and Statements

Guidelines for the Performance of Second (Mid) Trimester Ultrasound

Adopted by Council June 1991

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Australasian Society for Ultrasound in Medicine

P (61 2) 9438 2078 **F** (61 2) 9438 3686 E asum@asum.com.au W www.asum.com.au

ACN 001 679 161 ABN 64 001 679 161

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1. Introduction

The Australasian Society for Ultrasound in Medicine (ASUM) is a multidisciplinary society whose mission is to advance the clinical practice of diagnostic medical ultrasound for the highest standards of patient care. A primary aim of ASUM is to promote, educate and disseminate standards of ultrasound practice in this continually developing specialty.

1.1. Background

A gestation age of eighteen to twenty-two (18-22) weeks is the most common time for performing a second trimester ultrasound scan, in an otherwise low risk pregnancy. Examining the fetal anatomy may be appropriate at other times depending on the clinical situation.

The information obtained from this scan aims to provide the patient and the maternity health care professional with as much information as possible about the pregnancy, in the safest and most cost-effective manner.

The limitations of ultrasound must be appreciated. Technical factors, such as fetal position and maternal obesity, may make full assessment impossible.

Diagnostic ultrasound studies of the fetus are generally considered safe during pregnancy; however, this diagnostic procedure should be performed only when there is a valid medical indication. In line with the as low as reasonably achievable (ALARA) principle, the lowest possible ultrasonic exposure setting should be used to gain the necessary diagnostic information.[5]

1.2. Purpose

These guidelines outline the clinical indications and procedures for the undertaking of a standard obstetric sonogram in the second or 'mid trimester'. This includes an evaluation of fetal presentation, amniotic fluid volume, cardiac activity, placental position, fetal biometry, and fetal number, plus an anatomic survey.[5] The maternal cervix should also be assessed. When clinically indicated, the maternal adnexa should also be evaluated.

1.3. Scope/Applicability

This guideline is applicable to all ultrasound practitioners.

2. Pre-Performance Ultrasound

Personal and family history may alter the risk of fetal anomalies.

2.1. History

This may include:

1. Current and past pregnancies

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2. Maternal medical history
3. Family history of fetal anomalies

3. Equipment

Studies should be performed using high-quality real-time equipment. M-mode should be available, and the availability of colour, power and spectral Doppler is advisable.

If the optimal equipment is not available, both the patient and the referring doctor should be aware that the examination is less complete and the ability to detect fetal abnormality may be reduced. This limitation should be documented.

4. The Examination

Each department/practice should decide its own policy on archiving of images and making hard copy images available to the referring doctor and the patient.

4.1. Gestational Age

This should be assessed by the bi-parietal diameter (BPD), head circumference (HC) and femur length (FL). Abdominal circumference (AC) is normally measured to check fetal proportions.

These values should be reported, and a single gestational age assessment given. If the ultrasound due date differs from the menstrual date by more than 2 standard deviations, then previous scans should be reviewed to assess for early fetal growth restriction. If no previous scans have been undertaken and the dates are uncertain, then a revised due date together with a predicted range should be given.

4.2. Fetal Anatomy Including the Detection of Abnormalities

Each practice should develop a protocol on the procedure to be followed when an abnormality is detected. This protocol should include guidelines for the immediate care of the patient and how the referring doctor will be informed.

Careful evaluation of normal fetal anatomy according to the checklist should detect many major anatomical abnormalities.

It is important to remember that an apparently minor defect may be the only pointer to a major chromosomal abnormality.

Some structures may not be demonstrated because of maternal size, fetal position and other factors. Repositioning or rebooking the woman may be necessary to complete the examination.

If the assessment of fetal anatomy is limited, for whatever reason, this should be recorded.

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4.3. Sex Determination

Determination of the sex of the fetus is rarely medically indicated. Care should be taken not to show the genitalia to those not wishing to know the sex of their fetus. If sex determination is requested, this information should be provided based on positive identification of the external genitalia. Patients should be made aware that ultrasound assessment of fetal sex is not 100% accurate. If there has been previous testing in which the fetal sex has been determined, care should be taken to ensure the phenotype is concordant with the test results.

4.4. Multiple Pregnancy

Additional information required when a multiple pregnancy is diagnosed:

Ensure that the anatomy of each fetus is demonstrated

Comparison of fetal size and amniotic fluid volume of each sac should be made

Placental number and the presence or absence of interposed membrane should be recorded

An attempt should be made to confirm or determine chorionicity. Identifying the sex of each fetus may assist in determining the chorionicity.

4.5. Placental Localisation

The relationship between the lower margin of the placenta and the internal OS should be determined. This is most accurately assessed with transvaginal ultrasound. If the relationship between placental position and the internal OS is still uncertain at the end of the scan, then a repeat scan at thirty-four (34) weeks, or earlier if clinically indicated should be considered.

4.6. Amniotic Fluid Volume

Qualitative evaluation of amniotic fluid is accurate when assessed by an experienced operator. It can be supplemented by quantitative evaluation of the four (4) quadrant cumulative measurement of amniotic fluid or in cases of oligohydramnios, the depth of the deepest pocket of fluid.

4.7. Maternal Anatomy

All pelvic masses should be documented, measured and, where possible, the organ of origin be determined, and a short differential diagnosis given.

The cervix should be assessed.

5. Reports

As a minimum, the following details should be included in the report (note the additional details required if multiple pregnancy, see above):

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1. Fetal number		
2. Fetal cardiac activity		
3. Gestational age		
4. Fetal anatomy, including detection of malformation:	**Head:**	Falx
		Cavum Septum Pellucidum
		Skull Bones
		Lateral Ventricles
		Choroid Plexus
		Cerebellum/Vermis
		Nuchal Thickness
		Cisterna Magna
	Face:	Orbits
		Nose
		Jaw
		Lips
		Nasal bone
		Profile
	Diaphragm:	Right
		Left
	Heart:	Heart Motion
		Position
		Axis
		4 Chambers
		Intraventricular Septum
		Foramen Ovale
		Mitral Valve
		Tricuspid Valve
	Great Vessels:	Left Ventricular Outflow Tract
		Right Ventricular Outflow Tract
		Aortic Arch or 3 Vessel View

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		Ductus arteriosis
	Abdomen:	Stomach/Situs
		Kidney (Left)
		Kidney (Right)
		Bladder
		Abdominal Wall
	Spine:	Ossification Centres
		• Coronal
		• Sagittal
		• Axial
		Skin Line
	Extremities:	Long Bones
		Hands/Fingers
		Feet/Toes
	Umbilical Cord:	Insertion
		3 Vessels
5. Amniotic Fluid Volume		
6. Placenta:		Site
		Distance from internal OS
		Placental Myometrial Interface Clearly Defined
7. Cervix:		Cervical Length
		Open/Closed
8. Maternal anatomy:		Uterus
		Adnexa

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6. Relating/Supporting Document

The following documents are required to give effect to this guideline:

1. ASUM Statement on Normal Ultrasonic Fetal Measurements.
2. ASUM Guidelines for Abdominal Scanning.
3. ASUM Statement on the Performance of a Gynaecological Scan.
4. ASUM Guidelines for Reprocessing Ultrasound Transducers.

7. Supporting Information/References

The following documents inform this guideline:

1. ASUM Policy on Diagnostic Ultrasound Services.
2. ASUM Safety Statement on Continuous Wave Doppler Fetal Monitoring.
3. ASUM Guidelines for the Performance of First Trimester Ultrasound.
4. ASUM Guidelines for the Performance of Third Trimester Ultrasound.
5. The American Institute of Ultrasound in Medicine (AIUM), AIUM Practice Parameter for the Performance of Obstetric Ultrasound Examinations, Parameter developed in conjunction with the American College of Radiology (ACR), the American College of Obstetricians and Gynecologists (ACOG), and the Society of Radiologists in Ultrasound (SRU), 2013, Laurel, MD: AIUM.
6. Doubilet PM, Benson CB. First, do no harm...to early pregnancies. J Ultrasound Med 2010; 29:685–689.
7. Marinac-Dabic D, Krulewitch CJ, Moore RM Jr. The safety of prenatal ultrasound exposure in human studies. Epidemiology 2002; 13(suppl 3):S19–S22.
8. Miller MW, Brayman AA, Abramowicz JS. Obstetric ultrasonography: A biophysical consideration of patient safety—the “rules” have changed. Am J Obstet Gynecol. 1998;179:241–254.
9. Sheiner E, Freeman J, Abramowicz JS. Acoustic output as measured by mechanical and thermal indices during routine obstetric ultrasound examinations. J Ultrasound Med. 2005;24:1665–1670.

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