Certificate in Clinician Performed Ultrasound

(CCPU)

Syllabus

Basic Early Pregnancy Ultrasound

Australasian Society for Ultrasound in Medicine
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Basic Early Pregnancy Ultrasound Syllabus

Purpose

This unit is designed to cover the theoretical and practical curriculum for Basic Early Pregnancy Ultrasound

Prerequisites

Learners should have completed the Applied Physics in Ultrasound unit.

Course Objectives

On completion of the course learners should be able to:

- Demonstrate an understanding of the relevant anatomy and organ systems
- Demonstrate the ability to effectively perform early pregnancy imaging
- Confirm intrauterine pregnancy
- Confirm viability of pregnancy
- Identify and assess pelvic free fluid and clot, bleeding/haemorrhage
- Understand the limitations of ultrasound of organ system in diagnosis of early pregnancy problems
- Write a structured report or complete proforma report for early pregnancy assessment
- Have the clinical knowledge and ultrasound skill to be able to make appropriate management decision according to the clinical situation
- Understand the requirement for urgent formal scan and senior medical input in certain settings

Course Content

The course will present learners with the following material:

Anatomy, Physiology and Pathology:

- Vagina
- Cervix
- Endometrium
- Uterus
- Ovaries
- Bladder
- Bowel
- Normal pelvic organ appearance and variations
- Positioning of Uterus:
    - Anteverted
    - Axial
    - Retroverted
- Normal early pregnancy appearance
- Causes of bleeding and pain in early pregnancy
- Sonographic features of ectopic pregnancy

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- Tubal and non-tubal
- Incidence and risk factors for heterotopic pregnancy

Imaging of early pregnancy:

- Pelvic Imaging:
  - Identify pelvic free fluid and clot
- Imaging gestational sac:
  - In 3 planes
  - Definite signs of gestational sac (yolk sac, foetal pole)
  - Calculating gestation and estimating gestational age by measuring CRL
  - Imaging and measuring foetal heart rate using M-mode
- Able to write a structured report or complete proforma report for early pregnancy assessment
- Sonographic signs of non-viable pregnancy
- Sonographic signs of intra-abdominal bleeding
- Sonographic mimics of a gestational sac
  - Pseudosac
  - Nabothian cyst
  - Sub endometrial cysts
- Sonographic signs of abnormal implantation
  - Cornual, scar and cervical ectopics
- Relation of ultrasound findings to threatened miscarriage, non-viable pregnancy and ectopic pregnancy
- Management of patients with pain and bleeding in early pregnancy
- Writing a structured report or complete proforma report for early pregnancy assessment

Techniques, Physical Principles and Safety:

Appropriate transducers, artifacts, windows, standard images, image optimisation and safety in the context of an early pregnancy scan

Limitations and Pitfalls:

- Understand the limitations of trans abdominal pelvic ultrasound in diagnosis of early pregnancy problems.
  - If there is any uncertainty about diagnosis a timely TV scan should be scheduled.
- Requirement for urgent formal scan and senior medical input in the settings of:
  - Haemodynamic instability
  - Severe pain
  - Moderate to large pelvic free fluid
  - IVF
- Misinterpretation of other cystic structures as gestational sac

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Training

- Recognised through attendance at an ASUM accredited Basic Early Pregnancy course. (Please see the website for accredited providers)
- Evidence of the satisfactory completion of training course is required for unit award.

Teaching Methodologies for the Basic Early Pregnancy course

All courses accredited toward the CCPU will be conducted in the following manner:

- A pre-test shall be conducted at the commencement of the course which focuses learners on the main learning points
- Each course shall comprise at least three (3) hours of teaching time of which at least one (1) hour shall be practical teaching. Stated times do not include the physics, artefacts and basic image optimization which should be provided if delegates are new to ultrasound
- Learners will receive reference material covering the course curriculum.
- The lectures presented should cover substantially the same material as the ones printed in this curriculum document.
- An appropriately qualified clinician will be involved the development and delivery of the course (they do not need to be present for the full duration of the course).
- The live scanning sessions for this unit shall include sufficient live patient models to ensure that each candidate has the opportunity to scan (maximal candidate : tutor / machine ratio of 5:1). Models will include normal subjects and patients with appropriate pathologies. Given that it may be difficult to find subjects with pathology, it is appropriate to include a practical 'image interpretation' session in which candidates must interpret images of the relevant pathology.
- A post-test will be conducted at the end of the course as formative assessment.

Assessments

- Two (2) formative assessments of clincial skills, specificially related to the assessment of basic ealry pregnancy ultrasound
- One (1) summative assessment of clincial skills, specificially related to the assessment of basic ealry pregnancy ultrasound

All assessments are to be performed under the supervision of the Primary Clinical Supervisor using the competence assessment form supplied at the end of this document.

Logbook Requirements

- Twenty-five (25) basic early pregnancy scans, including:
    - At least ten (10) cases of Intrauterine pregnancy
    - At least five (5) cases of viable intrauterine pregnancy (demonstrated by a fetal heartbeat)
    - At least three (3) abnormal cases (e.g. Pelvic free fluid, intra uterine death, ectopic, etc.)
- All scans must be clinically indicated
- All cases must be compared with gold standard findings (such as comprehensive imaging, pathological findings or if these are unavailable then clinical course)
- All logbook cases must be signed off by a suitably qualified supervisor (see section 6 of the CCPU Regulations)
- At the discretion of the ASUM CCPU Certification Board candidates may be allowed an alternative

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mechanism to meet this practical requirement

Please note: All assessments and logbooks are required to be completed by the Primary Clinical supervisor as outlined in the CCPU regulations.

Minimal Imaging Sets

The following are proposed as minimal imaging sets for focused ultrasound examinations for the CCPU units. It is understood that in many cases more images should be recorded to fully demonstrate the abnormality. In some cases the patient's condition will not allow the full set to be obtained (e.g. in an unstable patient), in which case the clinician should record whatever images are obtainable during the time available to adequately answer the clinical question without allowing the ultrasound examination to interfere with ongoing medical treatment. If local protocols recommend more images for a particular examination then these should be adhered to.

- Uterus longitudinal (full length of uterus including cervix and vaginal stripe with Pouch of Douglas included in image)
- Uterus transverse.
- If intrauterine sac present then reduced depth or zoomed image of sac (+/- CRL measurement and either M mode or cineloop of heart beat if present). *NB Pulse wave Doppler should not be used for FHR*
- If free fluid is present then images of this, including images of the upper quadrants, may be taken to demonstrate the amount of free fluid.

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ASUM CCPU Competence Assessment Form
Basic Early Pregnancy

Candidate: _____

Assessor: _____

Date: _____

Assessment type: Formative (feedback & teaching given during assessment for education) □
Summative (prompting allowed but teaching not given during assessment) □

To pass the summative assessment, the candidate must pass all components listed

		Competent	Prompted	Fail
Prepare patient				
	Position			
	Informed			
Prepare Environment				
	Lights dimmed if possible			
Prepare Machine				
	Correct position			
Probe & Preset Selection				
	Can change transducer			
	Selects appropriate transducer			
	Selects appropriate preset			
Data Entry				
	Enter patient details			
Image Acquisition				
	Optimisation (depth, freq, focus, gain)			
<u>Transabdominal Scan</u>				
Longitudinal view				
Technique	Tilts probe down into pelvis			
	Fans through pelvis from side to side			
Identifies	Uterus in LS			
	Position of uterus			
	Endometrium			
	Cervix			
	Vagina			
	Bowel			
	Bladder			
	Free fluid / where free fluid would collect			
	Ovaries (if seen, not essential)			
If IUP Present				
Identifies	Sac (ideally can measure in 3 planes)			
	Describe typical features of sac			
	Rounded, echogenic rim, intradecidual			
	Yolk sac			
	Foetal pole			
	Ideally can measure CRL			
	Can demonstrate FHR			

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	Ideally can measure FHR with M-mode			
	Use Preformatted Report to date gestation			

		Competent	Prompted	Fail
Transverse View				
Technique	Fans up and down through pelvis			
Identifies	Uterus			
	Endometrium			
	Cervix			
	Vagina			
	Bladder			
	Bowel			
	Free fluid / or where it would collect			
	Ovaries (if seen, not essential)			
Artefacts				
	Identifies & explains the basis of common artefacts			
Record Keeping				
	Labels & stores appropriate images			
	Documents any pathology identified			
	Completes report			
	Each view adequate / inadequate			
	Documents focussed scan only			
	Describe findings briefly			
	Integrates ultrasound findings with clinical assessment and explains how the findings might change management			
Machine Maintenance				
	Cleans / disinfects ultrasound probe			
	Stores machine and probes safely and correctly			

For Formative Assessment Only:

*Feedback of particularly good areas:*_____

*Agreed actions for development*_____

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Examiner Signature:_____ Candidate Signature: _____

Examiner Name:_____Candidate Name:_____

Date:_____

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