ISUOG Basic Training

Informed consent, image recording and report writing

Learning objectives

At the end of this session, you will:

- Know when you should obtain informed consent for an ultrasound examination, & how to do it
- Be able to record images of ultrasound scans & know how to store them digitally
- Know how to write a report describing the ultrasound findings of an obstetric scan

Key questions

1. When do you ask for informed consent?
2. List 3 things to be included in an obstetric ultrasound scan report
3. Should ultrasound images be stored?

Informed consent

- The consent process is a continuum beginning with the referring health care professional who requests the ultrasound examination and ending with the health care professional who carries it out
- The patient's right to determine what happens to their body must always be respected
- Respecting the autonomy of individual pregnant women may be a legal necessity and a professional responsibility

UKAS, Guidelines For Professional Working Standards: Ultrasound Practice, 2008.

Informed consent

- Ensure the correct patient by checking patient name, birthdate, & hospital ID, at least 2 identifiers must be used
- Inform the patient of the purpose of the exam, it's value, and limitations, including the possibility of other findings detected
- Explain to the patient the procedure for how the examination will be performed
- Receive oral or written acceptance of the examination from the patient

J Obstet Gynaecol. Can 2005, 27(6): 569.

The imaging examination

- **Before** the examination
  - What is the clinical question?
- **During** the examination
  - Specific observations
- **After** the examination
  - Judgment/ conclusions/ diagnosis

What each image should include

- Patient name & other identifying information
- Facility identifying information
- Date of ultrasound examination
- Image orientation
- Details of ultrasound machine settings
  - Provided automatically (frequency, power, scale)
- Label of image structure
  - If not obvious or to identify a particular structure

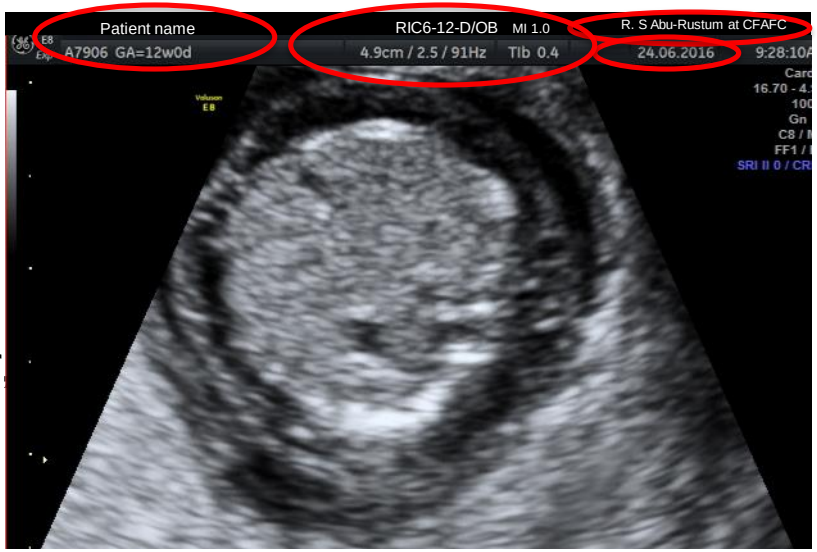


Image recording

- Ideally all findings should be recorded – either on a digital medium or on paper in patient files
- Images should as a minimum include all measurements and abnormal findings

Report and image storage

- Hard copies of all images should be stored
  - Prints, photocopies, videos, electronically
- A report should go in the patient's chart
- A report should be sent to the provider if preferred
- The sonographer should keep a report at their facility

What is an ultrasound report and why is it important?

- Medico-legal document
- Primary means of communication between sonologist, referring clinician and patient
- Constitutes a clinical opinion of a specialist's interpretation of images
- Aim: to answer the original clinical question and provide information - patient management
- Should be accurate, clear, concise and logical

Basic guidelines for writing a report

- Should be written and issued by the sonologist performing the examination
- Integral part of the entire examination
- Should be written as soon as possible after the examination is completed
- Sonologist is fully responsible for the accuracy and content
- Sonologists should be aware of their limitations and seek advice where necessary

Basic guidelines for writing a report

- Mostly printed
- If handwritten, black ink should be used
- Report must be appropriately dated, signed with reporter's name and designation and filed in medical records.
- Use of a pre-existing template/ electronic database
  - Is it helps maintain consistency of reporting
  - Allows research and audit to take place
  - Ensures adherence to local standards

Report style

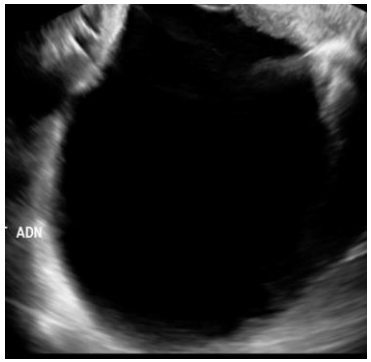
- Clear and concise
- Use present tense
- Easily understood using standardized terminology
- Avoid technical jargon
- Abbreviations should only be used when standard
- Any actions or recommendations should be clearly reported
- A succinct conclusion should be included
- Report should be conclusive where possible and indicate when the appearances are consistent with a specific diagnosis
  - Where this is not possible, alternative explanations may be offered

Summary of report contents

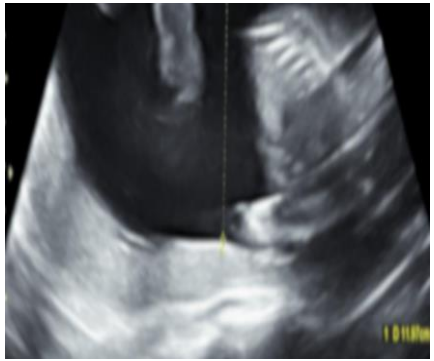
- Clinical history
- Structures examined
- Description of findings
- Interpretation of findings
- Conclusion

Terminology

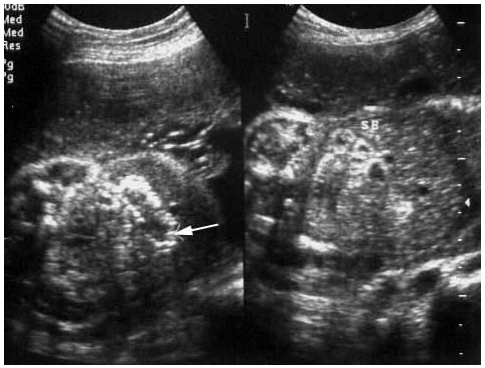
- Anechoic - black - e.g. follicular fluid
- Hypoechoic - almost black – e.g. 2nd trimester amniotic fluid
- Hyperechoic - more white than black - the whiter the appearance, the more solid the mass
- Heterogeneous - mixed echo pattern -anechoic/ hypoechoic/ intermediate/hyperechoic e.g. dermoid cyst
- Homogeneous (mixed) - echo pattern consistent throughout – e.g. blood



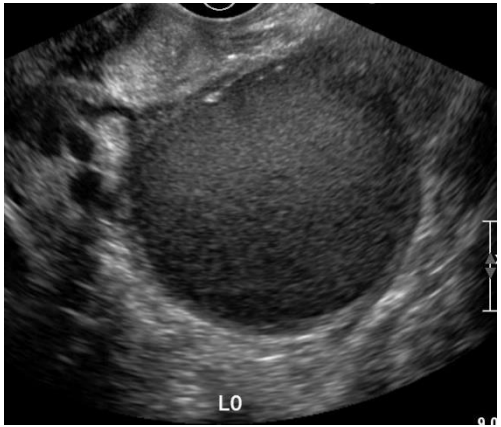
Anechoic



Hypoechoic



Hyperechoic



Homogenous with mixed echogenicity

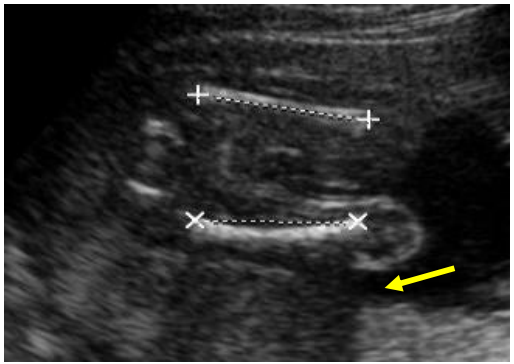
Heterogenous – mixed echo pattern

Terminology

- Shape e.g. round, irregular contour
- Contents e.g. septations, papillary projections
- Acoustic shadowing
- Acoustic posterior enhancement
- Demarcation relative to other organs
  - +/- capsule, thin / thick
  - adherent / mobile

Shape:Rounded

Content: Solid area



Posterior Acoustic Shadowing

What the report should include

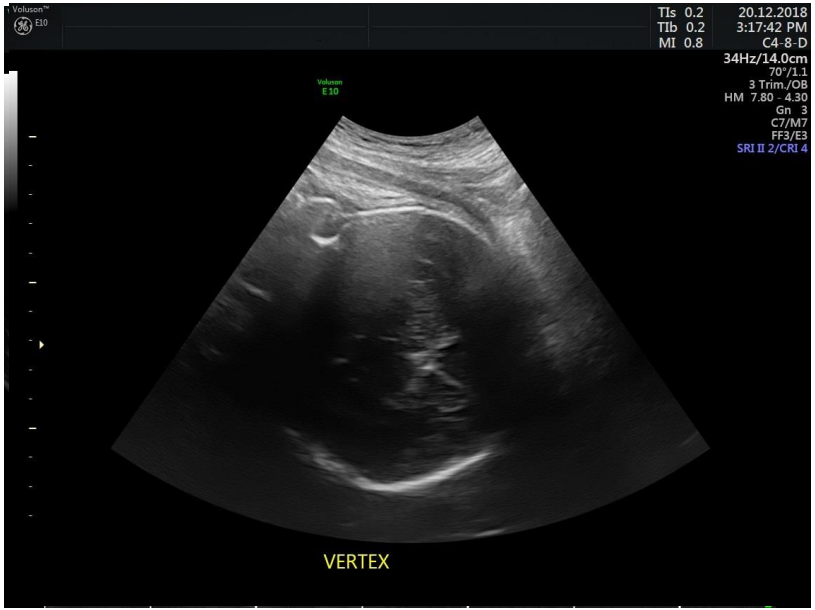
- Date
- Patient’s name & medical number
- Transvaginal, transabdominal or both, presence of chaperone
- Any abnormal findings
- Response to the clinical question, based on the above findings
- Comments / recommendations
- Signature & status

Indications

- To confirm pregnancy
- To evaluate a suspected ectopic pregnancy
- To define the cause of vaginal bleeding
- To evaluate pelvic / abdominal pain
- To determine gestational age
- To diagnose multiple pregnancy
- To confirm viability / cardiac activity
- To guide a prenatal diagnosis procedure
- To discover or assess fetal abnormality
- To measure the nuchal translucency
- To measure the cervical length
- To measure fetal biometry
- Many others, especially in the second & third trimesters

The obstetric report in detail

- Approach
  - Transabdominal / transvaginal / transperineal
- Live fetus
  - M-mode
  - Heart rate
  - Any abnormality of rhythm
- Intrauterine pregnancy
  - Location if early
- Singleton / multiple?
  - If multiple, the number
  - Chorionicity / amnionicity
- Placental location
- Presentation



Other information

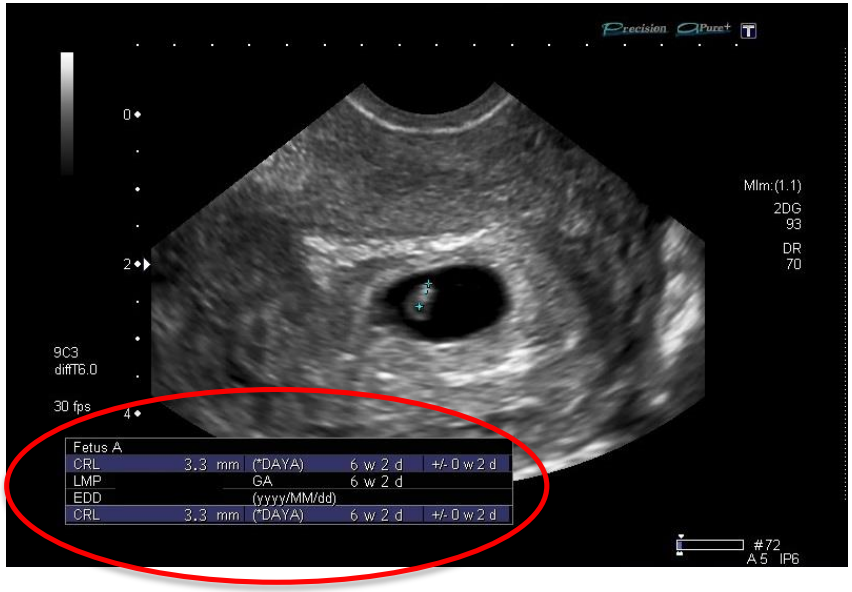
- Specific ultrasound examination requested
- Name of health care provider & contact information
- Relevant clinical information +/- ICD code
- Comparison with prior studies
- Urgent report / finding
  - Call relevant party & report who was called with time and date

What the report should include – early pregnancy

- Confirmation of:
  - Intrauterine location
  - Presence of heart pulsations
- Singleton / twin
  - If twins, number & chorionicity

What the report should include – dating scan

- Confirmation of fetal heart activity
- Fetal biometry
- US assigned gestational age & USEDD



What the report should include – anomaly scan

- Gestational age, as calculated from previous US dating
- Confirmation of fetal heart activity:
- Placental site relative to internal cervical os
- Amniotic fluid volume
- Fetal biometry (HC, BPD, TCD, posterior horn of the ventricle, AC, FL)
- Anatomical survey, describing any abnormal findings
- Comments / recommendations

What the report should include – growth scan

- Gestational age, as calculated from US EDD
- Confirmation of fetal heart activity
- Fetal position
- Placental site relative to internal cervical os
- Amniotic fluid volume
- Fetal biometry (HC, BPD, AC, FL, EFW)
- If twins, then chorionicity and concordance

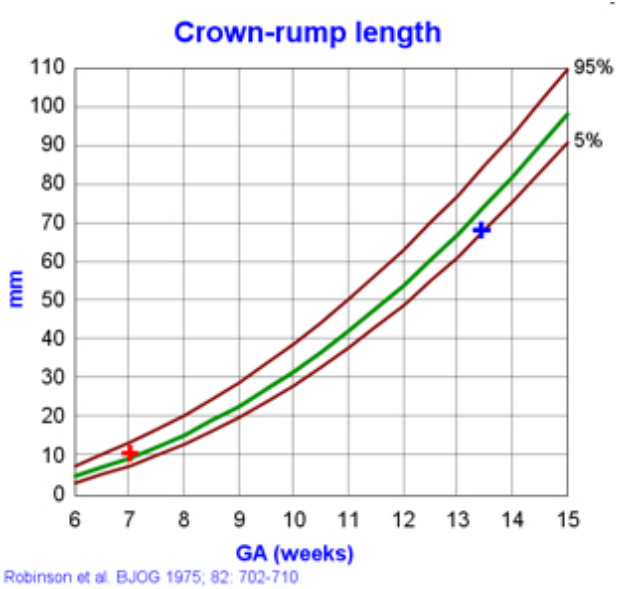
Case example – growth scan

Ultrasound

Operator	Reem S. Abu-Rustum, MD, FACOG
US system	GE Voluson E8 Expert BT13
	transvaginal, 3D
View	good
Gestational age	7 weeks + 0 days

Assessment of early pregnancy

Urinary pregnancy test	positive
Pregnancy site	within the intrauterine cavity
Outline	regular
Yolk sac	seen
Outline	regular
Embryo	visualised
CRL	10.9 mm
Heartbeat	visualised
Fetal heart rate	143 bpm
Ultrasound based diagnosis	viable intrauterine pregnancy

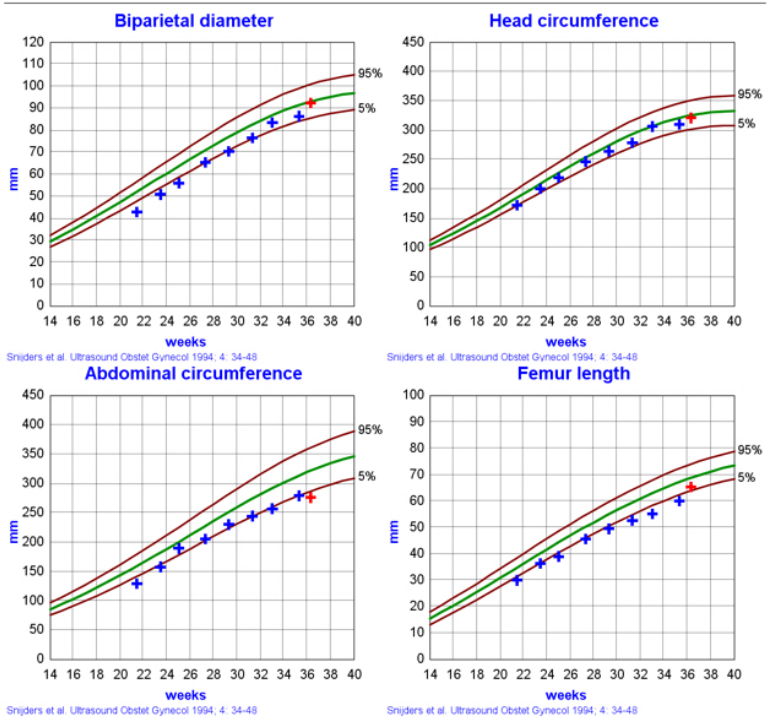


Robinson et al. BJOG 1975; 82: 702-710

Case example – growth scan

Present Pregnancy	
Dates	last period: 12/29/2014
Conception	spontaneous Ovulation induction no
Pregnancy test	positive
EDD by dates	10/5/2015
EDD by scan	10/5/2015
Maternal blood group	B, Rhesus positive, HbsAg negative
Previous Blood Tests	
1. Blood test	Toxoplasma, Date 3/7/2015, Result Not Immune
2. Blood test	rubella, Date 3/7/2015, Result Not Immune
Weight	54.0 kg
Height	156.0 cm
Body mass index	22.2
Cigarettes	no
Alcohol	no
Obstetric History	
Gravida	live birth 40W + 3D 3280g male 2015 live birth 39W + 1D 2400g male 2 Para 1
Family History	Patient: uncomplicated family history Partner: uncomplicated family history
Consanguinity	yes

Case example – growth scan



Case example – growth scan

Doppler ultrasound

Umbilical artery		
PI	0.69	
RI	0.50	
Middle cerebral artery		
PI	1.32	
PSV	16.7 cm/s	
Cerebro-placental ratio	1.91	

Case Example – growth scan

Outcome

Outcome	live birth
Date	9/29/2015
Time	02:35
Gestation	39 W + 1 D
Delivery hospital	Nini
Source	Delivered by RAR
Sex of child	male
Birth weight	2,400 g
Comments	Seems ok. Very long induction. 2 knots in cord.

Anatomical survey

Refer to the ISUOG guidelines:

GUIDELINES

Practice guidelines for performance of the routine mid-trimester fetal ultrasound scan

L. J. SALOMON, Z. ALFIREVIC, V. BERGHELLA, C. BILARDO, E. HERNANDEZ-ANDRADE, S. L. JOHNSEN, K. KALACHE, K.-Y. LEUNG, G. MALINGER, H. MUNOZ, F. PREFUMO, A. TOI and W. LEE on behalf of the ISUOG Clinical Standards Committee

AIUM recommendations

- There should be a permanent record of the ultrasound examination & its interpretation.
- Images of all relevant areas, both normal & abnormal, should be recorded in a retrievable format.
- Retention of the ultrasound images & report should be consistent both with clinical needs & with relevant legal & local health care facility requirements

Key points

1. Informed consent should always be obtained before performing any ultrasound examination
2. Abnormalities detected during a scan should be documented, using digital media or photos in the patient's file
3. A thorough report should describe the results of an ultrasound scan
4. The report's conclusion should indicate any action to be taken by the clinician as follow-up to the scan