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.

Informed consent

- Ensure the correct patient by checking patient name, birthday, & 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

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
The imaging examination

• **Before** the examination
  – What is the clinical question?

• **During** the examination
  – Specific observations

• **After** the examination
  – Judgment/ conclusions/ diagnosis
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
  - 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
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
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 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

<table>
<thead>
<tr>
<th>Ultrasound</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator</td>
<td>Reem S. Abu-Rustum, MD, FACOG</td>
</tr>
<tr>
<td>US system</td>
<td>GE Voluson E8 Expert BT13</td>
</tr>
<tr>
<td>View</td>
<td>good</td>
</tr>
<tr>
<td>Gestational age</td>
<td>7 weeks + 0 days</td>
</tr>
</tbody>
</table>

**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

![Crown-rump length graph](image)
Case example – growth scan

<table>
<thead>
<tr>
<th>Present Pregnancy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dates</td>
<td>last period: 12/29/2014</td>
</tr>
<tr>
<td>Conception</td>
<td>spontaneous Ovulation induction no</td>
</tr>
<tr>
<td>Pregnancy test</td>
<td>positive</td>
</tr>
<tr>
<td>EDD by dates</td>
<td>10/5/2015</td>
</tr>
<tr>
<td>EDD by scan</td>
<td>10/5/2015</td>
</tr>
<tr>
<td>Maternal blood group</td>
<td>B, Rhesus positive, HbsAg negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous Blood Tests</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Blood test</td>
<td>Toxoplasma, Date 3/7/2015, Result Not Immune</td>
</tr>
<tr>
<td>2. Blood test</td>
<td>rubella, Date 3/7/2015, Result Not Immune</td>
</tr>
<tr>
<td>Weight</td>
<td>54.0 kg</td>
</tr>
<tr>
<td>Height</td>
<td>156.0 cm</td>
</tr>
<tr>
<td>Body mass index</td>
<td>22.2</td>
</tr>
<tr>
<td>Cigarettes</td>
<td>no</td>
</tr>
<tr>
<td>Alcohol</td>
<td>no</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Obstetric History</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravida</td>
<td>live birth 40W + 3D 3280g male</td>
</tr>
<tr>
<td></td>
<td>2015 live birth 39W + 1D 2400g male</td>
</tr>
<tr>
<td></td>
<td>2 Para 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Family History</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient: uncomplicated family history</td>
<td></td>
</tr>
<tr>
<td>Partner: uncomplicated family history</td>
<td></td>
</tr>
</tbody>
</table>

| Consanguinity                           | yes                             |
Case example – growth scan
Case example – growth scan

<table>
<thead>
<tr>
<th>Doppler ultrasound</th>
<th>Umbilical artery</th>
<th>Middle cerebral artery</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI</td>
<td>0.69</td>
<td>1.32</td>
</tr>
<tr>
<td>RI</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td>PSV</td>
<td>16.7 cm/s</td>
<td></td>
</tr>
<tr>
<td>Cerebro-placental ratio</td>
<td>1.91</td>
<td></td>
</tr>
</tbody>
</table>
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:

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.
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