ISUOG Basic Training
Examining the Ovaries and Adnexa
Learning objectives

At the end of the lecture you will be able to:

• Use International Ovarian Tumor Analysis (IOTA) terms, definitions and measurements
Key questions

1. How do I describe my ultrasound findings using the standardised (IOTA) terminology?
2. How do I measure different components of an adnexal lesion?
3. How do I assess and describe vascular flow in adnexal lesions?
Key points

• Understand how to use IOTA terminology

• Understand how to assess and measure different components of an adnexal lesion

• Understand how to arrange ultrasound settings to assess vascular flow in ovarian lesions
International Ovarian Tumor Analysis (IOTA)

Terms, definitions and measurement methods
Definitions

- Ovarian lesion
- Solid component
- Papillary projection – cyst wall irregularity
- Complete – incomplete septum
- Five tumor types
- Different types of cyst content
- Acoustic shadowing
- Colour score
- Ascites
Ovarian lesion


Terms, definitions and measurements to describe the sonographic features of adnexal tumors: a consensus opinion from the International Ovarian Tumor Analysis (IOTA) group

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- Part of an ovary inconsistent with normal physiology
- Adnexal mass inconsistent with normal physiology
IOTA definition of a solid component

- A structure that has (high) echogenicity suggestive of tissue (myometrium, myomas, fibromas)
IOTA definition of a solid component

- The white ball in a dermoid cyst is NOT solid tissue
IOTA definition of a solid component

• Blood clot, amorphous material or solid tissue?
• Push on the lesion
• Use color doppler

*If in doubt – classify as solid tissue!*
Push on the lesion
Use colour Doppler
IOTA definition of a papillary projection

- A papillary projection is any solid protrusion into the cyst cavity from the cyst wall with a height of ≥ 3mm
- Papillary projection = solid tissue
A protrusion <3mm: cyst wall irregularity
IOTA definition of septum and incomplete septum

- **Septum** = thin strand of tissue that runs from one internal cyst surface to another
- **Incomplete septum** = thin strand of tissue that does not reach the opposite wall of the cystic structure in some scanning planes (seen in diseased tubes)
Five types of lesions

- Unilocular
- Unilocular-solid
- Multilocular
- Multilocular-solid
- Solid
Unilocular

Definition of a unilocular cyst

- ONE cyst locule
- No complete septa
- No solid components
- Any type of cyst fluid
Unilocular-solid

Multilocular

Multilocular-solid

Five types of cyst content

- Anechoic
- Low level
- Hemorrhagic
- Mixed
- Ground glass
Acoustic shadowing
Irregular cyst wall

- Irregularity in the inner wall of a cyst
- Irregularity of outer contour of a solid tumor or irregularity of the inner wall of a cystic component in a solid tumor
Subjective assessment of blood flow

1. **Color score of 1** is given when no blood flow within the septa, cyst walls, or solid tumor areas.

2. **Color score of 2** is given when only minimal flow can be detected.

3. **Color score of 3** is given when moderate flow is present.

4. **Color score of 4** is given when the adnexal mass appears highly vascular with marked blood flow.
Use of colour or power Doppler
Use of Pulse Repetition Frequency (PRF)

- 0.1
- 0.3
- 0.6

Comparison of images at different PRF values.
PRF fixed at 0.3, lower GAIN...
Ascites

- Fluid outside the pouch of Douglas
How to measure an ovary, a lesion or a solid component in a lesion

- Three orthogonal diameters
- Where the lesion/ovary/solid component appears to be at its largest
  - Maximum diameter
  - Mean diameter
  - Volume: \( (L \times D \times W \times 0.5) \)

\[ X \quad Y \quad Z \]
How to measure a papillary projection

- All papillary projections are measured in two perpendicular planes: *height* and *base*
How to measure a papillary projection
Maximum diameter of largest solid component
Key points

- Using IOTA terms and definitions can help standardise the way we describe and classify masses.
- There are 5 types of ovarian lesions: unilocular, unilocular-solid, multilocular, multilocular-solid, solid.
- A solid component = structure that has (high) echogenicity suggestive of tissue.
- A papillary projection is a solid component attached to the ovarian cyst wall that measures ≥3mm (<3mm is a cyst wall irregularity).
- The PRF must be adjusted to 0.3-0.6 KHz (3-6 cm/s) when assessing vascularity with Doppler.
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