Learning Objectives

- Describe technique for assessment of ovarian masses
- Explain importance of transvaginal scan
- List the common benign masses
- Specify distinguishing features

Ovarian Mass

- Transvaginal ultrasound
  - high NPV for malignancy
  - most practical modality

Transvaginal Ultrasound

- Improved localization
  - ovary, fallopian tube, uterus
- Improved characterization
  - cystic/solid
  - if cystic: wall, content, nodules
- Dynamic assessment
Indeterminate Mass

- MRI (Indeterminate masses)
  - blood, fat, fibrous tissue
  - confirm normal ovaries
  - flow in solid components

Surgical Opinion

CT for staging

Ovarian Mass

- Low/High risk malignancy
  - clinical history

Clinical History

- Pre or post menopausal
- Symptoms or asymptomatic
- Infertility, dysmenorrhea
- Past history ovarian cancer
- Family history ovarian cancer
- CA 125
### Ovarian Mass

- Low/High risk malignancy
  - clinical history
  - morphologic analysis
  - prudent use Color Doppler

### Hemorrhagic Cyst

### Low Malignant Potential Tumor

### Useful Fact

Ovarian Mass/Pre-menopausal
- 95% physiologic, even on BCP
- 90% resolve by 6 weeks

### Simple Cyst

Transvaginal Scan
- Thin smooth wall
- No septations
- No internal echoes
- Through transmission

### Benign Ovarian Masses

- Simple cyst
- Hemorrhagic cyst
- Endometrioma
- Dermoid cyst
- Dermoid cyst
- Cystadenofibroma
Simple Cyst

Management of Asymptomatic Ovarian and Other Adnexal Cysts Imaged at US: Society of Radiologists in Ultrasound Consensus Conference Statement

Asymptomatic simple ovarian cyst - premenopausal

- ≤3 cm: Normal
- >3-≤5 cm: Report, no f/u
- >5-≤7 cm: F/u US yearly
- >7 cm: MRI or surgical

Guidelines

- Asymptomatic patient
- Simple cyst
- Single largest dimension

Reference

Radiology: Volume 256: Number 3—September 2010 • radiology.rsna.org
Asymptomatic simple ovarian cyst - postmenopausal

- ≤1 cm: Report, no f/u
- >1-7 cm: F/u US yearly
- >7 cm: MRI or surgical

Asymptomatic simple ovarian cyst - postmenopausal

- ≤3 cm: Report, no f/u
- >3-7 cm: F/u US yearly
- >7 cm: MRI or surgical

Simple Cyst

- 8 cm

Hemorrhagic Cyst

- Fine strands
- Retractile clot
- Low level echoes
- Resolution/Evolution
Hemorrhagic Cyst

Asymptomatic hemorrhagic ovarian cyst - premenopausal

- ≤3 cm: +/- Report no f/u
- >3-≤5 cm: Report no f/u
- >5 cm: Report f/u 6-12 wks.

Definition

- Postmenopause
  - 1 year or more since LMP
- Early postmenopause
  - years 1 to 5 since LMP
- Late postmenopause
  - greater than 5 years since LMP

Asymptomatic hemorrhagic ovarian cyst – early postmenopausal

- Any size
- Report f/u 6-12 wks.
Asymptomatic hemorrhagic ovarian cyst – late postmenopausal

Any size

Surgical opinion

Endometrioma

- Uniform low level echoes
- Bright echogenic foci in wall
- May have some wall irregularity
- History of dysmenorrhea, infertility
- Note: 70% patients endometriosis
  - Have normal ultrasound

Endometrioma

Endometriotic Plaque
Malignant Transformation

- Up to 1% with ovarian endometriosis
- 10 to 15 years younger
- Pathogenesis unclear – estrogen
- Enlargement, vascular nodule
- Predominantly endometroid and clear cell subtypes

Decidualization Endometrioma

- Rare
- Hormonal effects pregnancy
- Rapidly growing vascular intracystic excrescences
- Free fluid absent
- Consider expectant management
Asymptomatic endometrioma

- Any age
- Any size
- Initial f/u 6-12 wks. Then yearly if not removed

Dermoid Cyst

- “Tip of the iceberg”
- Echogenic plug
- Hair/fluid level
- Black/white streaks – “Spaghetti”
- Additional imaging may help
Malignant Transformation

- Lifetime risk 1-2%
- More common over 40 years old
- More common in large masses
- Squamous cell carcinoma (75%)

Dermoid Cyst

- Anti-NMDAR Encephalitis
  - N-methyl-D-Aspartate Receptor
  - Serious, potentially fatal
  - Young women, mean 24 years
  - Psychiatric symptoms, behavioural changes, seizures, hypoventilation
  - Mature teratoma, often small, may be microscopic

Anti-NMDAR Encephalitis
Asymptomatic dermoid cyst
- Any age
- Any size
- F/u yearly if not removed

Fibroma/Fibrothecoma
- Benign ovarian stromal tumor
- 4% all ovarian neoplasms
- Most common solid – asymptomatic
- Associated Meig's syndrome
  - pleural effusion (Rt.), ascites, mass

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Cystadenofibroma
- Rare
- 1.7% all benign ovarian neoplasms
- Epithelial & fibrous stromal
- Women 15 to 65 years
- Mimics malignancy
- Clue – Low signal T2W MR images
Cystadenofibroma

Cystadenofibroma

Cystadenofibroma

Cystadenofibroma

US Recommendation

Dismiss

Follow

MRI

Surgical Opinion (CT for staging)

Summary

Key Points

• Pre/Post-Menopausal

Pre-menopausal/Ovarian mass

• 95% physiologic

• 90% resolve by 6 weeks