Ovarian Cysts Made Simple
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Objectives of this talk

- To understand risk of malignancy and thus not fear it
- Practical advice for follow up of asymptomatic cysts
- Practical advice for management of symptomatic cysts
- Possibly some other stuff!
Risk of malignancy

- Is the woman pre or post menopausal?
- Definition of menopause difficult to be certain but for simplicity if 50 or more and no period for 6/12 or if post hysterectomy simply age 50
- The catch is that the ovaries do not become immediately inactive post the last menses
Post menopause

6% of asymptomatic postmenopausal women have a cyst

Most benign

Prevalence 61:100,000 @ aged 68

If < 1cm and simple then of no issue and needs no follow up

If > 1cm do CA 125-II and arrange FU scan or referral to GOPD
OVARIAN CYST

Cyst confirmed on ultrasound scan

>5cm

Refer to GOPD with:
- Scan
- CA125
- LFTs
Attach results.

Pre-menopause
- Post-menopausal
- Pre-pubertal

Symptomatic. Unable to cope with pain.
Refer AGA (Acute Gynaecology Assessment)

Persisting or enlarging cyst

<5cm

Pre-menopause

Non symptomatic or mild discomfort
Repeat scan in 2 months

Cyst resolved. No further management
Cyst smaller

Comments regarding history of presenting complaint:

Past history / Medication / Allergies:
Pre Menopause

- If < 5cm and simple repeat scan in 2/12
- If < 5cm and complex then if considered benign complexity repeat scan in 2/12
- If > 5cm or any size where complexity thought likely to be neoplastic then for CA125-II and refer to GOPD
HealthPathways
Definition of simplicity

- Thin uniform wall
- No septations
- No internal echo or blood flow
- No significant free fluid (ascities)
Simple and < 5cm

- Malignancy risk is 1%
- > 50% resolve within 3/12 if between 2-5cm
- Level IIa evidence
Definition of complexity

- NOT SIMPLE!
- But let's break this down for it to be helpful
Complexity likely to be benign

POINTS IN FAVOUR
- Age premenopausal
- Functional complexity (internal haemorrhage)
- Single thin septum

Scan features + ? history suggests Endometrioma
- Scan features suggests Dermoid
- Free amount fluid considered within normal limits
- CA125-II < 35 (may not be needed) unless still present at follow up scan
Figure 2a. Mature cystic teratoma in a 20-year-old woman.
Figure 2c. Mature cystic teratoma in a 20-year-old woman.

Outwater E K et al. Radiographics 2001;21:475-490

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Polycystic Ovaries

Do not cause pain
Complexity likely to be malignant

- Age postmenopausal
- Size > 5cm
- Variable thickness outer wall
- Multiple septa of variable wall thickness
- Solid areas or nodules
- Internal blood flow
- Bilateral
- Free fluid suggests ascities
- CA125-II >35
Ovarian Malignancy Index

- $U \times M \times \text{CA125-II}$
- $U =$ USS score either 1 or 3
  - $1 =$ 1 of below
  - $3 =$ 2-5 of below
- multilocular, solid, bilateral, ascities, ? Metastases
- $M =$ pre menopause 1, post 3
What is CA125-II?

- Glad you asked
- Cancer Antigen 125 or Mucin 16 is a glycoprotein expressed on epithelial cell walls that defends them against pathogens.
- Also found in cornea, respiratory tract, and reproductive epithelium
- Thus also increased in carcinoma of lung, endometrium, fallopian tubes, breast and GI tract as well as inflammatory conditions such as endometriosis and PID
Ovarian Malignancy Index

- \( U \times M \times \text{CA125-II} \)
  - \( U = \) USS score either 1 or 3
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  - Multilocular, solid, bilateral, ascities, ? Metastases
  - \( M = \) pre menopause 1, post 3
Ovarian Malignancy Index (use)

- Low risk < 25..........................risk < 3%
- Moderate risk < 25-250..........risk 20%
- Severe risk > 250.......................risk 75%
## Tumours

<table>
<thead>
<tr>
<th>Tissue Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epithelial cell (87% of cancers)</td>
<td>Serous, Mucinous</td>
</tr>
<tr>
<td>Germ cell (Dermoids) (30% of tumours, 5% of cancers)</td>
<td>Mature Cystic, Immature, Monodermal</td>
</tr>
<tr>
<td>Stromal (8% of cancers)</td>
<td>Granulosa, Stertoli / Leydig, Fibromas</td>
</tr>
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</table>
Cancer occurrence

- Lung cancer, 14%
- Breast cancer, 26%
- Colorectal cancer, 10%
- Endometrial cancer, 7%
- Non-Hodgkin lymphoma, 4%
- Thyroid cancer, 4%
- Skin melanoma, 4%
- Ovarian cancer, 3%
- Kidney cancer, 3%
- Leukemia, 3%
- Other, 22%
Malignant tumours

- 60% present as stage III or IV
- 5yr survival 47% overall
- Stage I often found accidently but 93% 5yr survival
- Point to note, ‘beware the bloating woman’
Relative 5-year survival for invasive epithelial ovarian cancer
Malignant tumours (in context)

- 3% of all cancers in women but 6% of all cancer deaths
- 1:60 lifetime risk (breast 1:17)
- 1% of all women will die of it
- < 1% of Germ cell tumours (Dermoids) are immature and behave malignantly
Malignant tumours (risk factors)

- Affected 1\textsuperscript{st} or 2\textsuperscript{nd} degree relative
- BRCA 1 or 2 present
- Family history, Hereditary non polyposis coli colon cancer
- Endometriosis
- Sub fertility
- Nuliparity
- Decreased risk with COC use
- Decreased risk post T.Ligation
- Decreased with early 1\textsuperscript{st} preg and late last preg
Management of the symptomatic functional cyst

Hormonal pain
Hormonal symptoms

- About 50% of functional cysts will be hormonally active and may disrupt the menstrual cycle +/-
- Breast tenderness
- Emotional lability
- Spotty clock
- Loss of libido
What to do (hormonal)

- Tell patient she is not alone
- Symptoms will resolve spontaneously
- Help can be given
- Which way do they want to jump and which symptom is the worst?
- Breast tenderness Rx NSAIA’s, Spironolactone
- Cycle disruption Rx COC’s
- Mood issues Rx COC’s, Spironolactone
- Spotty clock Rx COC (Ginet, Yasmin) could consider Cyproterone Acetate
Painful symptoms

- Short history of onset
- Often unilateral
- Spectrum of severity and character and provoking factors
What to do (pain)

- How severe is it?

- If very severe consider torsion and may need acute referral to AGA

- If severe to the point of interfering with work etc then may need ref., for semi urgent surgery or USS guided aspiration

- If, as is often the case, the pain is tolerable then either 1, expectant management with pain relief or 2, try to speed resolution with COC
<table>
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<tr>
<th>Normal Appearance</th>
<th>Follow-up*</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Normal ovary appearance: Reproductive age Follicles  - Thin and smooth walls  - Round or oval  - Anechoic  - Size ≤ 3 cm  - No blood flow</td>
<td>Not needed</td>
<td>Developing follicles and dominant follicle ≤ 3 cm are normal findings</td>
</tr>
<tr>
<td>Normal ovary appearance: Reproductive age Corpus luteum  - Diffusely thick wall  - Peripheral blood flow  - Size ≤ 3 cm  - +/- internal echoes  - +/- crenulated appearance</td>
<td>Not needed</td>
<td>Corpus luteum ≤ 3 cm is a normal finding</td>
</tr>
<tr>
<td>Normal ovary appearance: Postmenopausal  - Small  - Homogenous</td>
<td>Not needed</td>
<td>Normal postmenopausal ovary is atrophic without follicles</td>
</tr>
<tr>
<td>Clinically inconsequential: Postmenopausal Simple cyst ≤ 1 cm  - Thin wall  - Anechoic  - No flow</td>
<td>Not needed</td>
<td>Small simple cysts are common; cysts ≤ 1 cm are considered clinically unimportant</td>
</tr>
<tr>
<td>Cysts with benign characteristics</td>
<td>Follow-up*</td>
<td>Comments</td>
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| Simple cysts (includes ovarian and extraovarian cysts)  
  - Round or oval  
  - Anechoic  
  - Smooth, thin walls  
  - No solid component or septation  
  - Posterior acoustic enhancement  
  - No internal flow | Reproductive age:  
  ≤ 5 cm: Not needed  
  > 5 & ≤ 7 cm: Yearly  
  Postmenopausal (PM):  
  > 1 & ≤ 7 cm: Yearly**  
  Any age: > 7 cm: Further imaging (e.g., MRI) or surgical evaluation | Simple cysts, regardless of age of patient, are almost certainly benign  
For cysts ≤ 3 cm in women of reproductive age, it is at discretion of interpreting physician whether to describe them in imaging report |
| Hemorrhagic cyst  
  - Reticular pattern of internal echoes  
  - +/- Solid appearing area with concave margins  
  - No internal flow | Reproductive age:  
  ≤ 5 cm: Not needed  
  > 5 cm: 6-12 week follow-up to ensure resolution  
  Early PM:  
  Any size: Follow-up to ensure resolution  
  Late PM: Consider surgical evaluation | Use Doppler to ensure no solid elements  
For cysts ≤ 3 cm in women of reproductive age, it is at the discretion of interpreting physician whether to describe them in imaging report |
| Endometrioma  
  - Homogeneous low level internal echoes  
  - No solid component  
  - +/- Tiny echogenic foci in wall | Any age:  
  Initial follow-up 6-12 weeks, then if not surgically removed, follow-up yearly | |
| Dermoid  
  - Focal or diffuse hyperechoic component  
  - Hyperechoic lines and dots  
  - Area of acoustic shadowing  
  - No internal flow | Any age:  
  If not surgically removed, follow-up yearly to ensure stability | |
| Hydrosalpinx  
  - Tubular shaped cystic mass  
  - +/- Short round projections “beads on a string”  
  - +/- Waist sign (i.e. indentations on opposite sides).  
  - +/- Seen separate from the ovary | Any age:  
  As clinically indicated | |
| Peritoneal inclusion cyst  
  - Follow the contour of adjacent pelvic organs  
  - Ovary at the edge of the mass or suspended within the mass  
  - +/- Septations | Any age:  
  As clinically indicated | |
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<th>Cysts with indeterminate, but probably benign, characteristics</th>
<th>Follow-up*</th>
<th>Comments</th>
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<tr>
<td>Findings suggestive of, but not classic for, hemorrhagic</td>
<td>Reproductive age: 6-12 week</td>
<td>Postmenopausal: Consider surgical evaluation</td>
</tr>
<tr>
<td>cyst, endometrioma or dermoid</td>
<td>follow-up to ensure resolution. If the lesion is unchanged, then hemorrhagic cyst is unlikely, and continued follow-up with either ultrasound or MRI should then be considered. If these studies do not confirm an endometrioma or dermoid, then surgical evaluation should be considered.</td>
<td></td>
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| Thin-walled cyst with single thin septation or focal calcification in the wall of a cyst | Follow-up based on size and menopausal status, same as simple cyst described above | Multiple sepiations suggest a neoplasm, but if thin, the neoplasm is likely benign |

| Multiple thin septations (< 3 mm)                      | Consider surgical evaluation | Multiple sepiations suggest a neoplasm, but if thin, the neoplasm is likely benign |

| Nodule (non-hyperechoic) without flow                  | Consider surgical evaluation or MRI | Solid nodule suggests neoplasm, but if no flow (and not echogenic as would be seen in a dermoid) this is likely a benign lesion such as a cystadenofibroma |

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<th>Cysts with characteristics worrisome for malignancy</th>
<th>Follow-up*</th>
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<tr>
<td>Thick (&gt; 3 mm) irregular septations</td>
<td>Any age: Consider surgical evaluation</td>
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| Nodule with blood flow                                 | Any age: Consider surgical evaluation |                                           |
Points to take away

- Simple cyst 1cm or less post menopause of no significance and no follow up needed.
- Simple cyst 3cm or less if asymptomatic and pre menopause no significance and no need for follow up.
- Other cysts follow HealthPathways algorithm.
- Try to manage symptomatic simple cysts in pre menopause.
- Malignancy not common (<1% if simple <5cm) but not to be forgotten (Stage I often found accidently but 93% 5yr survival).
- If in doubt phone and ask as may save anxiety of referral.
- Polycystic ovaries not painful.
references

**MALIGNANCY INDEX**


SIMPLE CYST LESS THAN 5cm


MALIGNANCY RISK