Management of Ovarian Cysts
Emergency Clinic Guidelines
GL1060

Approval

<table>
<thead>
<tr>
<th>Approval Group</th>
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<tbody>
<tr>
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Change History

<table>
<thead>
<tr>
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<tr>
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1. Purpose
The aim of this guidance is to provide high quality, efficient service and care for the patients attending the RBH’s Emergency Clinic (EC) with ovarian cysts. The Trust is committed to the provision that is fair, accessible and meets the needs of all individuals.

2. Scope
For all staff, medical, nursing and clerical, to provide uniformity of management of patients attending the EC with ovarian cysts.
The provision of evidence based high quality management of patients from referral to discharge from the EC.

3. Roles and responsibilities
The team consists of:
3.1 Consultant Lead
   o To ensure that all junior doctors understand the content of the protocol and are able to follow the guidelines in ensuring that patients are managed sensitively and effectively through diagnosis and treatment management
   o To work with lead nurse to ensure that the protocol is reviewed regularly and updated to reflect any changes to current guidance.
3.2 Lead Nurse
   o Co-ordinate training of all staff to ensure that protocol is utilised effectively
   o To work alongside Consultant Lead to review protocol regularly and update as necessary to reflect changes in current national guidance.
3.3 Nursing and medical Staff
   o To seek advice or further training, when appropriate, if unsure of any part of the protocol.

4. Introduction
Functional ovarian cysts are the fourth most common reason for a female to be admitted to hospital (1).
By the age of 65 (England & Wales) 4% of all women will have been admitted to hospital for this reason (1).
Of 20,000 healthy, postmenopausal women screened - 21.2% had abnormal ovarian morphology (2).
Not all ovarian cysts cause symptoms.
The nature of ovarian cysts changes throughout a woman's life. Germ cell tumours are most common in childhood, functional cysts more common in the reproductive
years and there is an increasing chance of a cyst being malignant postmenopausally.

The chance of malignancy in an ovarian cyst is: 0.4-8.9/100,000 women of reproductive years 60/100,000 women aged 60-80 years (1).

Functional cysts (secondary to the hormonal changes) are common in the first trimester of pregnancy. The majority of these cysts resolve by the anomalies' scan at 20 weeks' gestation (3, 4).

Chronic, asymptomatic cysts [endometriomata, benign·teratoma (dermoids)] may be newly diagnosed in pregnancy as that is when the woman is first scanned (3).

4.1 Diagnosis

4.1.1 History

Pain
- Chronic, low grade pain /dull ache, often associated with backache - suggestive of pressure symptoms from a pelvic mass.
- Acute,' unilateral, severe, sharp pain - suggests ovarian torsion or haemorrhage into or rupture of a cyst.
- Central upper abdominal pain which has settled over time onto the right side - compatible with appendicitis.
- A history of severe pain as in (ii) which then settles over 24-36 hours should raise the suspicion of ovarian torsion which has been present for sufficiently long that the ovary is no longer viable.
- Faintness - Torsion.
- Anorexia - Torsion or appendicitis.
- Nausea and vomiting - Torsion or appendicitis.
- Menstrual cycle irregularity - secondary to oestrogen production from functional ovarian cysts.
- Post-menopausal bleeding - secondary to oestrogen production from functional ovarian cysts.
- Inter-menstrual bleeding - secondary to cyst rupture.
- Abdominal distension - secondary to pelvic mass and/or ascites.
- Dyspareunia - secondary to pressure symptoms from enlarged ovary.

4.1.2 Examination

General
- Temperature, pulse and blood pressure are recorded in all women attending the EC.
− Is the patient pale and clammy?
− Is the patient in obvious distress?
− Can the patient mobilise freely?
− Can the patient straighten their legs when asked to lie flat?

**Abdominal**
− Is there a visible abdominal mass?
− Is there generalised abdominal distension, compatible with ascites?
− Will the patient tolerate abdominal palpation?
− Is there a palpable abdominal mass?
− Site of maximal tenderness.
− Is there rebound tenderness - signs of peritonism secondary to torsion or haemorrhage into an ovarian cyst?
− Is there guarding - signs of peritonism secondary to torsion or haemorrhage into an ovarian cyst?
− Are bowel sounds present? Diminished or absent bowel sounds suggest significant intra-abdominal pathology - ovarian torsion, haemorrhage, cyst rupture, appendicitis or infection.
− Is there a fluid thrill- secondary to ascites?

**Speculum**
− How well does the patient tolerate speculum examination?
− Is there bleeding through the external cervical os?
− Is there offensive vaginal discharge?

**Bimanual**
− How well does the patient tolerate bimanual palpation?
− Site and nature of pain.
− Is there a palpable mass? An enlarged ovary secondary to an ovarian cyst is commonly palpated in the Pouch of Douglas, not the lateral fornices.
− Can the uterus be palpated separately to any mass?
− Is there cervical excitation?

### 4.1.3 Investigations

**Urinalysis**
− Midstream Specimen of Urine (MSU) if nitrate and leucocyte positive.
Swabs
- High vaginal and endocervical swabs - only if the history and examination suggest acute pelvic inflammatory disease (PID) is a differential diagnosis as a cause for the pain.

Haematology
- Has the haemoglobin dropped secondary to haemorrhage from cyst rupture?
- An increased White Cell Count (WCC) with a normal neutrophil count is suggestive of ovarian torsion.
- An increased WCC with an increased neutrophil count is suggestive of infection? PID? Pyelonephritis? Appendicitis?
- Group and save or cross match blood, dependent on the clinical situation.

Transvaginal ultrasound

Indications
- All acutely unwell patients with a history suggestive of an ovarian cyst should have a transvaginal scan (TVS) at the earliest opportunity.
- "Out of hours" the clinical findings may necessitate a laparoscopy without a TVS being available.
- Non-acutely unwell patients with symptoms suggestive of an ovarian cyst can be referred to the Gynae outpatient clinic.

4.1.4 Findings
- Normal pelvis - this does not exclude appendicitis as an appendix mass is commonly situated beyond the penetration depth of the transvaginal probe.
- A complex adnexal mass where the ovary often cannot be identified separately, echogenic fluid in the endometrial cavity and Pouch of Douglas, in association with generalised tenderness on scanning, is compatible with acute PID.
- Ovarian cyst:
  ° Standardised methods of describing the morphological appearance of ovarian cysts on TVS are well established (5, 6). These ultrasound morphology indices have a sensitivity of 89-95% and specificity of 73-91% for the detection of ovarian malignancy.
  ° The following features of the ovarian cyst should be described on the scan report and there is a standardised proforma for entering this data on the Astraia ultrasound reporting system.
    - Size
    - Solid I cystic
- Uni I multi locular
- Number of locules
- Septations
- Papillary projections
- Thin I Thick walled
- Doppler uptake
- Fluid in the Pouch of Douglas

° A comment should also be made on whether there is a rim of normal ovarian tissue surrounding a cyst (the "ovarian crescent sign") as the absence of this has high sensitivity (up to 100%) and specificity (93%) for the diagnosis of invasive cancer (7).

° Colour Doppler flow to the entire ovary should be sought and commented upon. The presence of flow does not exclude the possibility of ovarian torsion but suggests that the ovary may still be viable. The absence of detectable flow has low specificity for diagnosing torsion (8).

° With prolonged ovarian torsion, a complex adnexal mass (representing haemorrhage into the torted ovary) may be all that is distinguishable.

° TVS has up to 85% sensitivity in the diagnosis of benign cystic teratoma (dermoid) cysts (9).
  - TVS has a 96% specificity and 81% sensitivity in the detection of endometriomata (10).

4.1.5 Likelihood of torsion
- Ovarian cysts <5cm in maximum diameter are less likely to cause ovarian torsion.
- Endometriomata rarely cause ovarian torsion as they are often associated with adhesions and other endometriotic deposits throughout the pelvis.
- Benign teratoma (dermoids) are at high risk for ovarian torsion as they are heavy, secondary to their semi solid components.
- "Simple" ovarian cysts >5cm in diameter can lead to ovarian torsion.

Ovarian torsion is less likely to occur in later trimesters of pregnancy as there is less space available as the pregnancy grows.

4.1.6 Tumour markers
- Serum CA 125 is increased in 80% of all epithelial ovarian cancers.
- Serum CA 125 is normal in 50% of Stage I epithelial ovarian cancers.
- CA 125 can be significantly increased in benign conditions affecting the peritoneum- endometriosis, adenomyosis, fibroids and pelvic abscesses.
− The non pregnancy upper limit of the normal range of 30U/ml for CA 125 is not valid in pregnancy where levels up to 100 U/ml can be normal findings (11).
− CEA and CA 19-9 are bowel tumour markers and have been removed from the Electronic Patient Record (EPR) order set for ovarian cysts. CA 19-9 can be raised in endometriosis.
− Increased serum levels of ßhCG and aFP are to be expected with the benign tumours- dermolds and dysgerminomas.
− Serum tumour markers do not improve the ability to distinguish between benign and malignant adnexal cysts in premenopausal women over that of detailed transvaginal scanning to assess morphology and colour Doppler imaging (12).
− Serum CA 125 alone performs very well in distinguishing benign from malignant adnexal masses in postmenopausal women (12).

4.2 Management

Management of the acutely unwell patient without an ovarian cyst.
− Women with suspected appendicitis or other surgical causes for their pain should be referred back to the emergency department for surgical review.
− Women with suspected pyelonephritis should have their management discussed with the on call medical team.
− Women with a clinical picture compatible with PID should be managed according to PID guideline.

Management of the acutely unwell patient with an ovarian cyst.
Ovarian cysts can cause women to present acutely unwell and in pain, secondary to:
(i) Cyst rupture
(ii) Haemorrhage into a cyst
(iii) Haemorrhage into the pelvis secondary to a cyst
(iv) Ovarian torsion

Management of the acutely unwell patient with an ovarian cyst applies to both pregnant and non pregnant women.
− Admit the patient to the gynaecology ward for analgesia and observation.
− Insert an intravenous cannula.
− If (iii) is suspected the patient should be kept "nil by mouth" in preparation for possible surgery to control any bleeding, if the haemoglobin (Hb) is dropping
or vital signs and examination suggest significant intra-peritoneal bleeding.

− The registrar on call should be asked to review the patient as a priority if the patient is so acutely unwell that ovarian torsion is suspected and the consultant informed of the findings.

− Ovarian torsion requires surgical correction within an estimated 12 hours to ensure the ovary remains viable.

− The registrar should book the patient onto the priority operating list on EPR and verbally communicate to the sister and on call anaesthetist the clinical urgency of the situation.

− It may be necessary for the patient to go straight to the priority theatre from the EC but a bed should be booked on the gynaecology ward.

− The patient should be kept "nil by mouth".

Management of the premenopausal, non pregnant patient with an ovarian cyst and minimal symptoms

− The risk of malignancy following detection of a cyst <5cm in maximum diameter which is unilateral, unilocular, echo free and with no solid parts or papillary formations on TVS is <1% (13).

− 50% of such cysts will resolve within three months (1).

− Simple ovarian cysts >5cm in maximum diameter are at increased risk of ovarian torsion and should be discussed with the on call consultant and a management plan made and discussed in detail with the patient. Haemorrhaghic cysts have a high spontaneous resolution rate and should be managed with a follow up scan, if the patient is clinically well (Table 1).

− Benign teratomata (dermoids) will not resolve spontaneously and referral should be made to the GOPD (gynaec outpatient Department) to discuss conservative versus surgical management. These women should also be warned of the symptoms of ovarian torsion and the need to seek urgent medical attention should they occur.

− Endometriomata do not resolve spontaneously and referral should be made to the GOPD to review other symptoms and discuss further management.
Table 1: Management of ovarian cysts in premenopausal women with minimal symptoms

<table>
<thead>
<tr>
<th>Nature of cyst</th>
<th>&lt;5cm in max diam</th>
<th>&gt;5cm in max diam</th>
<th>CA 125</th>
<th>αFP, βCG</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Simple&quot; benign cyst</td>
<td>No further scan or follow up needed, discharge from care</td>
<td>Discuss with on call consultant – management plan recorded in medical</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Haemorrhagic Cysts</td>
<td>Rescan 4/12 Gynae USS Dept and refer to GOPD</td>
<td>Rescan 4/12 Gynae USS Dept</td>
<td>N / ↑</td>
<td>N</td>
</tr>
<tr>
<td>Endometrioma</td>
<td>Refer to GOPD</td>
<td>Refer to GOPD</td>
<td>↑</td>
<td>N</td>
</tr>
<tr>
<td>Dermoids</td>
<td>Refer to GOPD</td>
<td>Refer to GOPD</td>
<td>N</td>
<td>↑</td>
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Management of the postmenopausal patient with an ovarian cyst

- All post menopausal women should have their serum CA 125 checked and be referred to the GOPD, either the 2WW or general gynaecology clinic, depending on the nature of the cyst on TVS and their serum CA 125 level. This should be discussed with the registrar on call.

Management of asymptomatic ovarian cysts in pregnant women

- Tumour markers are of no additional diagnostic benefit in pregnancy and should not be sent as routine from EC.

Table 2: Management of ovarian cysts diagnosed on ultrasound scanning in early pregnancy in asymptomatic women.

<table>
<thead>
<tr>
<th>Cyst type</th>
<th>Management</th>
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<tr>
<td>&quot;Simple&quot; benign cyst</td>
<td>Re-assess at Nuchal &amp; Anomalies USS</td>
</tr>
<tr>
<td></td>
<td>○ Spontaneous resolution – no action</td>
</tr>
<tr>
<td></td>
<td>○ No ↑ in size by 20/40 and asymptomatic – Rescan 6/52 post-partum</td>
</tr>
<tr>
<td></td>
<td>○ Persistent cyst ↑ing in size – Refer to GOPD</td>
</tr>
<tr>
<td></td>
<td>If &gt;5cm, warn re torsion.</td>
</tr>
<tr>
<td>Endometrioma or dermoid</td>
<td>No additional scanning necessary. Refer to GOPD if diagnosis in doubt.</td>
</tr>
<tr>
<td></td>
<td>If dermoid &gt;5cm, warn re torsion.</td>
</tr>
<tr>
<td>Diagnosis unclear or worrying features on USS</td>
<td>Refer to 2ww or GOPD if slot available in next 14 days.</td>
</tr>
</tbody>
</table>
5. References

1. Guy's and St Thomas' Emergency Gynaecology Unit Guideline on Management of ovarian cysts, September 2008
14. Ovarian cysts in postmenopausal women (July 2016) 