Aneurin Bevan University Health Board

Management of Ovarian Cysts in Pregnancy

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Contents:

1. Introduction/Overview

Incidence of adnexal masses in pregnancy is estimated to be 0.19-8.8% with the incidence of malignancy 1:1500-32000 pregnancies. While most of ovarian cysts in pregnancy are benign, diagnosis and management could be challenging.

2. Policy Statement

The aim of this guideline is to provide clinicians with up-to-date evidence-based information regarding the management of ovarian cysts in pregnancy, and to be as a reference for ABHUB staff on managing patients with suspected or confirmed ovarian cysts in pregnancy.

4. Objectives

1- Setting the appropriate minimum investigations for suspected patients
2- Differentiation of ovarian cyst in pregnancy
3- Setting clear Management standards
4- Appropriate follow-up plan
5- Creating a pathway

5. Scope

This guideline document relates to:

- All Obstetrics Gynaecology Staff members (doctors, trainees and nurses)
- Women's and Children Division/Obstetrics and Gynaecology Department

6. Roles and Responsibilities

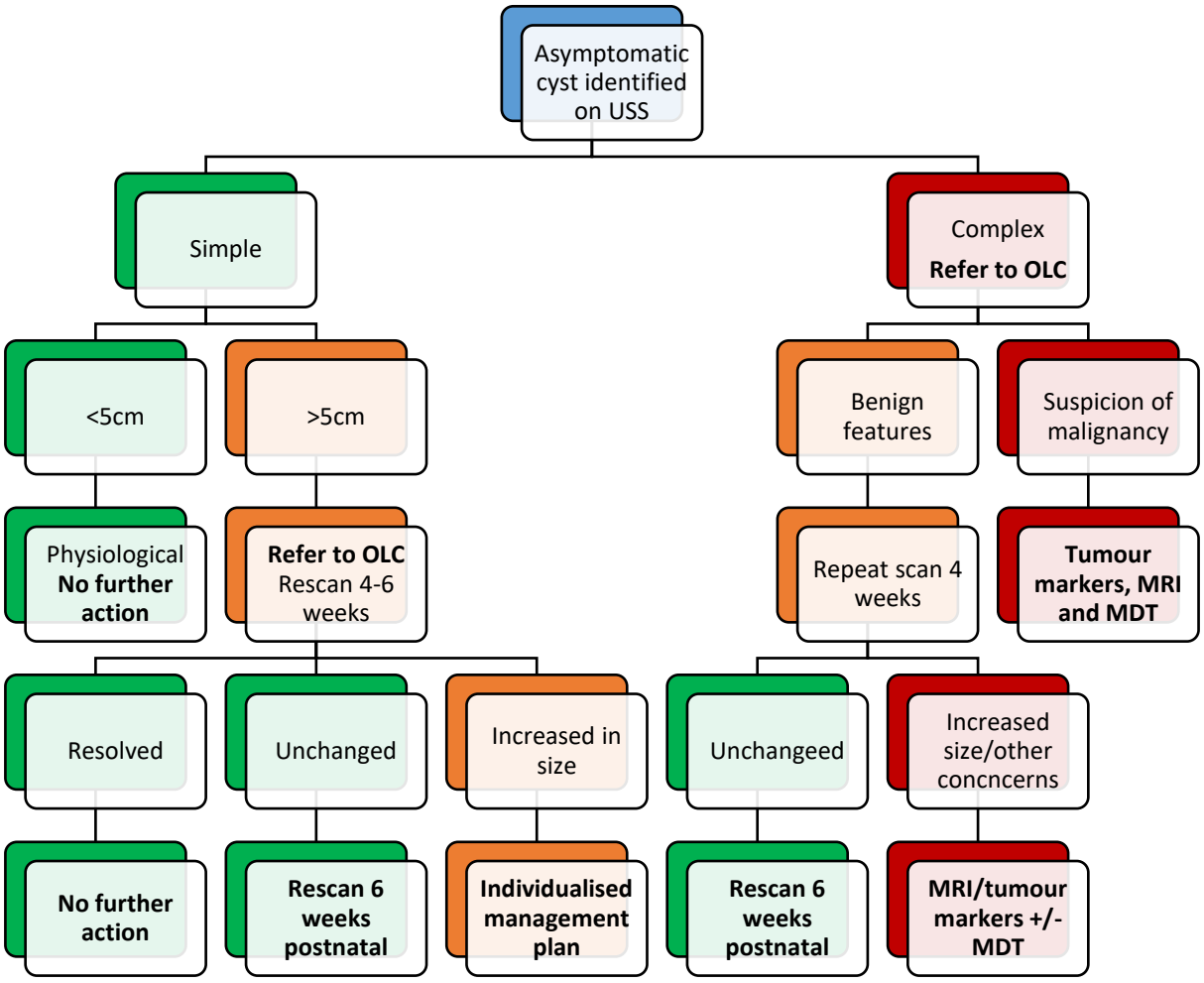
This document is directed to all doctors who provide obstetric and gynaecology care. Such patients should be seen by appropriately trained doctors with suitable seniority and should be discussed with the patient's responsible consultant.

7. Main Body

7.0. Introduction and background epidemiology

Most ovarian cysts in pregnancy are diagnosed incidentally in the first trimester and 65-80% are asymptomatic. Those persisting beyond 16-20 weeks will indicate definitive pathology. [1]

7.1. Management of adnexal cysts identified on ultrasound in pregnancy



7.1. Simple ovarian cysts <5cm

Up to 76% of cysts detected on ultrasound during pregnancy will be simple cysts measuring <5cm diameter. These are functional cysts and will often resolve by 16 weeks gestation. They do not require follow up during pregnancy or referral to consultant led care. [3]

7.2. Simple ovarian cysts >5cm, dermoid cysts and endometriomas

Dermoid cysts and endometriomas are non-functional ovarian cysts and have characteristic ultrasound appearance. Larger simple cysts may represent cystadenoma (a benign epithelial neoplasm) -these account for 50% of benign adnexal epithelial neoplasm. [2]

If the cyst is non-simple with benign features or simple measuring >5cm a follow up ultrasound should be arranged for 4 weeks. Ovarian cysts with septa, solid components, papillae or nodules, or when persisting after 16 weeks gestation should be investigated[2]. MRI and tumour markers (LDH, Ca125) are advised if malignancy cannot be excluded and the patient should be referred to the Local and Network MDT for advice.

Complex cysts that appear to benign (e.g. dermoid cysts) should be managed conservatively in the absence of symptoms. The patient should be made aware of the risk of torsion[3]. An ultrasound scan should be arranged for 6 weeks postnatal with a Gynaecology Outpatient appointment if appropriate.

7.3 Diagnosis

Greyscale ultrasound should be the first line imaging tool for evaluating adnexa. [3] International Ovarian Tumour Analysis (IOTA) group consensus uses ultrasound features to predict the likelihood of cancer.
IOTA simple rules can be used to classify 75% of ovarian masses:

Benign rules	**Malignancy rules**
Unilocular cyst	Irregular solid tumour
Presence of solid components when the largest solid component has largest diameter <7mm	Ascites
Presence of acoustic shadows	At least 4 papillary structures
Smooth multilocular tumour with largest diameter <100mm	Irregular multilocular solid tumour with largest diameter >100mm
No blood flow	Very strong blood flow

7.3 Further investigation

MRI should be used when USS is insufficient, ovarian masses are too big to assess with an ultrasound or when there is a high risk of malignancy. (Leiserowitz 2006). The safety of Gadolinium based contrast in pregnancy in uncertain and so is generally avoided. MRI has high sensitivity and specificity in diagnosis of ovarian cyst in pregnancy with negligible risk to foetus.

CT is associated with exposure to ionising radiation and should be avoided, although can be used to assess thoracic metastasis with abdominal shielding.

The reliability of tumour markers in pregnancy is uncertain. CA125 is elevated in the first and third trimesters. CA 125 is elevated only in 50% of early-stage tumours epithelial tumours. CA 125 assessment is still advised in the presence of suspicious features to highlight potential malignancy when CA 125 is grossly elevated. A higher cut off level of 112 U/ml to dictate the normal range has been suggested in pregnancy between 11 and 14 weeks.[6]

LDH (Lactate Dehydrogenase) is a useful tumour marker as pregnancy does not alter LDH. It will be elevated in dysgerminoma.

AFP (Alpha-Fetoprotein) and b-hCG (human chorionic gonadotropin) are markers in some germ cell tumours but of limited use in pregnancy; can be used only as a follow-up (Leiserowitz, 2006).

Risk of Malignancy Index (RMI) is not used in pregnancy as CA 125 is raised in pregnancy, and it was not researched in the context of pregnancy.

7.3 Complications

Persisting mass has a 10-30% risk of complications such as torsion, haemorrhage, rupture and obstruction of labour. [1] Risk factors are in vitro fertilisation and tumour sizes of 6-8cm. The majority of torsions occur between 15-17 weeks of gestation.

Acute onset of pain is suggestive of cycs accident.

- Rupture of functional cyst is common, however it rarely requires intervention.[1]
- Haemorrhagic cysts will present with acute haemorrhage into ovarian cyst, colour doppler will show no vascularity within the clot.
- Ovarian torsion incidence in pregnancy is 1-5:10000 [7] and it is a clinical diagnosis. Risk factors are size (>6cm) and IVF. Acute

abdominal pain is the main symptom, nausea and vomiting can present up to 85% of cases. [3] CRP starts to rise 6-8 hr after torsion and peaks at 24-72 hours. [3] Ultrasound will demonstrate a tender mass with oedematous thickened capsule.

Hyper-stimulated ovaries are bilateral with mild OHSS affecting one third of cycles, while moderate to severe OHSS present in 3-8% of cases. OHSS is self limiting in mild cases. Risk of ovarian torsion in OHSS is 16%.

7.4 Surgical Management of ovarian cysts in pregnancy

Suspected ovarian torsion will require urgent surgery – ideally laparoscopy, which will involve ovarian detorsion, ovarian cystectomy, aspiration of the cyst or salpingo-oophorectomy. Prompt surgery will allow revascularisation and preservation of the ovary[3].

A mass detected in the third trimester with no features of malignancy should be left until the time of caesarean or 6 weeks postpartum. Decision to remove a cyst at caesarean should be taken after joint discussion with the patient and their consultant. Noting an increased risk of oophorectomy when compared to operating outside of pregnancy vs the need for a single operation rather than two separate surgeries.

Indications for surgery [3]:
- Acute abdomen
- Mass suspicious for malignancy
- Rapidly growing masses (an increase in size>20%)
- Cysts>10cm, which may obstruct labour

Both open surgery and laparoscopy can be performed considering the tumour size, gestational age and surgical expertise. A randomised control trial demonstrated less blood loss, improved visualisation of pelvic organs and a reduced risk of uterine irritability in laparoscopy compared to laparotomy.[4] Laparoscopic entry might require supraumbilical primary port entry, or an open technique or a Palmer`s point entry with Veress needle depending on the fundal height. Pneumoperitoneal pressure should be between 8-12 mmHg to avoid a decrease in the uterine blood flow.

If an open approach is required midline laparotomy with minimal uterine intervention is preferred. If the risk of malignancy is high, cysts should be removed by open surgery to allow full staging and reduce the risk of spillage. With surgical treatment in the first trimester, consider progestin support postoperatively.

Corticosteroids should be given for fetal lung maturity 48hr before elective surgery between 24 and 34 weeks. Fetal heart monitoring should be performed before and after procedure.

If the patient is Rh negative and predicted to carry a Rh positive fetus (or Free fetal DNA testing has not been performed) a Kleihauer-Betke test should be performed in the postoperative period and the patient should receive Rh immunoglobulin at the recommended doses within 72hr after surgery.

Postoperative thromboprophylaxis should be considered.

7.5 Malignant ovarian cysts

Incidence of malignant adnexal masses during pregnancy is 4-8:100000 (Amant et al., 2010). 10% of malignant ovarian cysts are metastasis of other organs, they are usually solid and bilateral.

Ultrasound features suggestive of malignancy are projections > 6mm, a high colour score of blood flow detected within papillary projections, presence of septations, free fluid extending beyond pouch of Douglas, increase in size.
IOTA group advises a strong blood flow as a malignant feature.

MRI and CT are superior to ultrasonography in the prediction of peritoneal and nodal metastases.

Malignant primary	○ Germ cell tumour 6-40% ○ Sex-cord tumour 9-16% ○ Borderline ovarian tumour 21-35% ○ Epithelial ovarian tumour 28-30%
Malignant secondary	Breast and gastrointestinal malignancy

An urgent gynaecological cancer MDT referral should be made. Treatment will depend on gestation, parity, stage of the disease, patient`s wishes. A cancer specialist nurse should support the patient through diagnosis and management.

Borderline tumours have a good prognosis and could be removed in the postpartum period.[1]

Management of epithelial tumours depends on the stage at presentation. For early stage disease, fertility- and pregnancy preserving treatment may be considered. In selected cases, surgery includes removal of the adnexa and surgical staging, avoiding spillage.

Women presenting in the first trimester, option of a termination of pregnancy should be discussed, particularly with advanced disease.

If surgery is planned, it should be performed in the second trimester around 16-20 weeks to minimise risk of pregnancy loss.

Women in the late second or third trimester may consider early delivery. In patients with advanced ovarian cancer, neoadjuvant chemotherapy and interval debulking surgery will be offered. Surgery should not be delayed beyond 23 weeks in view of poorer outcomes with the delayed treatment of malignancy.

8. Resources

All resources related to ovarian cyst in pregnancy diagnosis are available locally. Referral to the tertiary centre might be required in case of suspected malignancy.

9. Training

All doctors must be able to:

- Organise investigations for an ovarian cyst in pregnancy
- Follow departmental "Ovarian cyst in pregnancy" pathway
- Recognise and manage in a timely manner ovarian incident
- Complete a MDT referral if ovarian malignancy is suspected

10. Implementation

- This guideline should be followed as the sole health board guidance by all practitioners in obstetrics and gynaecology.
- It should be implemented from the date it is issued until due date of revision.

11. Further Information Clinical Documents

The evidence base provided for the document.

12. Health and Care Standards Wales

The provision of safe care and reducing avoidable harm through appropriate treatment in line with Health and care standards wales

13. Equality

- There are no equality issues to highlight in relation to this guideline.

14. Environmental Impact

- There is no Environmental Impact Assessment need to be carried out in relation to this document.

15. Review

This document will be due for review in 3 years from date of issue. Beyond the 3 years and bending the review process the document remains a source of local guidance.

16. References

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