Clinical Management Information Template Form

Type of document
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Clinical Protocol (must do) ☒

Title of document
WESSEX REGIONAL GYNAECOLOGY ULTRASOUND GUIDELINES 2020 with local amendments specific to Salisbury NHS Foundation Trust.

Specialty
Department of Ultrasound

Local Amendments

The Wessex Regional Gynaecology Ultrasound Guidelines have been agreed regionally. For gynaecological ultrasound examinations performed at Salisbury NHS Foundation Trust the following amendments have been agreed locally:

- All patients must undergo transabdominal pelvic ultrasound as part of their gynaecological ultrasound examination.

- Unless contraindicated, transvaginal ultrasound should also be performed in all cases where it is likely to add to the clinical quality of the examination.

- For dermoid cysts gynaecological referral and follow-up ultrasound in 12 months should be recommended.

- For endometriomas gynaecological referral and follow-up ultrasound in 3 months should be recommended.

- Post-menopausal cysts should have follow-up ultrasound in 6 months.

- HRT status should be ignored when considering whether endometrial thickness is within normal limits.

Quick Reference Guide

A quick reference guide has been produced locally, incorporating both the Wessex Regional Guidelines and the local amendments, for ultrasound management of the most encountered conditions.

Wessex Regional Gynaecology Ultrasound Guidelines

Version: 3

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Consultation with:	Ultrasound Guideline Consultation Group, Gynaecologists, Radiologists and Lead Sonographers across the Wessex Region

Contents

Local Approval Process:

Trust Name:	
Clinical Lead:	
Signature:	
Date:	
Governance Committee :	
Date of Meeting:	
Chair:	
Signature:	
Date of Authorisation :	

Document Status

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Executive Summary

The purpose of this publication is to bring together in one guideline the recommendations of National Institute of Clinical Excellence (NICE), Royal College of Obstetricians and Gynaecology (RCOG) and Royal College of Radiologists (RCR) guidelines that relate to a gynaecological pelvic ultrasound examination.

The guidelines include how to perform the scan, how to interpret the images and how to structure a report. Advice on further management is also provided.

Scope and Purpose

These are the guidelines for gynaecological ultrasound examinations performed in ultrasound departments within the Wessex region. Gynaecological ultrasound is performed as a stand-alone diagnostic procedure, as well as in one-stop gynaecology clinics.

These guidelines structure the examination, description of findings and future management. The aim is to provide guidance in the diagnosing and management of common and complex problems encountered in gynaecology ultrasound. It will ensure that high standards of gynaecology ultrasound examinations are being performed as well as ensuring that appropriate after care pathways are followed.

The objectives of this guideline are to:

- Provide a summary of best technique for gynaecology pelvic ultrasound examinations.
- Ensure that those health professionals undertaking and reporting pelvic ultrasound examinations comply with the national standards.
- Ensure appropriate high quality pelvic ultrasound examinations are performed.
- Ensure that there is a process for monitoring compliance with the standards and development of action plans to support compliance.
- All ultrasound examinations should only be performed when there is a valid medical indication.

1 Definitions

EPU	Early pregnancy unit
GAU	Gynaecology assessment unit
PCO	Polycystic ovaries
IMB	Intermenstrual bleed
TAUS	Transabdominal ultrasound
TVUS	Transvaginal ultrasound
PMB	Post-menopausal bleed
RPOC	Retained Products of Conception
IUD	Intrauterine Device
AUB	Abnormal Uterine Bleed
PCB	Post Coital Bleed

2 General Information

2.1 Referrals

All ultrasound examinations must be justified.

The correct patient details must be on the request form. Relevant clinical information is essential. The referrer needs to include their contact details and if there are any additional special requirements e,g. if an interpreter is required, mobility issues etc. to enable the ultrasound department to plan appropriately.

2.2 VETTING

Common examples of GP ultrasound referrals and grading of those referrals

URGENT ULTRASOUND -2 weeks from date on request

Very heavy vaginal bleeding with anaemia (Hb less than 90)

PMB

Raised CA125 (above 35iu/ml), (NICE CKS)

Pelvic mass

Ward referrals (after discussion with Sonography staff) to be done same day

ROUTINE ULTRASOUND -6 weeks from date on request

Check location of IUD or IUS

Menorrhagia,/ PCB/ IMB

Pelvic pain and bloating (NICE NG12)

Dysmennorhoea/Amenorrhoea

Dyspareunia

Oligomenorrhoea

PCO

Dysfunctional uterine bleed

Fibroids

Endometriosis

Adenomyosis

Previous surgery

Infertility

Follow up of previously reported pelvic abnormlity

Vulval Conditions, Vaginal Cysts, and Bloating without pelvic pain are not indicated*

2.3 EARLY PREGNANCY / GYNAE ASSESSMENT UNIT

Patients in severe pain or with heavy abnormal vaginal bleeding or with problems in early pregnancy etc. should be referred to EPU / GAU

2.4 Interpreters

The NHS is committed to providing high quality, effective healthcare services that are responsive to the needs of all patients. Failing to match a patient's first or preferred language can impact on patient experience and health outcomes, which may have serious implications such as misdiagnosis and treatment. This covers face to face (including manual or hands-on signing for deaf / blind people) and remote interpreting including telephony and visual (or

Video) relay interpreting. The use of an inadequately trained (ie. family and friends) or no interpreter at all poses risks for both the patient and Sonographer (NHS England 2015)

2.5 Number of guests permitted

The ultrasound examination is a medical examination and scanning requires a high level of concentration. To minimise disruption, no children are permitted in the ultrasound room. Only one adult is allowed to accompany the patient.

2.6 Mobile phones

All mobile phones should be switched off in the ultrasound room. Photographs and video footage is not permitted.

2.7 Professional Competence and Training

Ideally all ultrasound practitioners who independently perform a gynaecological ultrasound examination should hold a valid qualification in gynaecology ultrasound.

- Certificate/Diploma (as appropriate) in Medical Ultrasound (CMU/DMU) from the College of Radiographers (CoR) with evidence of appropriate continuous professional development (CPD).
- Post Graduate Certificate in Medical Ultrasound (PgCert) approved and validated by a Higher Institute of education and accredited by the Consortium for Sonographic Education (CASE or equivalent).
- RCOG/RCR qualifications (e.g. Intermediate Ultrasound Module in Gynaecology or Fetal Medicine or equivalent).

All ultrasound practitioners should attend relevant continuous professional development (CPD) training study days, workshops and conferences.

It is good practice for all ultrasound practitioners to have opportunities to attend and contribute to image/discrepancy review sessions, multi-disciplinary team meetings (MDTs), seminars and journal clubs.

2.8 Safe Use of the Ultrasound System

All health care professionals working with ultrasound equipment should be aware of the Royal College of Radiologists (RCR), British Medical Ultrasound Society (BMUS) and Society and College of Radiographer's (SCoR) standards in key areas that are essential for the delivery of a high quality ,clinically safe and effective ultrasound service . Ultrasound is a highly operator-dependent imaging modality and must only be undertaken by qualified practitioners.

https://www.rcr.ac.uk/sites/default/files/documents/BFCR%2814%2917_Standards_ultrasound.pdf

All ultrasound practitioners are expected to adhere to the British Medical Ultrasound Society for the safe use of diagnostic ultrasound equipment (BMUS/SCoR, 2019).

All ultrasound systems used for gynaecological pelvic ultrasound examinations should be capable of producing images of diagnostic quality and include the following features (as a minimum):

Adequate display/screen size for sufficient clear visualisation
Magnification facility
Cineloop function
Callipers that have a precision to one decimal point (ie 0.1 mm)
Adjustable signal processing facilities
Tissue-specific pre-sets for individual clinical applications
Appropriate Transabdominal and Transvaginal probes
Doppler and harmonic function

All ultrasound machines should be calibrated appropriately and regularly serviced by the Trust's chosen maintenance provider. Regular quality assurance testing is essential. Each Department should have a rigorous QA programme in place.

BMUS has recommended Quality Assurance testing and monitoring; advice available at https://journals.sagepub.com/doi/abs/10.1177/1742271x13515557?ssource=mfr&rss=1

2.9 Image Capture, Storage and Archive

Ultrasound images should be captured, stored and archived either on Viewpoint, Picture Archiving Communications System (PACS) or the Trust's own electronic reporting system. Every ultrasound department should be able to upload ultrasound scan reports and images to provide audit data, case review and fulfil medico-legal requirements. All images must include patient and provider identification, date and time of examination and an appropriate annotation with respect of the anatomical section, structure or pathology recorded.

2.10 Infection Prevention

Trans-vaginal probes must be covered with a protective sheath. Trans-abdominal and trans-vaginal probes should be cleaned with appropriate disinfectant wipes or follow your Trust's infection prevention policy. All gloves and probe covers should be latex free.

2.11 Consent

Verbal consent is required for all ultrasound examinations. Consent must be documented in the report. Consent for trans-vaginal scan is mandatory and the patient has the right to refuse.

TV scanning is not appropriate in women who are Virgo Intacta.

The procedure must be explained to the patient and the patient must consent to the examination. In exceptional circumstances (e.g. an ITU patient), consent can be given by a family member.

If in any doubt of the patient's acceptance **DO NOT PROCEED WITH A TVUS.**

The patient should be asked whether they would like a chaperone present for the TVUS and should be documented on the report. (SOR, 2016 or own Trust's Chaperone Policy). .

https://www.sor.org/learning/document-library/intimate-examinations-and-chaperone-policy-0

2.12 Raising Concerns, safeguarding, Statutory Requirements For Reporting Female Genital Mutilation (FGM), Duty of Candour

Please follow your local policies on 'raising concerns' following 'The Francis Report 2013'. An executive summary of the *Report of the Mid Staffordshire NHS Foundation Trust Public Enquiry* can be found at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/279124/0947.pdf

All health professionals have a professional duty to report concerns they may have about patient's safety and service delivery.

3 Scanning at Satellite Sites

If a gynaecological abnormality has been seen on scan:

If the patient is unwell or bleeding heavily – and patient needs to be admitted – ring EPU/GAU for advice and/or admission.

If the patient is not unwell – significant RPOC noted– ring EPU/GAU for appointment, within 48 hours,

If a significant abnormality noted and the appearance appears benign – report to GP and suggest referral if appropriate.

If a significant abnormality noted e.g. ovarian mass– use phrase below in the report to GP and confirm receipt or follow local department process.

URGENT – ABNORMAL REPORT – REQUIRES ACTION

Any uncertainty seek advice with Lead Sonographer / Consultant Gynaecologist/Consultant Radiologist

4 Gynaecological Ultrasound

A transabdominal scan with a reasonably well filled bladder should always be performed.

Most patients will also require a transvaginal scan. This can only be performed when the patient has positively consented to the procedure.

If the TAUS scan is unsatisfactory due to an under filled bladder and the patient declines a TVUS scan, the Sonographer can either arrange for the patient to stay on in department and fill their bladder or rebook the examination.

If a TVUS scan is not possible , document in the report.

5 Images to be recorded (See also Appendix 1 p36)

The following structures to be assessed and imaged on local archiving system; for case review and audit purposes, the images should be representative of the overall examination and support the written report.

- Cervix with Doppler.
- Longitudinal uterus (with measurements of longitudinal length and AP depth).
- Transverse uterus (transverse width).
- Endometrial thickness (ET in mm)
- Longitudinal right/left ovary (longitudinal length and AP depth).
- Transverse right/left ovary (transverse width).
- Views of POD (with depth of free fluid in mm if present)
- Views of right and left kidneys according to local practice.
- If a bladder or ovarian volume is required, select the volume calc option on the ultrasound machine keyboard
- Check pelvic organ mobility (sliding sign). Document either positive or negative sliding sign.

6 Reporting Gynaecological scans (See also Appendix 2 p38)

The report should contain the following:

- Clinical indication - Menorrhagia, IMB, PCB
- Pain - location and severity
- LMP - Document in days and weeks.
- Contraception - COCP/ POP /IUD
- Surgery - Previous surgery e.g. C-section.
- PMB - whether on HRT or Tamoxifen
- Smears – whether normal and up to date
- Type of investigation e.g. TA or TV approach
- Document patient consent and if chaperone present during the examination
- Description of finding:

UTERUS :

Describe appearances-anteverted / retroverted, size, shape and echogenicity. If C-section scar present document if normal appearing or niche scar etc.

CERVIX:

If pathology noted in the endocervical canal. e.g Polyp ? Feeder vessel seen. The below phrase may be used in your report (as the ectocervix is not visualised on ultrasound).

'Cervical pathology cannot be excluded on ultrasound'

ENDOMETRIUM:

Comment on stage of menstrual cycle (e.g. luteal phase). Describe thickness and morphology (e.g. echogenic, polyps,) and whether the cavity is regular or not.

Measure maximum endometrial thickness (ET) in longitudinal section.

If fluid in the endometrial cavity, then the true ET = Max ET – fluid. The depth and nature of fluid (e.g. anechoic) dilating the cavity must be recorded in the report.

If there is a focal endometrial lesion, measure maximum ET at this point.

OVARIES:

Describe the size, shape, echotexture and location of ovaries (e.g. lateral or in POD).

FREE FLUID:

Presence and nature of free fluid in the pelvic cavity.

If free fluid present, appearance of serosal surfaces.

Presence of adnexal cysts or masses.

Pelvic mobility - sliding sign; mobility of ovaries with gentle probe pressure

KIDNEYS:

Document size, shape and echotexture. Note if there is any renal pathology.

BLADDER:

Describe US appearances.

OVERALL IMPRESSION:

Appearances suggestive of Adenomyosis (see Appendix 8 p45), Endometriosis (see Appendix 9 p46), unknown aetiology or other incidental findings must be documented in the report.

FURTHER MANAGEMENT

- Suggest re-scan in 3 months
- Suggest referral to a gynaecologist and whether this is urgent or not.
- Suggest measuring CA125 level and rescan in 4 months etc.

If the scan suggests malignancy add the phrase :

URGENT- ABNORMAL REPORT REQUIRES ACTION

Follow local pathway to report to the GP or requesting Consultant.

7 Endometrium (See APPENDIX 10 p.47)

TVUS is a recommended diagnostic tool to assess uterine pathology in women presenting with abnormal uterine bleeding (AUB)

Record the endometrial thickness, stage of cycle and any irregularities in appearance.

7.1 Endometrial thickness - Pre-menopausal

In pre-menopausal women, the most common causes for AUB are hormonal disturbances, fibroids, adenomyosis and endometrial polyps.

Proliferative phase:	**4 - 7 mm**
Secretory phase:	**7 - 16 mm**
>16mm	**Repeat scan in 4 / 6 weeks and if still thickened suggest referral**

7.2 Endometrial thickness – Postmenopausal

In post-menopausal women, causes for PMB can include atrophic endometrium, endometrial hyperplasia, endometrial/cervical cancer, endometrial/cervcal polyp, and submucosal fibroids.

PMB is defined as bleeding in women:

- More than 12 months after their Last Menstrual Period (LMP),
- Who have had a hysterectomy and are ≥ 51 years old
- Any unscheduled breakthrough bleeding, heavy withdrawal bleeding can also be considered as abnormal for women on HRT.

A single cut-off for the endometrial thickness for women with PMB of > 4mm is recommended (BCGS, 2014) (BMUS, 2018) (ACOG, 2018).

Please add this phrase into the report for PMB patients:

'Cervical pathology cannot be excluded on ultrasound'

(As an ultrasound cannot assess the ectocervix).

For asymptomatic patients with a thickened endometrium, a cut-off of >10mm is recommended (BCGS, 2014).

- A TVUS is the gold standard for assessing any menstrual or endometrial disorder, unless contraindicated.
- If measurement is greater than the thresholds stated above, then an urgent referral to PMB clinic is advised, even if no history of PMB so an individualised assessment of risk can be performed.
- Women who have PV bleeding on tamoxifen need an ultrasound (to check ovaries) and also need to be referred to Gynaecology for an endometrial biopsy, as ultrasound is not able to determine whether the endometrium is normal or not (even if ET is normal). Tamoxifen can cause sub-endometrial cystic change which makes it difficult to evaluate the endometrium. Tamoxifen is associated with an increase in risk of endometrial polyps and endometrial malignancy.
- If on the ultrasound examination the endometrium cannot be imaged satisfactorily, a referral for hysteroscopy is required.

8 Endometrial Fluid

Fluid in the endometrial cavity can result from a number of causes. Essentially there are three types of fluid:

Hydrometra: Anechoic fluid. Asymptomatic postmenopausal patients with ET < 4mm do not need to be referred (Curcic et al, 2009).

Haematometra: Haemorrhagic content / clot

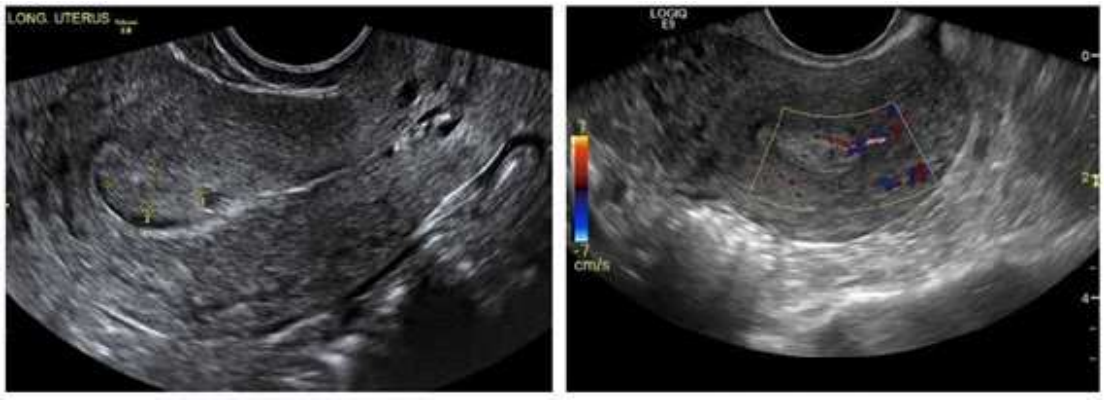
Pyometra: Pus

If the endometrium is not clearly visualised and there is fluid present a referral is advised. Comment on the echogenicity of the fluid as this may represent blood (haematometra) or pus (pyometra).

Carefully check the cervix to look for an obstructing lesion.

9 Endometrial polyps

Endometrial polyps are lesions that are either flat based (sessile) or pedunculated. If pedunculated, they can protrude through the cervix into the vagina.



Document;

- size,
- location,
- if a feeder vessel is present.

Suggest a gynaecology referral.

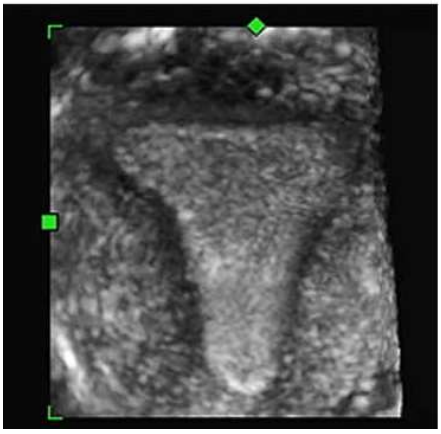
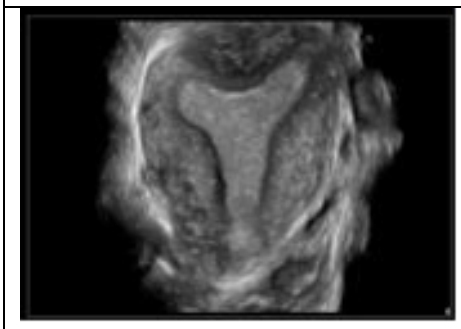
If unsure rebook patient at a different stage of cycle or seek advice.

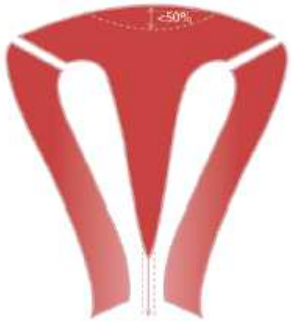
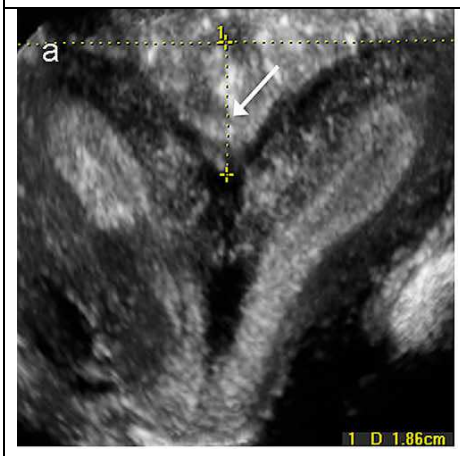
10 Congenital Uterine Anomalies (Shape)

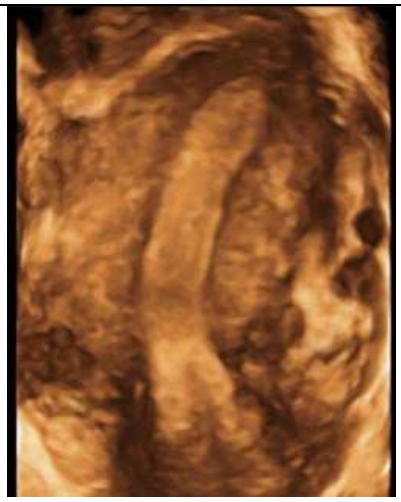
Congenital uterine anomalies can be associated with

- Subfertility
- Endometriosis
- Increased risk of miscarriage
- Obstetric complications.

In the majority of congenital uterine anomalies, a separation of the endometrial cavity can be seen on 2D ultrasound, however it is difficult to determine whether the uterus is arcuate, septate or bicornuate. A 3D ultrasound scan can be helpful demonstrating uterine anomalies.

Uterine Morphology	Schematic Representation	Explanation of Shape
Normal		
		Endometrial Fundus is straight or convex Serosal Fundus is uniformly convex or with <10mm indentation
Arcuate		
		Endometrial Fundal Indentation is >90° or <10mm Serosal Fundus is uniformly convex or with <10mm indentation

Subseptate		
		Septum does not extend to cervix Central septal angle <90° and indentation >10mm Serosal Fundus is uniformly convex or with <10mm indentation
Septate		
		Septum completely divides the cavity from fundus to cervix. Serosal Fundus is uniformly convex or with <10mm indentation
Bicornuate		
		Two uterine cavities which communicate in cervical region. Fundal indentation >10mm

Didelphys		
		Two well-formed cavities that do not communicate Fundal Indentation >10mm
Unicornuate +/- rudimentary horn		
		Single uterine cavity with single FT (banana shape) If rudimentary horn present, fundal indentation dividing the two cornua >10mm

(Ghi et al, 2009) (Grimbizis et al, 2013) (Abuhamad, 2014)

11 Fibroids **(See APPENDIX 11 p.48)**

Uterine fibroids are the most common benign tumour in women. They consist of smooth muscle cells and fibroblasts, which form hard, round, whorled tumours in the myometrium.

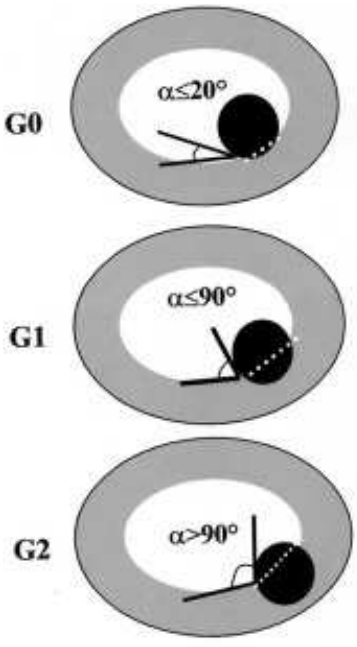
Symptoms of fibroids may include:

- Heavy menstrual bleeding.
- Pelvic pain.
- Secondary dysmenorrhoea.
- Urinary tract problems such as frequency, urgency, urinary incontinence, or hydronephrosis.

11.1 Submucosal fibroids – see image below

It may not be possible to get this much information on a TVUS alone and 3D and/or saline infusion sonography may be indicated.

Schematic drawing of the sonographic criteria - The white dotted line depicts the line joining the two myoma-endomyometrial edges of the myoma, which allows the percentage of intracavity and intramural portions of the myoma to be determined. The black lines show angle between the endometrium and the circumference of the fibroid on the same plane.



Grade 0 (G0): complete intracavity fibroid, polypoidal, without intramural extension

Grade 1 (G1): sessile fibroid, with the endocavity part protruding into the cavity >50%

Grade 2 (G2): sessile fibroid, with the endocavity part protruding into the cavity <50%

(Leone et al, 2003)

11.2 Document size and location

- The number of significant fibroids
- The size and position of the largest fibroid
- Position – comment if: submucosal, intramural or subserosal
- Indentation/distortion of the endometrial cavity if present (? is the cavity regular)

12 Polycystic Ovarian Syndrome (PCOS) - BMUS 2019

The BMUS referral guidance on ultrasound assessment for PCO (2019 Revision) is based on the International Evidence Based Guideline for the Assessment and Management of Polycystic Ovary Syndrome (ESHRE, 2018) states that “Ultrasound should not be used for the diagnosis of PCOS in those with a gynaecological age of < 8 years (< 8 years after menarche), due to the high incidence of multi-follicular ovaries in this life stage.

The recommendations are listed below;

1. The threshold for PCOM should be revised regularly with advancing ultrasound technology, and age-specific cut off values for PCOM should be defined”.
2. Transvaginal ultrasound is the preferred method for the diagnosis of PCO, subject to appropriate consent.
3. Transvaginal ultrasound transducers “with a frequency bandwidth that includes 8MHz” PCOM can be diagnosied when ≥ 20 follicles on either or both ovaries and/or ovarian volume ≥ 10ml if no corpora lutea, cysts or dominant follicles are present.
5. “If using older technology, the threshold for PCOM could be an ovarian volume ≥ 10ml on either ovary.
6. **In patients with irregular menstrual cycles and hyperandrogenism, an ovarian ultrasound is not necessary for PCOS diagnosis**, however, ultrasound will identify the complete PCOS phenotype.
7. In transabdominal ultrasound reporting is best focussed on ovarian volume with a threshold of ≥ 10ml, given the difficulty of reliably assessing follicle number with this approach.
8. Clear protocols are recommended for reporting follicle number per ovary and ovarian volume on ultrasound. Recommended minimum reporting standards include:

- last menstrual period
- transducer bandwidth frequency
- approach/route assessed
- total follicle number per ovary measuring 2-9mm
- three dimensions and volume of each ovary

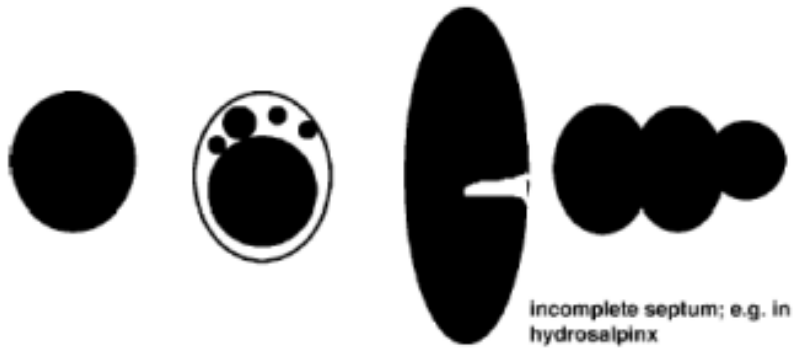
- Reporting of endometrial thickness and appearance is preferred – 3-layer endometrial assessment may be useful to screen for endometrial pathology
- other ovarian and uterine pathology, as well as ovarian cysts, corpus luteum, dominant follicles ≥ equal 10mm

9. There is a need for training in careful and meticulous follicle counting per ovary, to improve reporting."

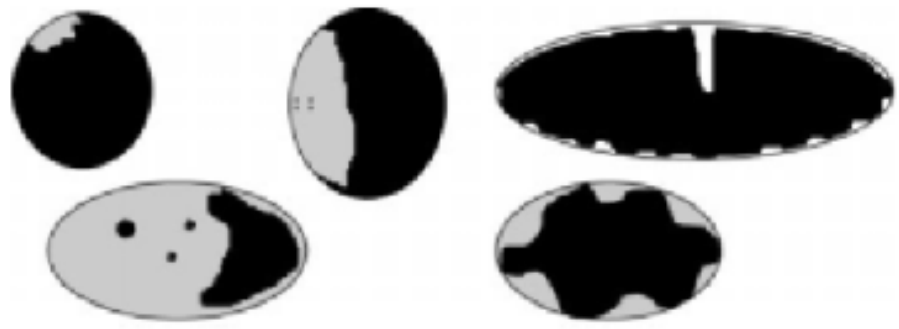
13 Ovarian cysts / Adnexal masses

For adnexal cyst/lesion, the overall type of lesion should be described according to the International Ovarian Tumour Analysis (IOTA) Group guidelines (Timmerman et al, 2013) **(see Appendix 3 p39)**.

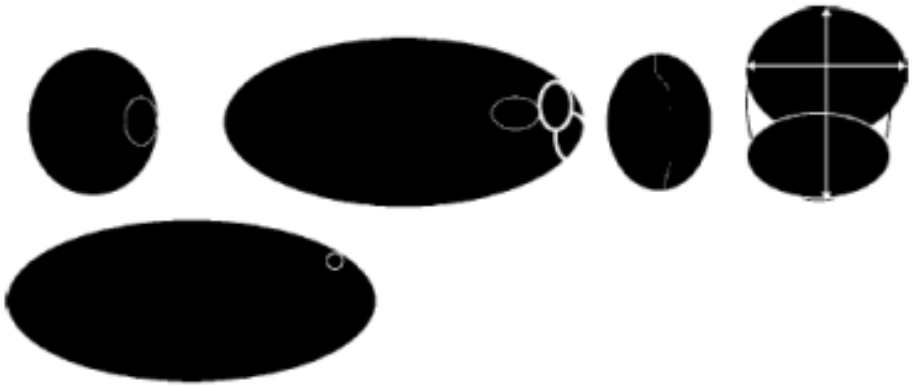
1 Unilocular Cyst – a cyst without septa, solid parts or papillary structure



2 Unilocular-Solid Cyst – a unilocular cyst with a measureable solid component or at least one papillary structure.

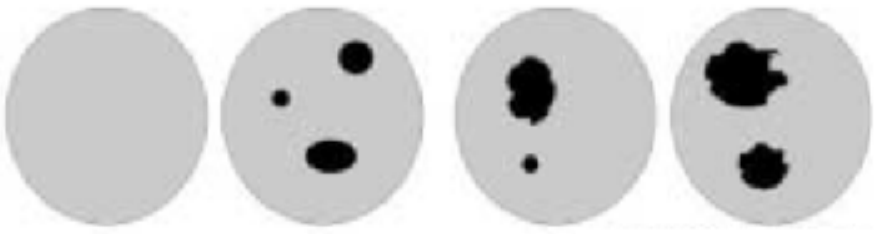


3 Multilocular Cyst – a cyst with at least one septum but no measurable solid component or papillary projections. The lesion is measured in the planes indicated by the arrows.



4 Multilocular-Solid Cyst – a multilocular cyst with a measurable solid component or at least one papillary structure (solid tumour with an irregular cyst wall).

5 Solid – a tumour where the solid components comprise 80% or more of the tumour when assessed in a 2-dimensional section. A solid tumour may contain papillary projections protruding into internal small cysts.



(Timmerman et al, 2013)

13.1 Features of the cyst

Describe the features of any cyst seen according to the IOTA criteria. The paper proforma **(see Appendix 4 p40)** or Simple Descriptors **(see Appendix 5 p41)** may be helpful when writing your report**.**

Describe:

- Lesion diameter in 3 planes
- Number of locules (count if up to 10, otherwise say >10)
- Cyst contents – anechoic, low-level, ground-glass, haemorrhagic or mixed echo
- Solid components including maximum diameter of solid component
- Solid papillary projections of >3 mm height – number and height and how many are vascular
- Septum / septa – complete or incomplete (as seen in hydrosalpinx)
- Presence of shadowing
- External cyst wall characteristics – regular or irregular
- Internal cyst wall -regular or irregular
- Overall vascularity using Colour Doppler at PRF 0.6 (colour score 1 - 4)
- Unilateral abnormality or Bilateral abnormality
- Presence of ascites / serosal abnormality

Below a link to an ultrasound video describing the prediction of malignancy using the IOTA groups definitions .This has been created by Dr Susanne Johnson FRCOG, Associate Specialist in Gynaecology at the PAH, Southampton.

https://gynaecologyultrasound.com/iota-inc-adnex/

13.2 Summary of management of ovarian cyst in PRE-menopausal women

(RCOG, 2011)

Simple Cyst: A well-defined simple unilocular cyst with no internal echoes measuring = 5 cm should be reported as most likely to be physiological and no follow up is required.

SIZE	OVARIAN CYST	ACTION
< 5 cm	Simple, haemorrhagic	normal – no follow up
< 5 cm	Dermoid	Repeat in 1 year GP to arrange If inc. by >2cm - Urgent Referral If no change – No Follow Up
Any size	Endometrioma	Repeat in 3 months to distinguish from haemorrhagic cyst then refer to Gynae
> 5 cm	Haemorrhagic	Repeat in 3 months to ensure resolution
> 5 cm	Asymptomatic, benign features	Refer to Gynae
Any size	Symptomatic and/or suspicious features	Urgent Gynae referral and CA125
If unsure, seek advice from senior sonographer/radiologist/gynaecologist **In the report advise if other imaging modality necessary and document if advice sought from colleague.**		

(Sinha et al, 2016).

(Caspi, 1997)

(Andreotti et al, 2019)

13.3 Summary of Management of ovarian cyst in POST-menopausal women

SIZE	OVARIAN CYST	ACTION
≤ 3 cm	simple, unilateral, unilocular	normal – no follow up
> 3cm	Simple, unilateral, unilocular and asymptomatic	Advise immediate CA125 repeat scan in 4 months with CA125 If unchanged – No follow up If changed – Refer to Gynae
> 3cm	symptomatic/suspicious features	Urgent Gynae referral with CA125
> 5 cm	Any	Urgent Gynae referral with CA125
If unsure, seek advice from senior sonographer/radiologist/gynaecologist **In the report advise if other imaging modality necessary and document if advice sought from colleague.**		

An anechoic, avascular unilocular cyst measuring ≤ 3 cm requires no follow up. Simple, unilateral, unilocular cysts ≤ 5 cm in diameter have a low risk of malignancy. In the presence of normal serum CA125 levels (< 30iu/ml) they can be managed conservatively with follow-up ultrasound scans and repeat CA125 measurement, every 4 months for 1 year.

Write the following in the report:

'Suggest measuring CA 125 level and follow up scan in 4 months'.

If no change after 1 year then discharge to GP

Simple cysts >5cm in post-menopausal women should automatically be referred for gynaecological assessment.

All complex ovarian cysts / adnexal masses should be described in further detail.

(ACR, 2013)
(Andreotti et al, 2019)

14 Endometriosis (Refer to Appendix 9 p46)

This common disease is often missed on ultrasound which may lead to a long delay in diagnosis (up to 10 years). There are many features which can be seen on ultrasound (Dunselman et al). For patients with pelvic pain or menstrual disorders (especially if they have bowel symptoms during a period), perform a routine pelvic scan and then also look at:

- Bladder - check the bladder for a nodule between the anterior surface of the uterus and the bladder
- Uterus – is there any adenomyosis (Appendix 9) - report whether this is focal or general
- Ovarian endometriomas

Check the position of the ovaries – are they:

- lateral
- In the POD
- Adherent to the uterus
- Adherent to each other ("kissing ovaries")

Sliding sign in Pouch of Douglas

Gently press the cervix with the TV probe and look behind the cervix – if the bowel (anterior rectum) and the cervix move separately (in opposite directions usually) this is a positive sliding sign (i.e. normal).

If there is no movement, this is a negative sliding sign and is very predictive of POD obliteration (due to severe endometriosis).

Sliding sign at uterine fundus – gently press on lower abdominal wall to ballot the uterine fundus between the palpating hand and the TV probe (being held in the right hand) and look whether the uterus and the bowel (rectosigmoid) move freely from one another. Free movement is a positive sliding sign.

Reduced or no movement is a negative sliding sign and again predictive of severe endometriosis.

An abnormal Sliding Sign is a red flag sign for further investigation for endometriosis (Hudelist et al, 2013).

- Rectovaginal septum endometriosis can be more difficult to diagnose.
- Uterosacral ligaments – you may see a nodule behind the cervix, into which loops of bowel are pulled up into an 'indian headdress sign'.
- Point-specific tenderness - While you are scanning, ask the patient where she is most tender, then really look carefully (and gently) at this area. You may find a nodule of endometriosis in the POD.
- Ureters - Look for ureteric dilatation near the ovarian fossa, and if appropriate scan the kidneys to exclude hydronephrosis (or suggest this is done separately). High suspicion of endometriosis and in doubt, seek advice with Lead Sonographer to review the images.

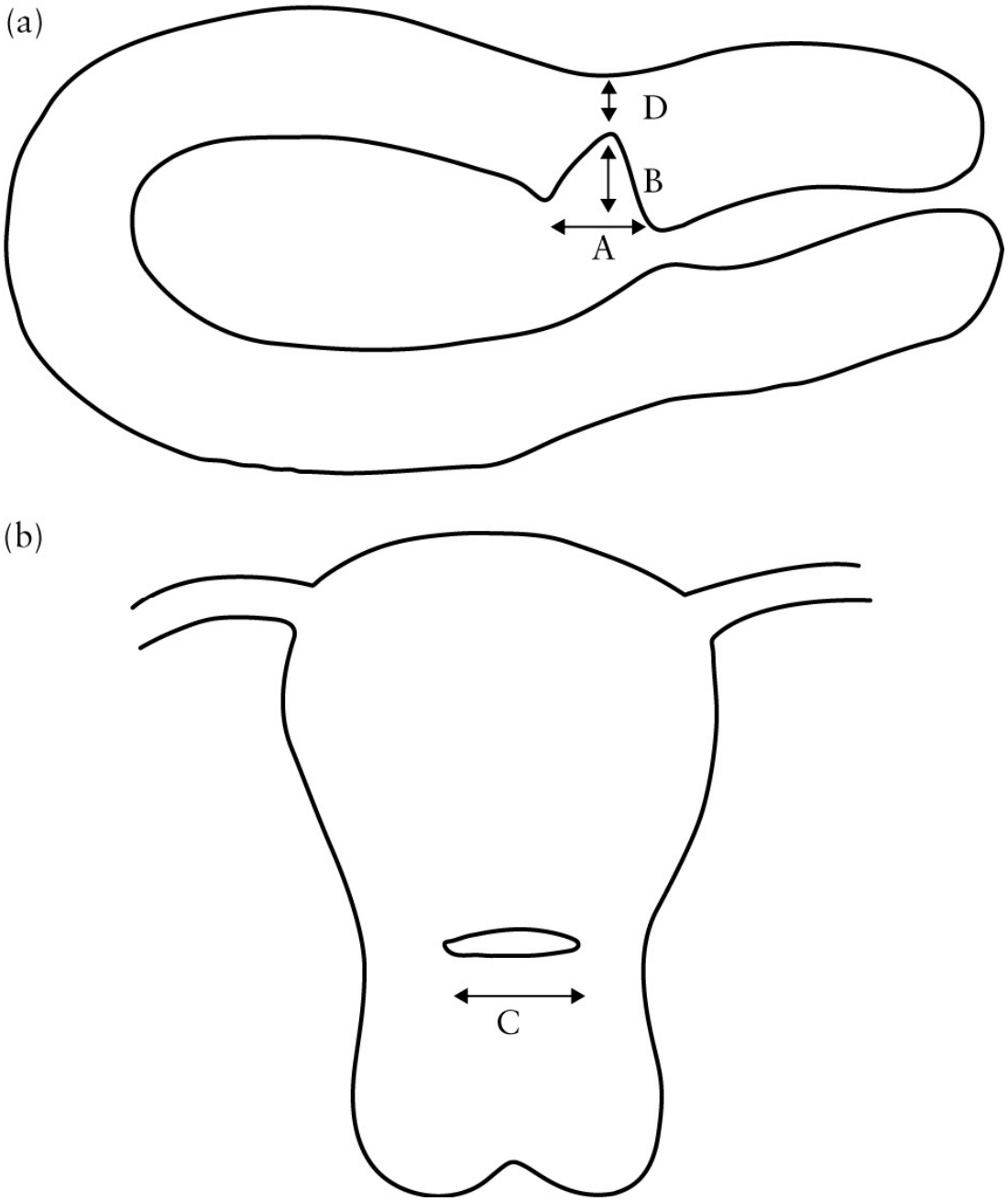
Below is a link to a video created by Dr Susanne Johnson showing a step by step guide for the diagnosis of endometriosis on a pelvic ultrasound.

https://gynaecologyultrasound.com/abcidea-endometriosis/

15 C-Section Niche Scar

Caesarean Section (CS) rates are increasing in the UK. The uterine scar or "niche" has been reported as an important feature that is associated with CS complications. Niche scars may be the causative factor for abnormal uterine bleeding, dysmenorrhea, obstetric complications in subsequent pregnancies and possibly subfertility.

The accurate measurement and description of the niche scar is becoming increasingly important, for the clinical assessment of gynaecological symptoms and for the planning of possible surgical treatment.



(Naji et al, 2012)

The diagram above is the standardized approach to measure CS scar defect, showing the scar dimensions in the sagittal (a) and transverse (b) planes.

A. Width of the hypoechoic part of the scar (apparent defect)
B. Depth of hypoechoic part of scar
C. Length of hypoechoic part of scar
D. Residual myometrial thickness.

16 Infertility

When taking the history, this information is relevant:

- **Gravity** (How many times have you been pregnant?)
- **Parity** (How many times have you delivered a baby >24/40?)
- **Primary subfertility –** patient has never been pregnant
- **Secondary subfertility** – patient has been pregnant in past
- **Previous surgery** e.g. caesarean section, ERPC, LLETZ,
- **Last Menstrual Period** (LMP)

How long has patient been trying to conceive?

Has there been hormone treatment?

Scan

Do a routine pelvic scan, to include both TA and TV approach. Assess for:

- **Uterus** – fibroids, adenomyosis, shape (3D if available)
- **Endometrium** – polyps, Ashermann's syndrome.

Comment on the endometrial appearance and stage of cycle, if the endometrium and ovary are synchronised (e.g. presence of a corpus luteum and luteal phase endometrium).

- **Ovaries** – polycystic ovaries
- **Hydrosalpinx** – check between uterus and ovary.
- **Endometriosis** – positive or negative sliding sign
- **Adhesions** – POD or adnexa

17 Intrauterine Device (IUD) - Copper/Hormone Releasing IUD

Ultrasound is the modality of choice when evaluating the IUD position in patients with pelvic pain, abnormal bleeding, or absent threads. The IUD can become partially expelled, rotated, embedded in the myometrium, or perforating uterine serosa. This can be caused by the uterine anatomy such as a small uterine cavity or congenital uterine anomaly. The uterus will continuously expel the foreign body if fitted incorrectly especially during menstruation.

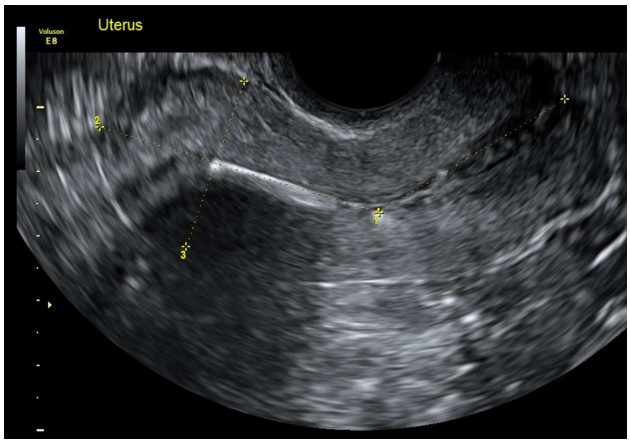
The optimal positon of a copper or hormone-releasing IUD is within the upper fundal section of the uterine cavity, above the level of the internal cervical os. The threads can usually be seen in the cervical canal.

The stem is usually easily identified as a linear echogenic structure. While the arms of the copper IUD are also fully echogenic, the arms of the levonorgestrel-releasing IUS (Mirena) are only echogenic at the proximal and distal ends, with characteristic central posterior acoustic shadowing on transverse images. 3D US offers further assessment of the coronal view, allowing for a more careful evaluation of the arm positioning.

The endometrium is usually thin with a Mirena, but can be thick in the luteal phase with a copper coil. Coils do not inhibit ovulation.

(Wildemeersh et al, 2016)

(FSRH, 2019)



Images courtesy of D.Murphy

See Appendix 7 (p44) for images of displaced coils.

Displacement of the IUD can occur if an IUD is too large for the uterus, it will exert pressure on the uterine wall. The uterus will react with heavy symmetrical or asymmetrical contractions displacing the IUD resulting in either:

• Possible embedment

• Partial or total expulsion.

• Uterine perforation

Women can present with PV bleeding, abdominal or pelvic pain. If the IUD is not seen on ultrasound, the referring clinician may need to request a pelvic X-ray.

https://pubs.rsna.org/doi/full/10.1148/rg.322115068

18 Essure placement

Some women are sterilised with Essure coils. These are small metal microinserts (coils), placed hysteroscopically, one on each side, in the interstitial portion of the Fallopian tube.

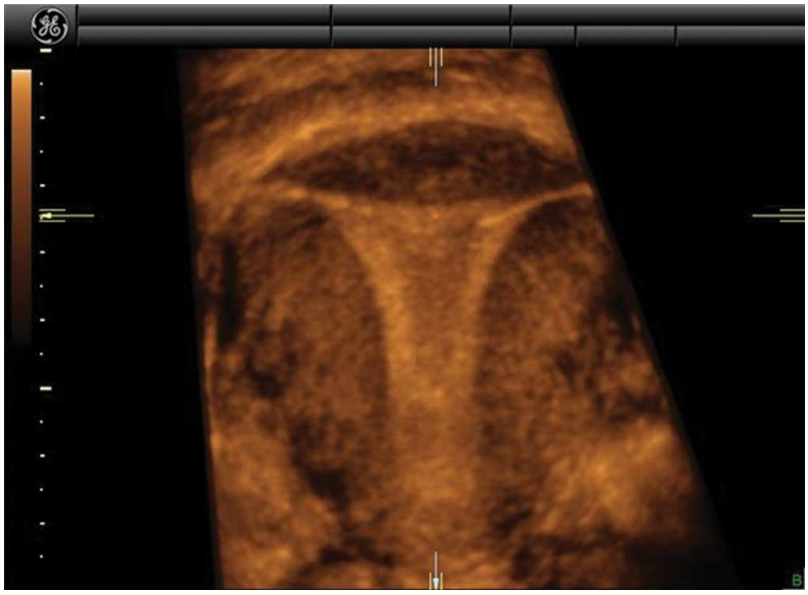
If placement was optimal, then a TV scan can be performed at 3 months, to check the position of the coils. (In the meantime alternative contraception is used.)

The coils should be clearly imaged as echogenic non-shadowing linear structures originating in the cornua or uterine cavity and following the expected location of the fallopian tubes toward the adnexa on both transverse and sagittal planes**.**

The proximal part of the coil should be seen just within the uterine cavity, but the position is still acceptable if it is within the 'outer line' (uterotubal junction).

Good images are achieved using 3D.

If there is uncertainty about the position of the coil, an HSG or pelvic XR may be required.



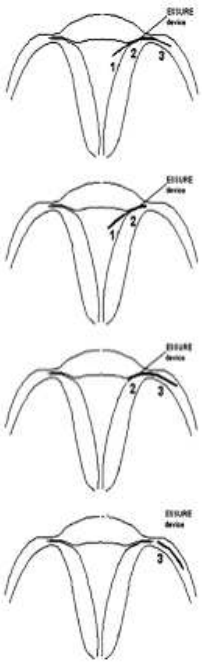
(Clark and Balogon, 2008)

The variable positions are (see image below) :

- the perfect position (1 + 2 + 3) included an intrauterine portion, a cornual portion and an isthmic portion (optimal),
- proximal position (1 + 2) included an intrauterine and cornual portion (suboptimal),
- distal position (2 + 3) with no intracavitary portion (suboptimal) and

very distal position (3 only) located in the isthmic portion of the fallopian tube (inadequate).

3D-US classification: perfect position (1 + 2 + 3), proximal position (1 + 2), distal position (2 · and very distal position (3 only).



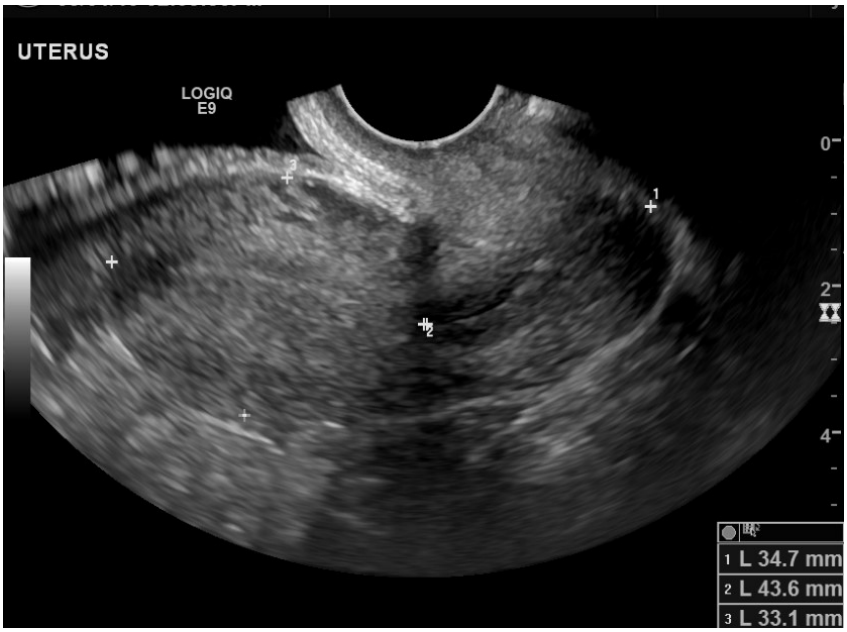
(Legendre et al, 2011)

19 Vulval/Vaginal Lumps

Ideally a linear high frequency probe (>15MHz) should be used. Scanning should be quick using plenty of gel with minimal pressure applied over the lesion.
Describe ultrasound appearances (i.e. echotexture ,vascularity) and document he size of the lesion.
If normal, no soft tissue mass or collection seen, this does not exclude an abnormality and a referral to gynae should be considered for further assessment.

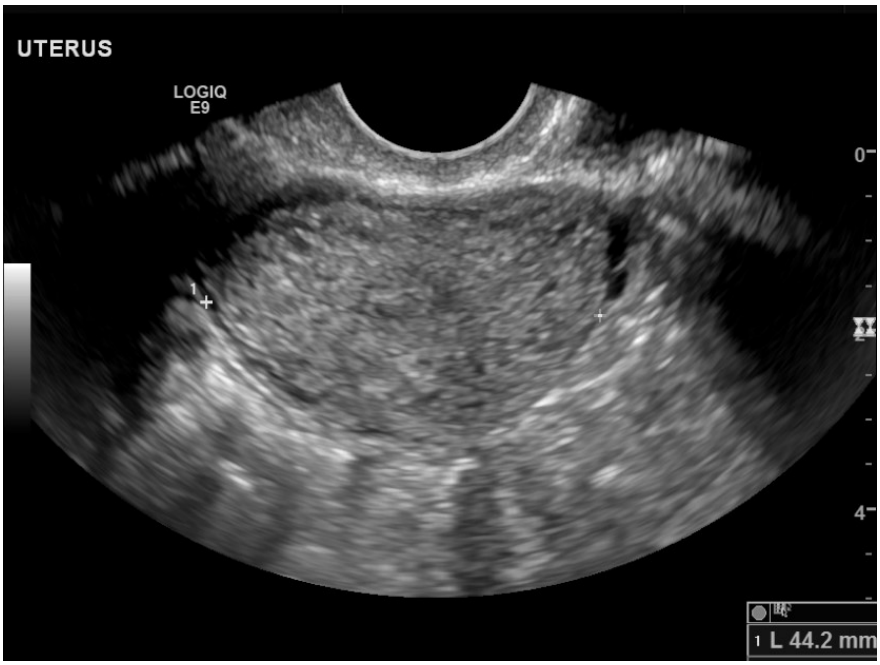
(Cheung, 2018)

Appendix 1 Images to be Recorded

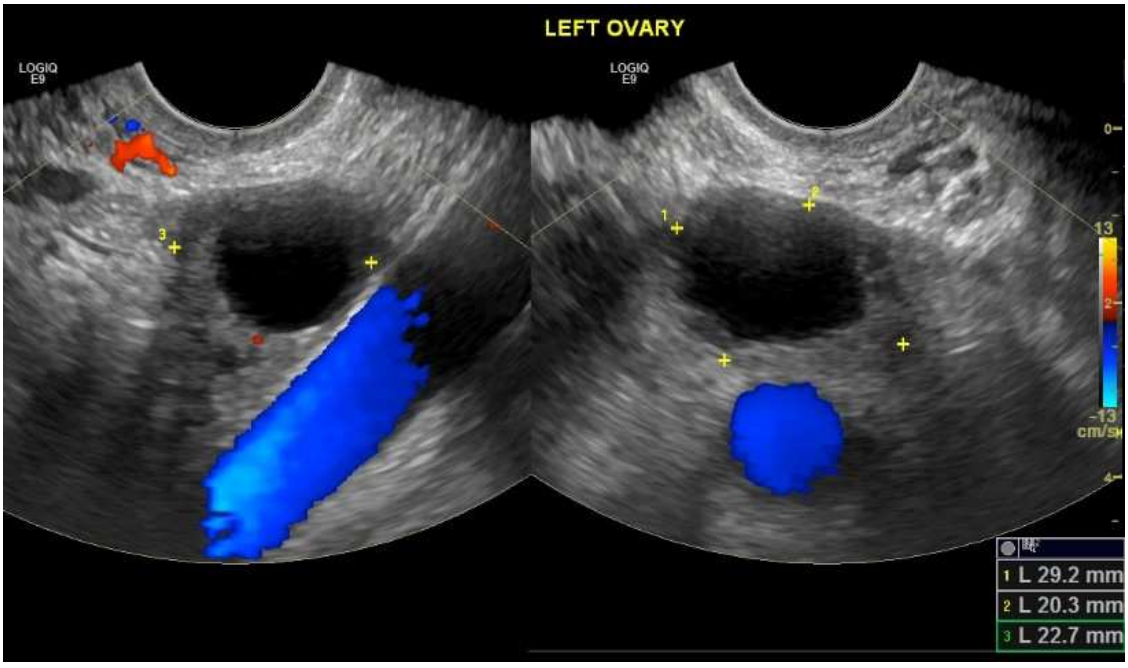


Longitudinal Uterus – length and AP depth

Transverse Uterus



Endometrial Thickness



Ovaries – length, AP depth and transverse width

(images courtesy of D. Murphy)

Appendix 2 Gynaecology Report

(A reporting template that could be considered, is outlined below)

Clinical Indication

History:

LMP

Contraception

Surgery

G P

Smear

(TA and/or) TV ultrasound pelvis:

Patient Consent:

The uterus is (anteverted or retroverted) and measures ... x ... x ... mm. It is normal in shape and echogenicity.

The endometrium is smooth and regular with an ET of ... mm.

The left ovary measures...x...x... mm and is normal.

The right ovary measures ...x...x...x mm and is normal.

No adnexal masses, cysts or free fluid in the pelvis.

No pelvic tenderness on scanning and normal pelvic mobility.

Document if the scan was tolerated well and if there was moderate blood on the probe.

Impression :

.....

Appendix 3 IOTA criteria

If the lesion is not obvious from Simple Descriptors, then you may be able to apply Simple Rules (these are applicable to around 75% of adnexal masses).

Start by describing whether there are any benign features and/or malignant features (see table below) and then either circle a feature or put an X in the box :

	IOTA FEATURES		
Benign Features	Unilocular Cyst	Malignant Features	Irregular Solid Tumour
	Largest Solid Component <7mm		Ascites
	Acoustic Shadows		At least four papillary structures
	Smooth Multilocular Tumour <100mm		Irregular Multilocular Solid Tumour >100mm
	No Blood Flow (1+)		Very Strong Blood Flow (4+)

Then apply the Simple Rules:

Rule 1: If one or more M features are present in absence of B feature, mass is classified as malignant.

Rule 2: If one or more B features are present in absence of M feature, mass is classified as benign.

Rule 3: If both M features and B features are present, or if no B or M features are present, result is inconclusive

So the conclusion from the Simple Rules is :

Benign / Uncertain / Malignant

Management of asymptomatic ovarian and other adnexal cysts imaged at US Society of Radiologists in Ultrasound consensus conference statement 2010

Appendix 4 Description of adnexal mass using IOTA definitions

Age yrs

Premenopausal / postmenopausal pre / post

Unilocular / unilocular-solid / multilocular / multilocular-solid / solid

Number of locules <10 or >10

Cyst contents: anechoic / low-level / ground glass / haemorrhagic / mixed

Solid material yes / no

Largest diameter of the lesion mm

Largest diameter of solid material mm

Internal cyst wall regular or irregular

Number of papillations >3 mm height 0 / 1 / 2 / 3 / 4 / >4

Vascularity of papillations yes / no

Overall vascularity colour score 1 / 2 / 3 / 4

Shadows yes / no

Ascites yes / no

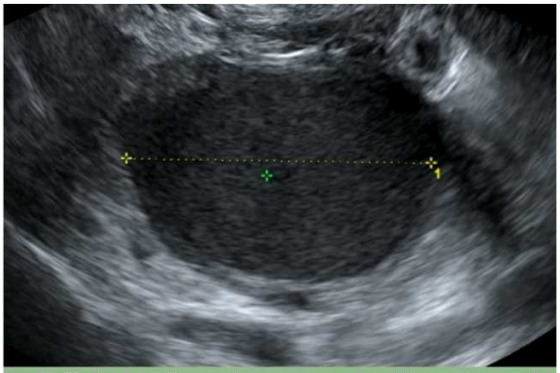
Bilateral lesions yes / no

Evidence of metastases (omentum or serosal nodules) yes / no

Ca125 level (if known and with date)

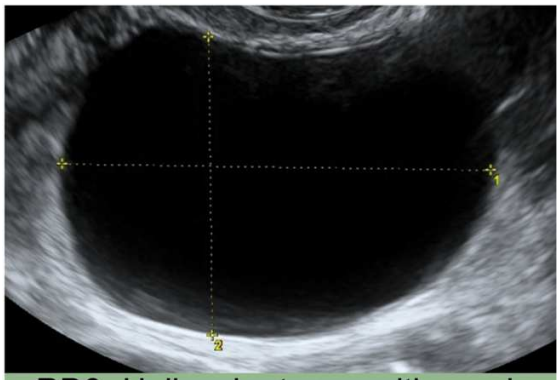
Appendix 5 Subjective assessment – Simple Descriptors

Benign descriptors (BD) (also see images in Quick Guide)



BD1: Unilocular tumor with ground glass echogenicity in premenopausal woman (suggestive of endometriosis)

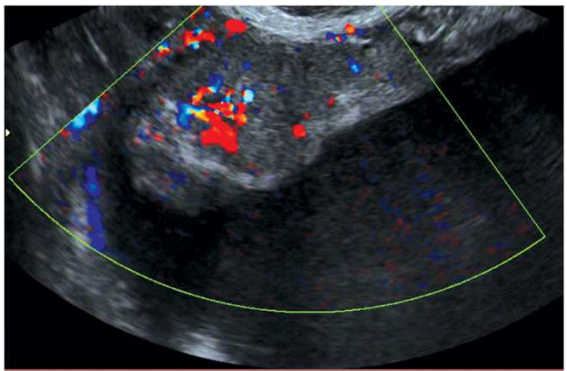
BD2: Unilocular tumor with mixed echogenicity and acoustic shadows in premenopausal woman (suggestive of benign cystic teratoma)



BD3: Unilocular tumor with regular walls and max diameter of the lesion < 10 cm (suggestive of simple cyst or cystadenoma)

BD4: Remaining unilocular tumor with regular walls

Malignant descriptor (MD)



MD1: Tumor with ascites and at least moderate color Doppler blood flow in postmenopausal woman

(Timmerman et al, 2013)

APPENDIX 6 Gynaecology Ultrasound Image Audit

(An audit template that could be considered, is outlined below)

Name ……..

Complexity of Scan: 0 1 2 3 4 5 6 7 8 9 10

(0 = Diagnostic images not achieved, 10 = Easy)

Clinical Indications: ……..

Reasons if difficult ……

Images Recorded

Transabdominal	**Poor**	**Acceptable**	**Good**
Uterus			
Endometrium			
Right Ovary			
Left Ovary			

Transvaginal	**Poor**	**Acceptable**	**Good**
Uterus			
Endometrial Thickness			
Cervix			
Right Ovary (tranverse)			
Right Ovary (longitudinal)			
Left Ovary (tranverse)			
Left Ovary (longitudinal)			
POD			

Image Quality

	Poor	Acceptable	Good
Depth, Zoom			
Focus			
Gain			
Probe Selection			

Demonstration of Pathology

Poor	Acceptable	Good

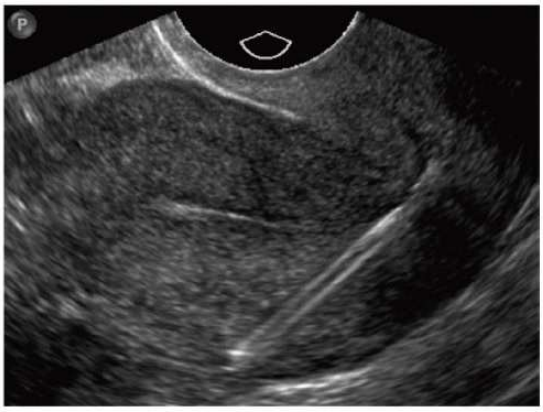
Diagnosis of Pathology

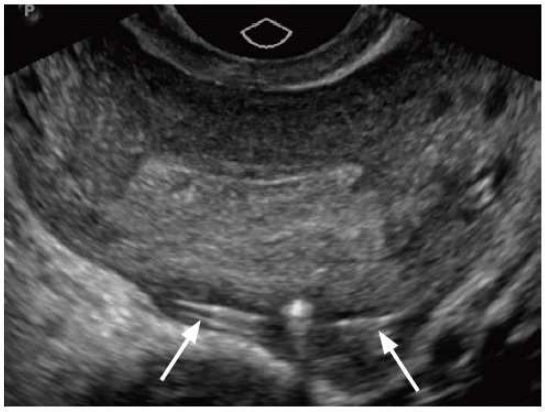
Correct	Incorrect

Overall Scan Quality

Poor	Acceptable	Good

APPENDIX 7 – Displaced / Incorrect position of IUCDs





APPENDIX 8 **(Downloaded from** http://www.volusonclub.net/emea/posters)

GE Healthcare

Modern iconography of adenomyosis

Benefits of the coronal section

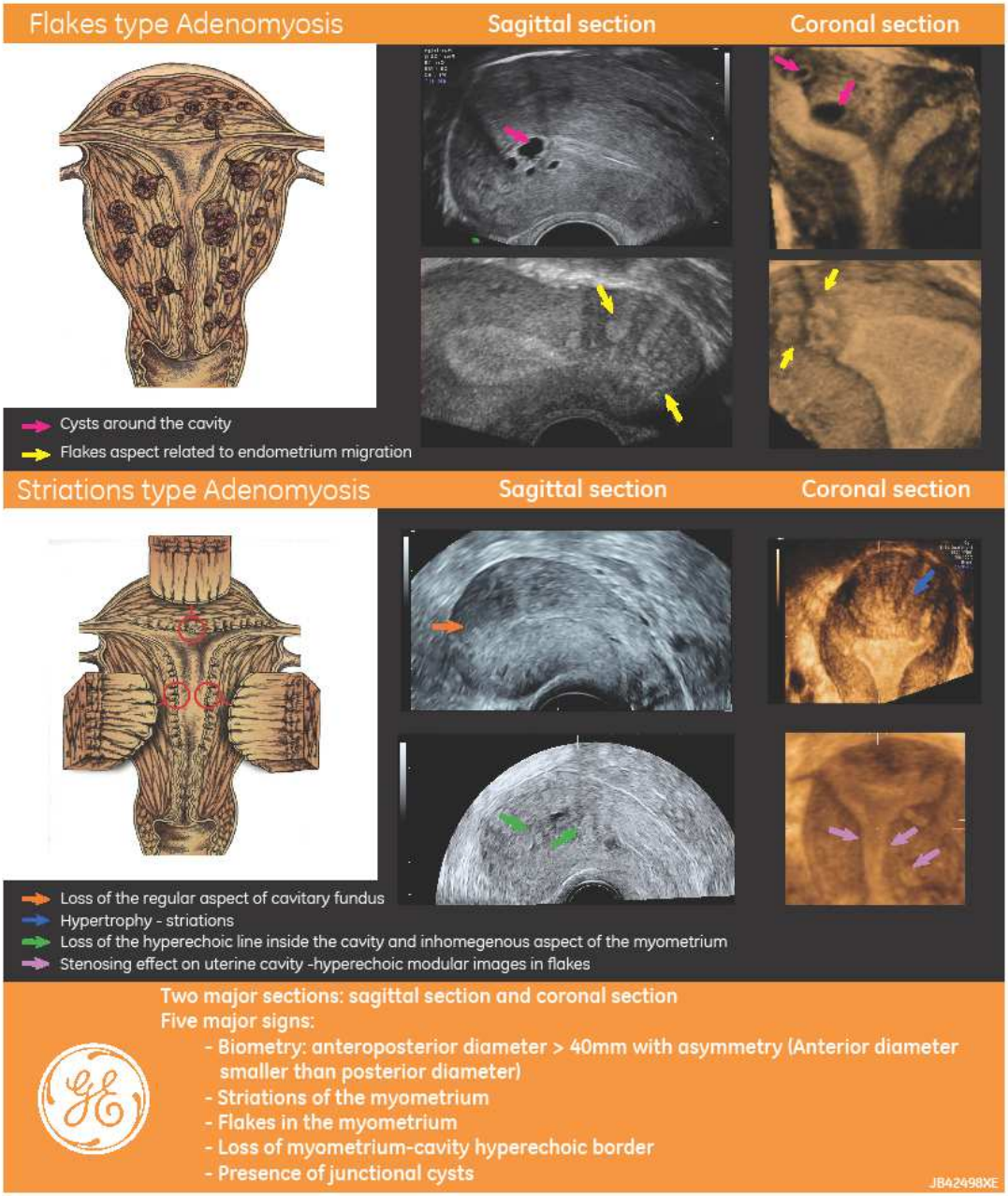
Gynecology

Dr Jean Marc Levaillant
Hôpital Kremlin Bicêtre
France

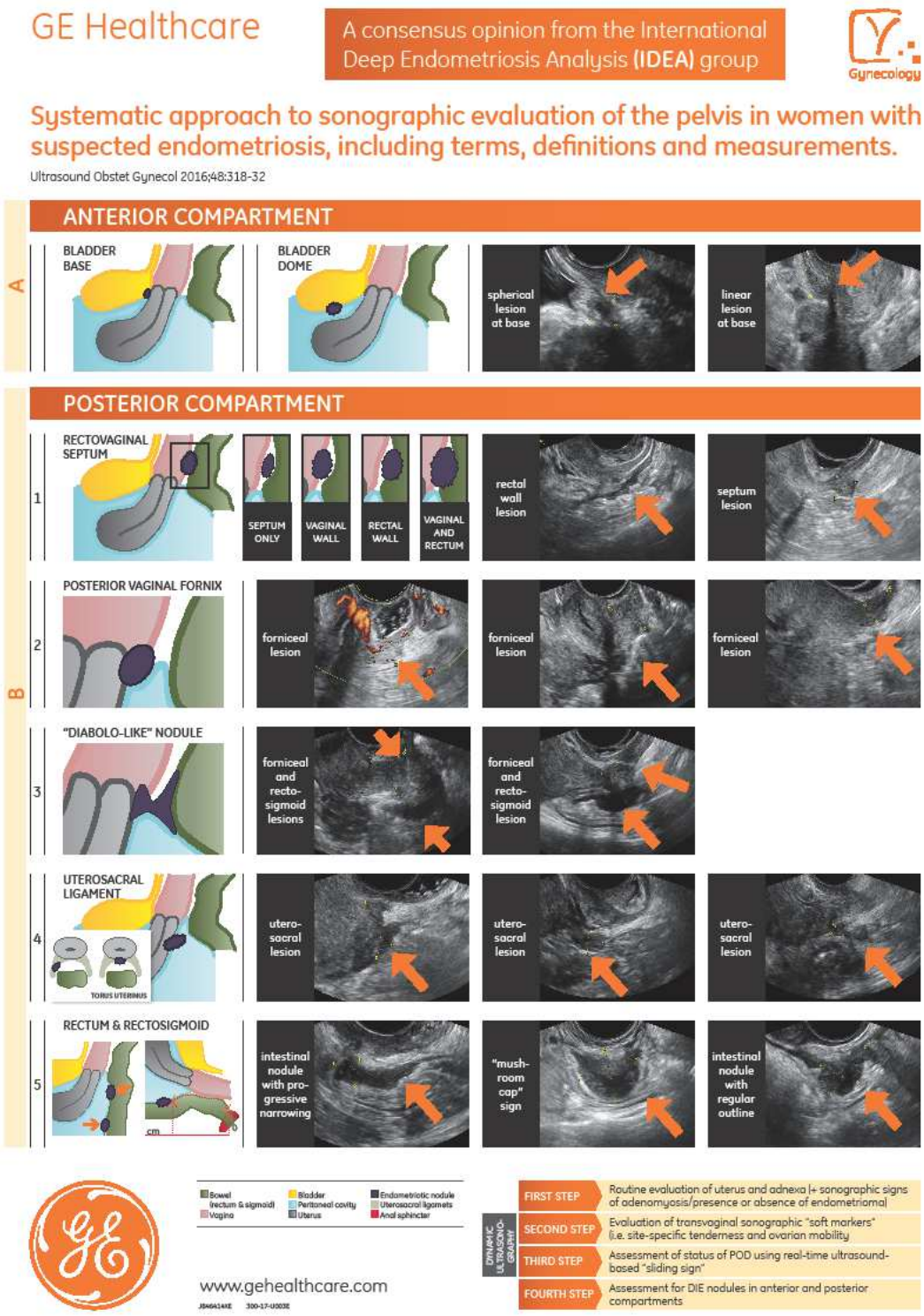
Dr Bernard Benoit
Hôpital Princesse Grace
Monaco

Dr Perrine Capmas
Hôpital Kremlin Bicêtre
France

Pr Hervé Fernandez
Hôpital Kremlin Bicêtre
France



APPENDIX 9 **(Downloaded from http://www.volusonclub.net/emea/posters)**



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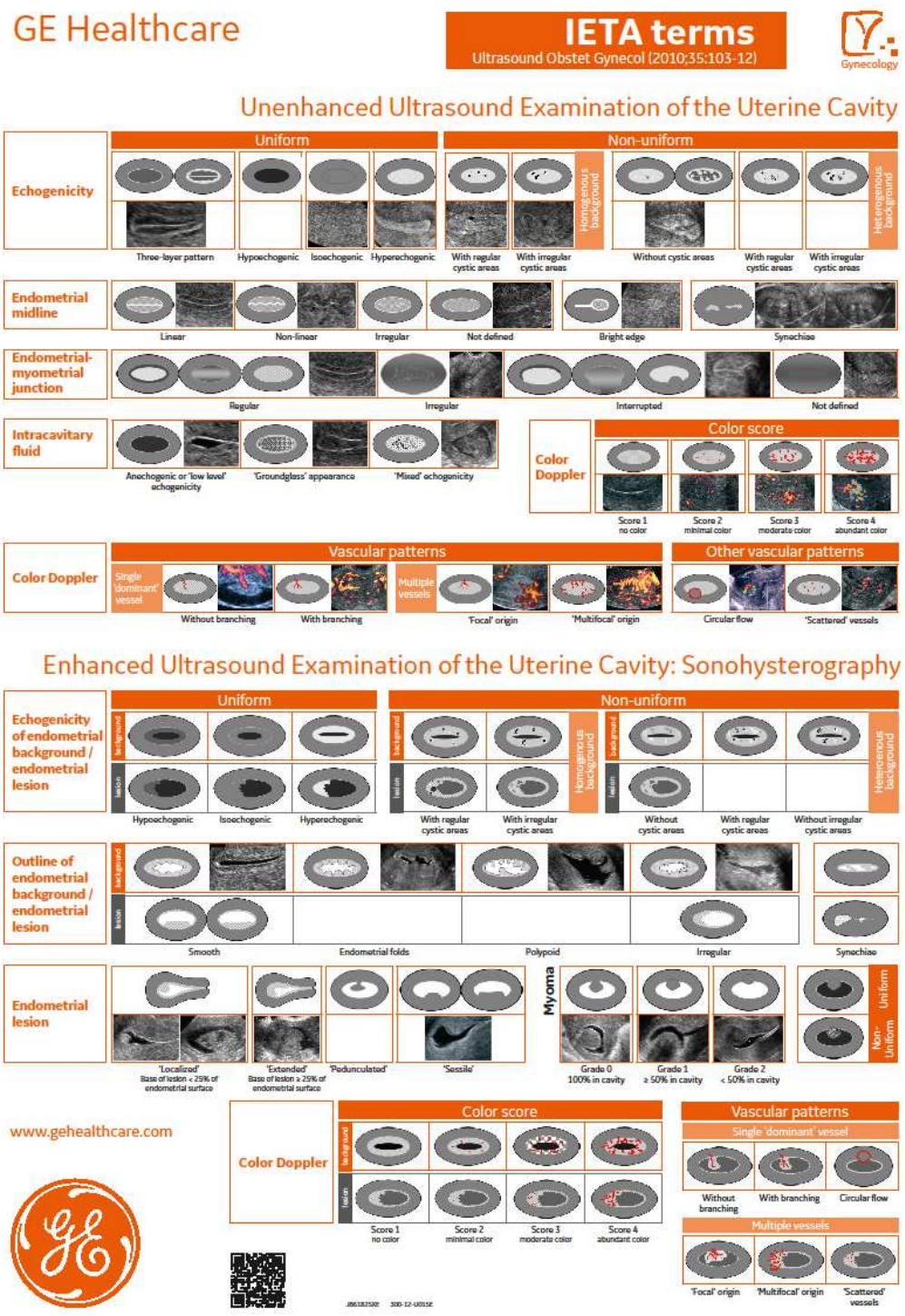
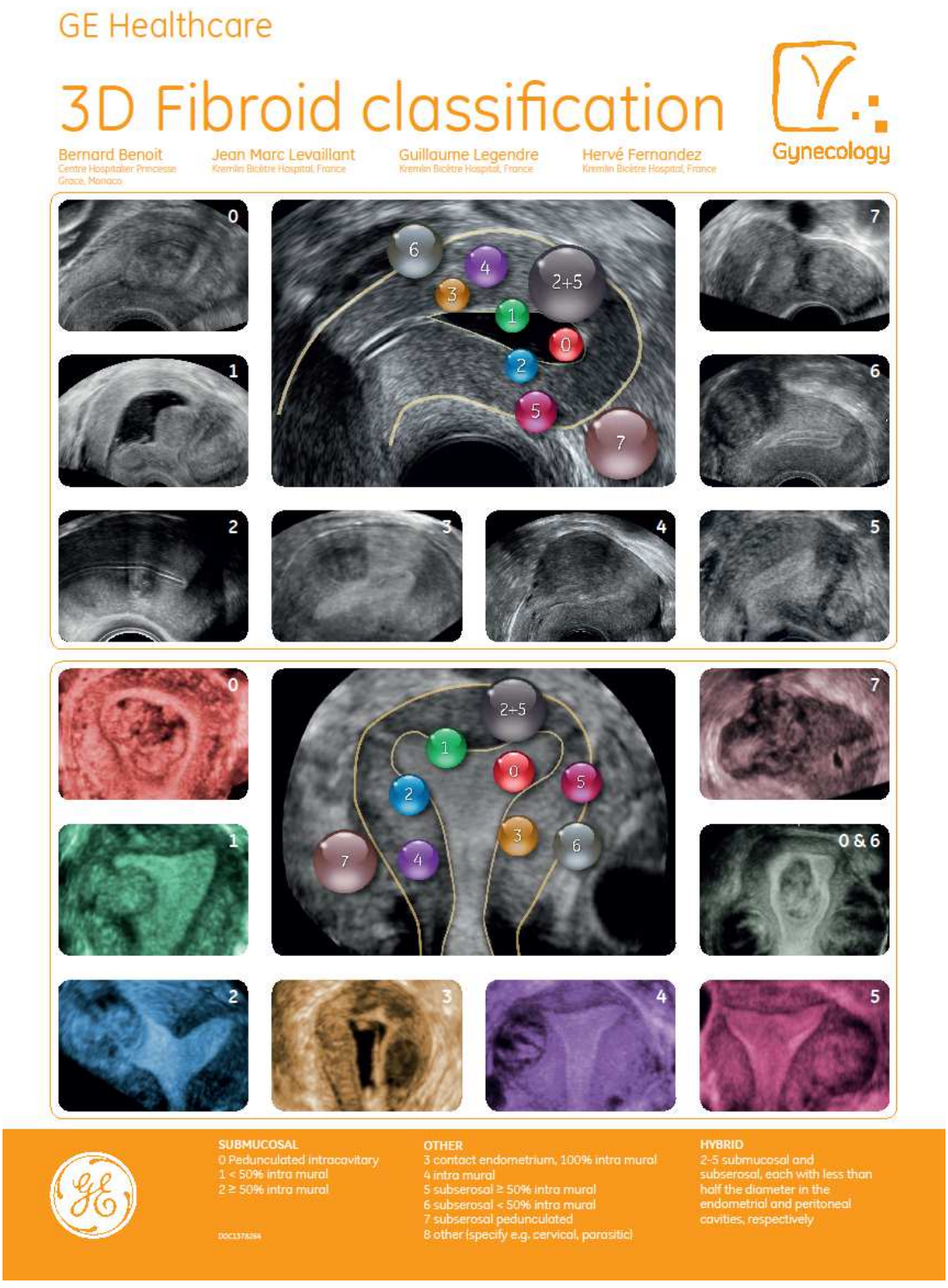


Appendix 11(Downloaded from http://www.volusonclub.net/emea/posters)



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