

HWFMU

ULTRASOUND OF THE PELVIS PROTOCOL

ROLE OF ULTRASOUND

- To examine the uterus, ovaries, cervix, vagina and adnexae.
- Classification of a mass identified on other modalities eg solid, cystic, mixed.
- Post surgical complications eg abscess, oedema.
- Guidance of injections, aspiration or biopsy.
- Assistance with IVF.
- To identify the relationship of normal anatomy and pathology to each other.

INDICATIONS

- P/V bleeding/discharge
- Menorrhagia
- Metrorrhagia (irregular uterine bleeding)
- Polymenorrhea
- Menometrorrhagia (excessive irregular bleeding)
- Amenorrhea
- Oligomenorrhea
- Pelvic pain
- Dysmenorrhea (Painful Menses)
- F/H uterine or ovarian Cancer
- Palpable lump
- Infertility- primary or secondary (evaluation, monitoring and/or treatment)
- Anomalies/evaluation
- Follow-up of previous abnormality
- Precocious Puberty, delayed menses or vaginal bleeding in a prepubertal child.
- postmenopausal bleeding
- Signs/symptoms of pelvic infection
- IUCD Localisation (intrauterine contraceptive Device)
- Guidance for interventional or surgical procedures
- urinary incontinence or pelvic organ prolapse

LIMITATIONS

- Transvaginal scanning is contra-indicated if the patient is not yet sexually active or cannot provide informed consent.
- Large patient habitus will reduce detail, particularly via the transabdominal approach.
- Excessive bowel gas can obscure the ovaries.
- Patients who are unsuitable for transvaginal scanning but cannot adequately fill their bladder for an acoustic transabdominal window.

EQUIPMENT SELECTION AND TECHNIQUE

- Transabdominal approach initially. Use the highest frequency probe to gain adequate penetration. This will be between a 2-7MHz range curved linear array or sector probe with Colour Doppler capabilities.
- Transvaginal probe 4-7MHz.
- A curved linear array probe can be used via the perineum to assess the vagina. Cover the probe.

PATIENT PREPARATION

- If possible, scan the patient in the first 10 days of the cycle. Preferably Day 5-10 for improved diagnostic accuracy in the assessment of the endometrium and ovaries.
- A full bladder is required . Instruct the patient to drink 1 Litre of water to be finished 1 hour before and they cannot empty their bladder before the scan.

The patient empties their bladder before the transvaginal scan is started.

SCANNING TECHNIQUE

TRANS-ABDOMINAL APPROACH

This is a generalised overview to identify the cervix, uterus and ovaries.

1. Check for the orientation the uterus (anteverted V's retroverted)
2. Assess the uterine size and shape.
3. Assess the myometrium
4. Assess the endometrial status and measure the thickness: <10mm pre menopausal; <4mm post menopause or ,<6mm if post menopausal on HRT
5. Assess the cervix
6. Look for free fluid in the pouch of douglas
7. Check the ovaries and adnexae
8. Assess bladder

Scan sagittally in the midline immediately above the pubis. Heel the probe to get the bladder over the fundus of the uterus. In this plane you should be able to assess the uterus, vagina and cervix. Zoom the image to assess and measure the endometrial thickness. Rotate into transverse and angle slightly cranially to be perpendicular to the uterus. Whilst in transverse and slightly right of midline, angle left laterally to identify the left ovary using the full bladder as an acoustic window. Examine the ovary in two planes. Now repeat this for the right ovary.

TRANS-VAGINAL(TV) APPROACH

INSERTING THE TV PROBE

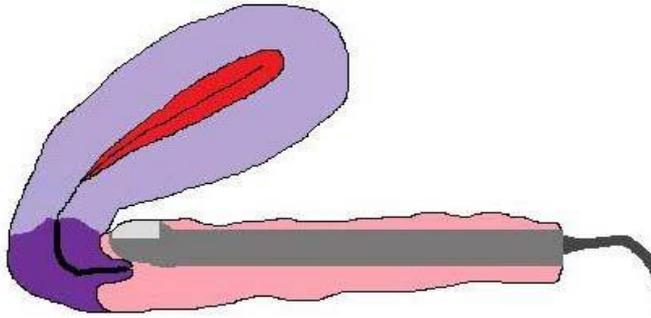
- Before letting the patient empty their bladder, show them the TV probe and explain the procedure.
- Indicate the length that is inserted which is approximately the length of a standard tampon.
- Explain there is no speculum used.
- Explain the importance of a TV scan because it is the gold standard in gynaecological ultrasound because of its superior accuracy and improved diagnostic resolution.
- Cover the probe with a (±)latex free TV sheath and lubricate with sterile gel on the outside.
- Elevate the patient's buttocks on a thick sponge/pillow to assist the scan or have patient keep back flat on bed and thrust buttocks upwards whilst straining down (relaxes vaginal vault)
- A gynae ultrasound couch which drops down is ideal so that a better angulation is achieved for an anteverted uterus.
- Ensure the patient is ready and get permission before inserting the probe.

- If there is some resistance as the probe is being inserted, offer for the patient to help guide the probe in far enough to see the end of the fundus.
- Keep asking the patient if they are okay.
- When manoeuvring the probe to visualise the adnexae, withdraw slightly then angle the probe towards the fornix. This avoids unnecessary patient discomfort against the cervix.

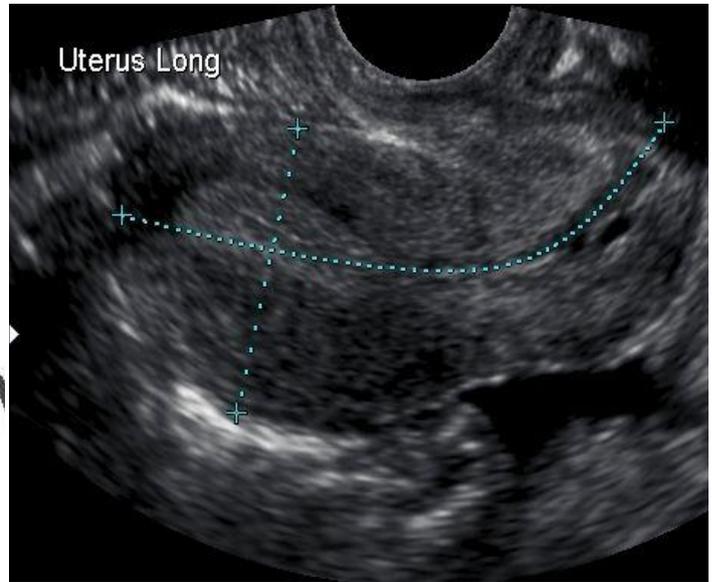
PERFORMING THE TVUS

A pelvic series should include the following minimum images;

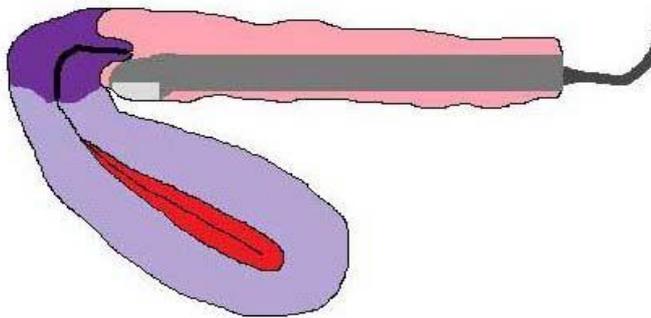
- Uterus - longitudinal, transverse (with measurements)
- Endometrial thickness measured in the longitudinal plane
- Cervix
- Both ovaries- longitudinal, transverse
- Both adnexae
- Document the normal anatomy. Any pathology found in 2 planes, including measurements and any vascularity.



Transvaginal Technique Anteverted uterus.



Normal TV image anteverted sagittal.
 The overall uterine length is evaluated in the long axis from the fundus to the cervix (external os). The depth (AP diameter) is measured from the anterior to the posterior wall and perpendicular to the length.



Retroverted transvaginal technique hl.



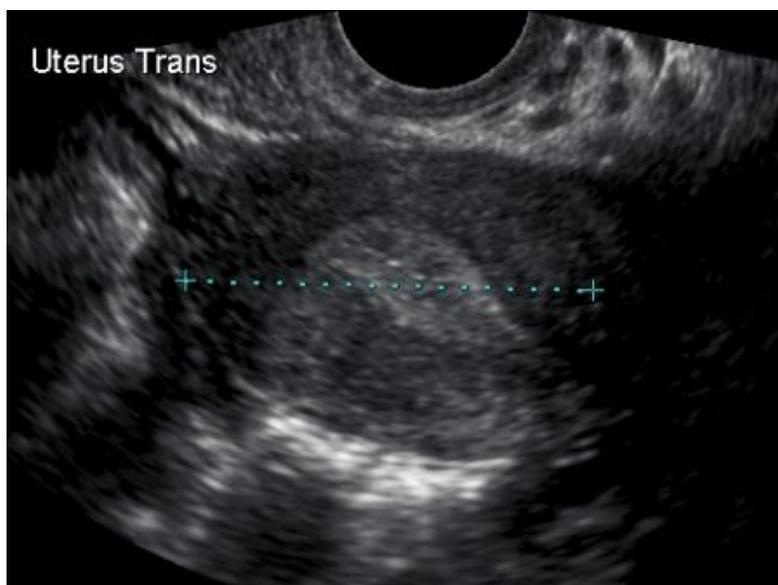
Retroverted uterus transvaginal scan.

EVALUATION OF THE UTERUS

Evaluation of contour changes, variations in echogenicity, masses and cysts. Any pathology must be measured in 2 planes. Fibroids should be labelled if they are submucosal, intramural, subserosal or pedunculated and their position within the uterus (Rt, Lt, Midline, Fundal, Body or cervical)

WIDTH OF UTERUS

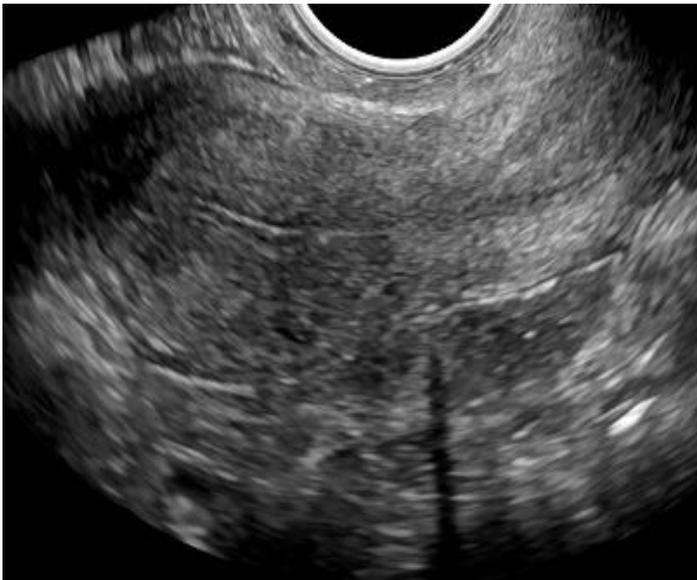
Assessment



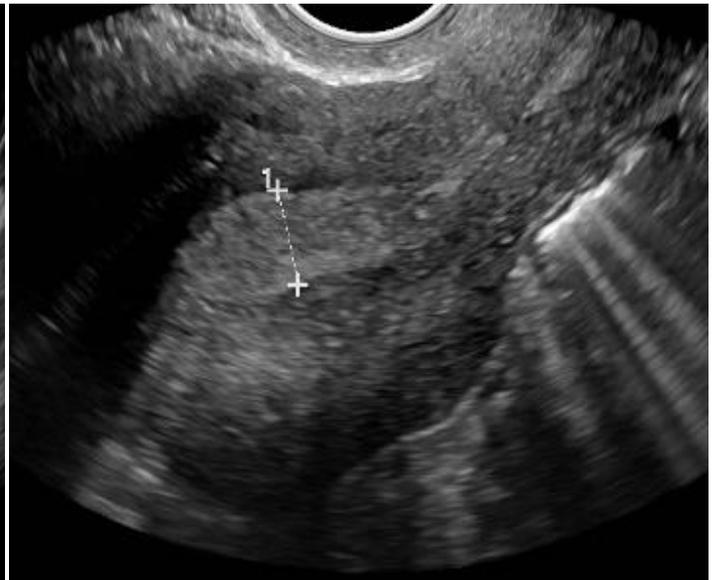
The probe is turned slowly anticlockwise to visualise the uterus at 90 degrees to the sagittal view. The Maximum Width is measured in this transverse (coronal) plane.

ENDOMETRIAL MEASUREMENT

Assess the endometrial status and measure the thickness: <10mm pre-menopausal; <4mm post menopause or <6mm if post-menopausal on HRT



Sagittal US image of the uterus obtained during the proliferative phase of the menstrual cycle demonstrates the endometrium with a multilayered appearance



Normal premenopausal endometrium. Sagittal US image of the uterus obtained during the secretory phase of the menstrual cycle shows a thickened, echogenic endometrium

COMMON PATHOLOGIES

VAGINAL

- Gartner's duct cyst
- Vaginal carcinoma
- Hydro/haematocolpos (secondary to imperforate hymen or vaginal stenosis)
- Foreign body

CERVICAL

- Nabothian (retention) cysts
- Polyps
- Cervical fibroids
- Cervical carcinoma
- Cervical stenosis

UTERINE

- Fibroids (leiomyoma)
 - submucosal
 - intramural
 - subserosal
 - pedunculated
- Leiomyosarcoma
- Adenomyosis
- Lipoleiomyoma

ENDOMETRIAL

- Endometrial Polyps

- Endometrial Carcinoma
- Endometrial hyperplasia
- Endometritis
- Cystic hyperplasia secondary to Tamoxifen
- Adhesions- Ashermans Syndrome
- Submucosal fibroids
- Arterio-venous malformation (AVM)
- Hydro/haematometra
- Blood/fluid/infection or retained products of conception (RPOC)

OVARIAN

- Ovarian cysts
 - simple Vs complex (haemorrhagic, corpus luteal, ruptured, septated).
 - any mural nodules
- Dermoid
- Ovarian tumours:
 - Cystadenoma (serous/mucinous)-Benign
 - Cystadenocarcinoma (serous/mucinous)-Malignant
- Polycystic Ovarian Disease
- Endometrioma
- Torsion
- Hyperstimulation syndrome
- Ectopic pregnancy

POUCH OF DOUGLAS (POD) & ADNEXAE

- Fluid
- Pus
- Blood
- Pelvic inflammatory disease-PID (may be indicated by above conditions)
- Cysts (Mesenteric)
- Ectopic pregnancy
- Endometriosis
- Pelvic venous congestion
- Bowel pathology may be seen (but cannot be excluded)

FALLOPIAN TUBES

- PID
- Pyosalpinx
- Hydrosalpinx
- Ectopic pregnancy
- Cyst
- Endometriosis

DISINFECTION

Departmental and National Policies should be adhered to.

http://www.asum.com.au/newsite/files/documents/policies/PS/B2_policy.pdf

<http://www.aium.org/resources/guidelines/reproductiveMed.pdf>