No 22

A DAY IN THE LIFE OF A FERTILITY SONOGRAPHER

Anne Hurleston, Manchester Fertility
Amelia House, Cheadle Royal Business Park

Background

The role of the Sonographer in a dedicated Fertility Clinic to include a discussion around the variety of scans as well as the emotional support to the patient and their family.

The aim is to help sonographers based in hospitals without Fertility Units but who receive scan referrals from General Practitioners or Gynaecologists for patients with fertility issues and to give an insight into the journey a patient has experienced prior to their dating and anomaly pregnancy scans.

For all our patients embarking on the journey of in vitro fertilization IVF, intra uterine insemination, egg freezing or egg donation is highly emotional, physically stressful and often a financially demanding time. The treatment impacts all aspects of their lives and each clinic visit is approached by the staff in a friendly and professional manner, being as informative and supportive as possible.

Discussion: Ultrasound scans are performed by Sonographers as well as trained Fertility Nurses, Midwives and Consultant Gynaecologists. Each day the scan list consists of patients in various stages of treatment.

All the gynaecological and early pregnancy scans are performed trans-vaginally following a full explanation and the patient's consent.
Using the latest ultrasound 3D technology aids the diagnosis of normal variants and pathology.

Baseline Gynaecological Scan: All new patients require a trans-vaginal 2D and 3D ultrasound scan to ascertain a normal uterus and ovaries. This scan includes an antral follicle count (follicles between 2mm-10mm). The scan findings should correlate with the stage of the patient's cycle, identify normal variants and exclude pathology.

The Male Patient: In the field of Andrology, certain male patients require an ultrasound assessment of the testes to exclude a testicular mass, abnormal vascularity or a varicocoele.

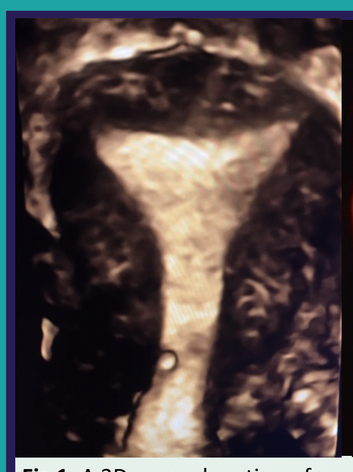

Fig 1. A 3D coronal section of a normal endometrial cavity with a Nabothian cyst in the cervix

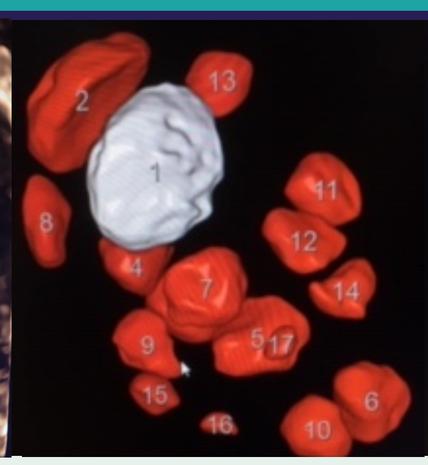

Fig 2. A 3D antral follicle count of an ovary with a dominant follicle denoted in white

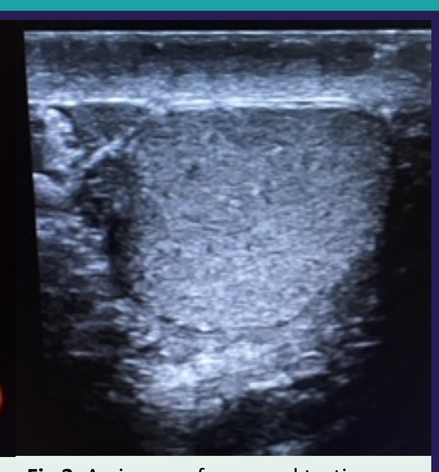

Fig 3. An image of a normal testis

Treatment Scans: Scans around days 8 and 10 of the treatment cycle are required to measure and record ovarian follicles in a stimulated ovary using 3D technology.

A scan is usually performed 5-7 days prior to embryo replacement to measure the endometrial thickness ideally 8-10mm. If the endometrial thickness is below 7mm then a Doppler scan of the uterine arteries with a subsequent measurement of the Resistive Index is performed. A figure greater than 0.8 is regarded as high and these patients may benefit from additional treatment.

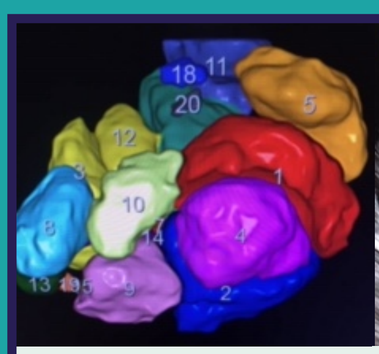

Fig 4. A 3D volume assessment of a stimulated ovary

Fig 5. Endometrial thickness measurement five days prior to embryo replacement

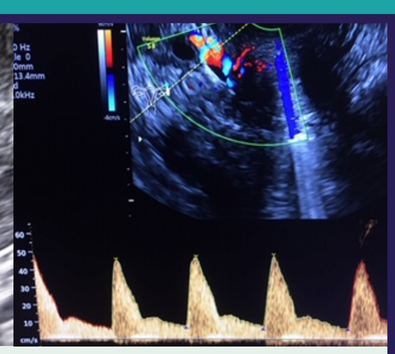

Fig 6. Spectral waveform of an uterine artery

Embryo Transfer Scans: A trans-abdominal scan to assist the transfer of the embryo by the Gynaecologist. The patient requires a full bladder, the uterus is scanned in a longitudinal section to visualise the catheter.

Pregnancy Scans: Following a positive pregnancy test a trans-vaginal scan is performed at 7weeks gestation. This scan confirms a live intra-uterine pregnancy with a crown rump length measurement which correlates to the gestational age.

Non Invasive Prenatal Testing: Trans-abdominal scan performed after 10weeks gestation prior to a blood test.

Fig 7. Longitudinal section of the endometrium with a catheter containing a blastocyst

Fig 8. Single intra-uterine pregnancy of 7weeks gestation

Fig 9. Single intra-uterine pregnancy of 10weeks gestation prior to NIPT

Case Reports: A 3-Dimensional Ultrasound scan is invaluable in the field of gynaecology. A few examples of patients with adenomyosis, a septated uterine cavity with a polyp in situ, and a sub-mucosal fibroid indenting the endometrial cavity.

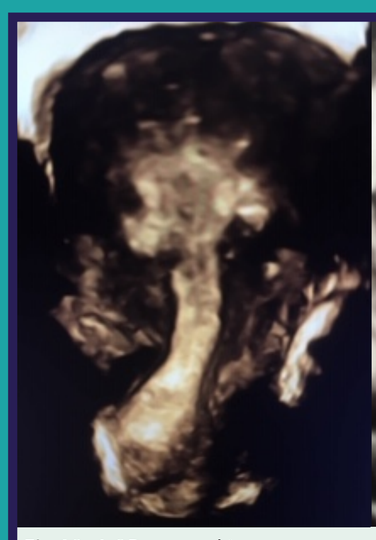

Fig 10. A 3D coronal image demonstrating adenomyotic projections within the myometrium

Fig 11. A 3D coronal image of a septated cavity with a polyp sited close to the junction

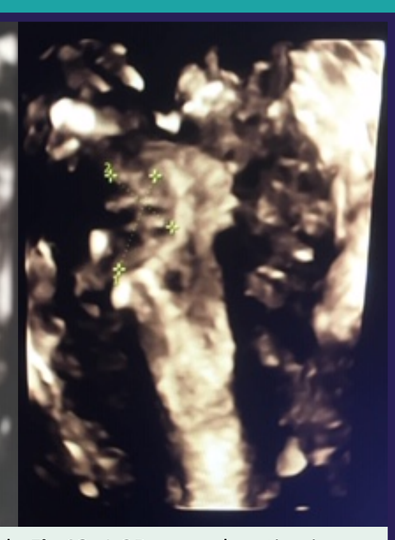

Fig 12. A 3D coronal section in a patient with adenomyosis and a submucosal fibroid indenting the cavity

The Future:
The field of fertility is diverse and continually developing technologies which make for a rewarding, patient focussed working environment. The multi-disciplinary team approach provides continual professional development, we presently have a sonographer training to be involved in the HyCoSy Service to determine tubal patency as well as more of our dedicated nursing team training to perform scans.