Transperineal Ultrasound

SKG RADIOLOGY

Transperineal ultrasound is a readily available, non-invasive technique that provides dynamic and static imaging of the pelvic floor and pelvic organs. The technique is acceptable to patients, with little or no discomfort, and it does not involve ionising radiation. Useful information can be obtained, particularly in relation to assessment of stress urinary incontinence and pelvic organ prolapse. The uses of this technique in relation to assessment of the pelvic floor are discussed below.

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Stress urinary incontinence

Stress urinary incontinence (SUI) is defined as the leakage of urine with strain, such as running, coughing or sneezing. This is due to excessive bladder neck mobility and/or loss of integrity of the urethral structures. Transperineal ultrasound is used to assess the bladder neck mobility, which has the strongest association with SUI.

The scan is performed with the bladder empty and the patient lying supine. A transducer probe (which is covered with a sterile cover) is placed against the perineum. Images are taken of the bladder neck position in the mid-sagittal plane at rest and with strain (Fig 1 and 2). To ensure adequate strain, the patient is asked to perform the Valsalva manoeuvre (once this has been explained). This is done at least three times to ensure correct reproducible measurements are obtained.

Measurements are taken from the bladder neck to the symphysis pubis. The maximum descent obtained is the value used. There is no normal value. A cut-off of 25mm was proposed to define hypermobility, but studies performed on nulliparous asymptomatic women demonstrated varying values with a range of descent measured from 1.2 to 40.2mm (mean, 17.3mm).

The causes of bladder neck hypermobility are thought to be multifactorial. The strongest association is with vaginal delivery, especially if there has been a long second stage or vaginal operative delivery. There may also be a congenital component.

Prolapse identification

Images are performed with the patient at rest and with strain. The inferior aspect of the symphysis pubis is used as the reference point, and mobility of the pelvic organs in relation to this is measured. A prolapse is seen if the pelvic organs are seen to descend inferior to the inferior aspect of the symphysis pubis.

Cystocoeles are measured as the maximum distance the bladder is seen to pass inferior to the symphysis pubis (Fig 3).

Enterocoeles are identified as small bowel passing posterior to the vagina. Rectocoeles are seen as a 'bulging' of the rectal wall at the ano-rectal junction (Fig 4).

Bladder wall thickness

As mentioned previously, the scan is performed with the bladder empty; however residual volumes can be assessed at commencement of the scan. Bladder wall thickness is assessed and should measure less than 5mm. A thickened bladder wall can be associated with detrusor instability and urge incontinence (the need to empty the bladder immediately when it feels full). Transperineal imaging is mainly for the assessment of SUI rather than urge but, as mentioned, bladder wall thickness is also assessed at the time of scanning.

Post-operative assessments

Surgical complications can be assessed, such as haematoma. In addition, evaluation of bladder neck mobility following operative intervention can be evaluated.

Materials used for treatment of SUI, such as tension free vaginal tape (TVT) and macroplastique can be visualised with ultrasound and consequently their position and effectiveness in elevation of the bladder neck can be evaluated (Fig 5).

Conclusion

Transperineal ultrasound is a readily available, non-invasive ultrasound technique. Useful information can be obtained, particularly in relation to assessment of SUI and pelvic organ prolapse, with little or no discomfort to the patient, and without the use of ionising radiation.

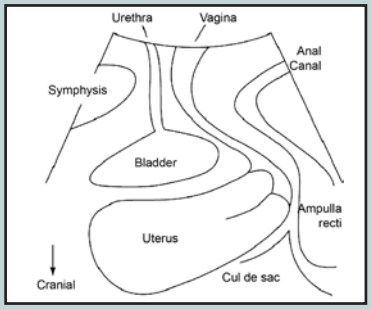

Fig 1. Schematic diagram of the pelvic organs as seen on T.P.U (Transperineal Ultrasound)

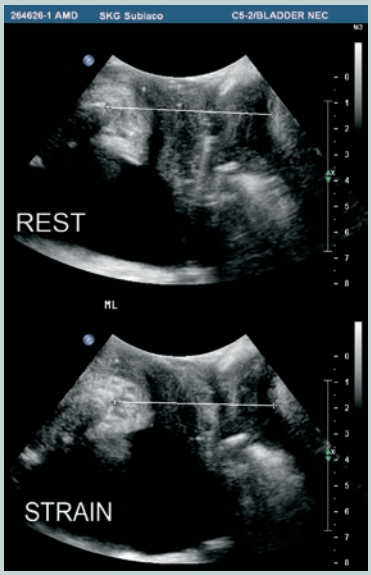

Fig 2. The bladder neck at rest (top image) is seen to descend with strain (bottom).

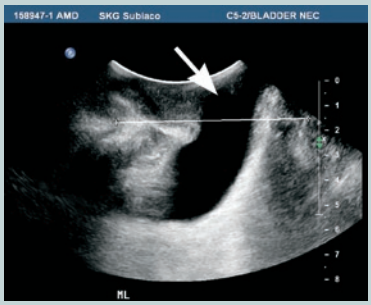

Fig 3. Cystocoele with bladder visualised extending inferior to the symphysis pubis (arrow).

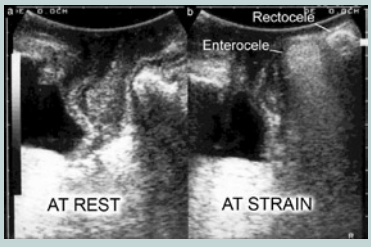

Fig 4. Enterocoele and rectocoele are visible.

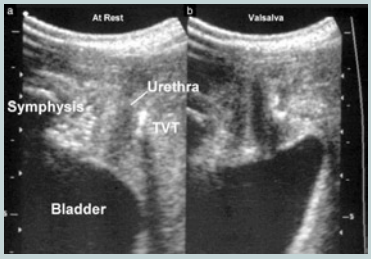

Fig 5. Tension free vaginal tape (TVT) as visualized

N.B. Perineum is at the top of each image.

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