

MRI OF THE ANTERIOR COMPARTMENT AFTER GRAFT AUGMENTED COLPORRHAPHY

Aims of Study

To determine the degree of anterior compartment anatomy restoration in patients following graft augmented anterior colporrhaphy using a patient specific radiographic reference.

Methods

The study group included fifteen patients (age 30-67 years), diagnosed with stress urinary incontinence and second to fourth degree cystocele, who were treated surgically with urethral sling (TVT, Gynecare, USA) and graft augmented anterior colporrhaphy (1). Five healthy nulliparus women (age 25-31 years) were used as controls. All participants in this IRB approved study signed a special informed consent and were evaluated using pelvic MRI. The surgical technique used for the graft augmented colporrhaphy included four-corner fixation of a 6x8 cm porcine dermis implant (Pelvicol, C.R.Bard, USA) (2). The posterior attachments were the Sacrospinous ligament or Iliococcygeous fascia at the Ischial spine level bilaterally. The anterior attachments were the medial aspect of the pubis bone 1-2 cm lateral to the urethra, bilaterally. Patients were evaluated 6 months after surgery. Axial and sagittal T1 and T2 weighted pelvic scans were obtained with the patients in the supine position at rest and with valsalva (3,4). On each patient, the level of the ischial spines was located on the axial image. A corresponding mid-sagittal view was obtained and the level of the ischial spines marked with an A-P line (Line A). The mid-sagittal image was used to draw a line from the lower portion of the pubic symphysis to the intersection of line A and the sacrum (Ischial Spine - Pubic Line = ISP line). The distance in centimeters between the most dependant portion of the bladder and the ISP line was measured using a perpendicular line. Measurements below the ISP line were given a positive value and those above a negative value. Patient's follow up included review of medical records, pre and post surgical quality of life (QOL) questionnaires and POP-Q scoring.

Results

At rest, all patients and controls were found to have the bladder base above the ISP line. Under valsalva 73% of patients in the study group and 100% of controls had measurements at or above the ISP line. The MRI results correlated with the post surgical POP-Q scoring evaluation but did not correlate with the post-surgical subjective, QOL questionnaire, and results. The ISP line correlated to the specific anatomy of each patient allowed us to overcome pelvic anatomical differences among patients and to objectively correlate the surgical location of the graft to the outcome of the surgical procedure.

Conclusions

We describe a new technique in evaluating outcome of cystocele surgical therapy using the ISP line in mid-sagittal pelvic MRI to observe the degree of normal anatomy restoration in patients who underwent a graft-augmented colporrhaphy for the treatment of second to fourth degree cystocele.

References

1. Sand P, Koduri, S, Lobel, R. Prospective randomized trial of polyglactin 910 mesh to prevent recurrence of cystoceles and rectoceles. *Am J Obstet Gynecol.* 184(7):1357-1364 June 2001
2. Barrington JW, Edwards G, Arunkalaivanan AS. The use of porcine dermal implant in minimally invasive pubovaginal sling procedure for genuine stress incontinence. *BJU International.* 90(3):224-227, Aug. 2002
3. Steiner, Rolf A., Healy, Jeremiah C. Patterns of prolapse in women with symptoms of pelvic floor weakness: MRI and laparoscopic treatment. *Lippincott-Raven Publishers Vol. 10(4) Aug 1998 pp 295-301*

4. Hoyte L, Schierlitz L, Zou K. Two and 3 dimensional MRI comparison of levator ani structure, volume, and integrity in women with stress incontinence and prolapse. *AM J Obstet Gynecol* 185(1):11-19, July 2001