Conclusions
There was a more frequent open bladder neck on resting cystourethrography in lower VLPP, higher grades, older age, more delivery, greater bladder neck descent, and estrogen depleted patients. Open bladder neck on resting cystourethrography was not diagnostic of ISD. But it may be helpful in predicting ISD, especially in the equivocal zone where VLPP is 60-90cmH2O.

57

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Diagnostic assessment of defects of the pubocervical fascia in urinary incontinence: Comparison of MR imaging and histological findings

Aims of the study

Defects of the endopelvic fascia are involved in the pathogenesis of urinary incontinence (UI) but they can only be suspected on the basis of clinical and sonographic findings. Whereas lateral fascial defects can be diagnosed by MR imaging on the basis of changes in vaginal configuration (1) and the absence of the musculofascial connection between the levator muscle and the lateral vaginal wall, experience with the assessment of the pubocervical fascia (central fascial defect) is still lacking. **Null hypothesis:** Histologically proven defects of the pubocervical fascia cannot be objectified by MR imaging.

Methods

Standardized MR images (proton density-weighted) were obtained in 19 women (55.6 ± 8.9 years, range 42-75) with 2nd degree urinary incontinence (10 women with stress UI, 9 women with mixed [stress / urge] UI) confirmed by positive standing stress and pad weight tests and urodynamic examinations. Ten women had no prolapse and 9 a slight prolapse of the anterior vaginal wall (Aa and Ba, both stage 1), effacement of the vaginal rugae suggests a central fascial defect. None of the women had undergone previous incontinence or prolaps surgery. At MR imaging the pubocervical fascia was considered to be intact if on transverse planes in the suburethral area at the level of the middle urethra the hyperintense submucosa was surrounded by the lower intensity tunica muscularis of the vaginal wall. A blurred structure of the muscularis was assumed to indicate a moderate fascial defect and its absence a pronounced defect.

Tissue samples of the vaginal fascia were removed intraoperatively (during TVT insertion) at the level of the middle urethra. Following structure-specific staining actin, vascularization, and collagen III were determined quantitatively and the structure of actin and collagen I was assessed (average area analyzed: 4.7 mm^2, high-power field).

Results

A correlation between clinical findings and MR imaging or histology was not seen. When the pubocervical fascia is found to be intact at MR imaging, large amounts of clearly structured actin can be demonstrated (Table 2). When the pubocervical fascia is absent or difficult to demonstrate, actin is reduced and poorly structured, type III collagen is slight increased. The collagen status (types I and III) is not reflected on MR images. An increase in arterial vessels is seen when the fascia is difficult to depict by MR imaging.

Table 1

MR imaging criteria	n	Actin (% of area)	Collagen III (% of area)	Vessels (nr. per fov*)	Veins (% of vessels)	Arteries (% of vessels)
All women	19	37,1	50,5	1,1	93,5	6,5
No FD**	9	**47**	45,2	1	95,3	**4,7**
Moderate FD	6	**39,2**	56,3	0,9	92	**8**
Pronounced FD	4	**11,5**	53,8	1,6	91,7	**8,3**

*fov = field of view; **FD = facial defect

Table 2

Histological criteria	Structure of actin			
MR imaging criteria	excellent (n)	good (n)	poor (n)	very poor (n)
No FD	**5**	**3**	1	0
Moderate FD	2	1	3	0
Pronounced FD	0	0	**1**	**3**

Conclusions

The terms "pubocervical fascia" and "tunica muscularis vaginae" are use synonymously. Histologically proven defects of the pubocervical fascia can be demonstrated by MR imaging but are difficult to identify by clinical examination. An enhanced arterial vascularization affects the MR image and may mimic fascial defects. Comment: MR imaging has become an indispensable tool for the scientific investigation of the pathomorphology of urinary incontinence.

References 1) Neurourol Urodynam 1998;17:579-589

58

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DO BLADDER NECK POSITION AND AMOUNT OF ELEVATION INFLUENCE THE SURGICAL OUTCOME OF COLPOSUSPENSION?.

Aims of Study:
To determine whether bladder neck position and amount of elevation influence the cure rate after colposuspension for genuine stress incontinence (GSI).

Methods:
77 women undergoing colposuspension were studied prospectively. The bladder neck was imaged pre-operatively and 1 week after surgery using MRI. The position of the bladder neck in relation to the pubic bone was determined using a system of co-ordinates (Dx and Dy) (1) and measuring the distance between bladder neck and posterior symphysis pubis (BN-pubis). The amount of bladder neck elevation achieved by surgery was determined by comparing pre and postoperative MRI. Measures of **elevation** and measures of **postoperative position** were correlated to subjective (symptoms) and objective (cystometry) evidence of **stress incontinence one year after surgery**. As postoperative voiding dysfunction does not seem to occur when the bladder neck is elevated by 26mm or less (2) and de novo detrusor instability may also be less common (3), surgical success in women with elevation of 26mm or less (group1, n=28) was compared to that of women with elevation > 26mm (group2, n=45).

Results:
MRI measures were obtained in 73 women. Mean values 1 week after surgery were: Dx=32.4mm, Dy=16.9mm, BN-pubis=5.7mm. When considering preoperative values, the mean bladder neck elevation achieved by surgery was 28.7mm (range 10-48mm). At 1 year follow-up, symptoms of stress incontinence were reported by 9/77 women (subjective 'failure': 11.6%). Objective testing was performed in 76 women (cystometry: n=74, pad test in women who declined cystometry: n=2): there were 8 objective 'failures' (10.5%).
The mean **elevation** of patients with objective 'success' (28.7mm) and those with objective 'failure' (30.7mm) was not found to be significantly different (p=0.53). However, the mean elevation of patients with subjective 'success' (28.1mm) was significantly lower than the mean elevation of patients with subjective 'failure' (33.2mm) (P=0.039).
The objective failure rate was 10.7% (n=3) in group 1 (elevation of 26 mm or less) and 11.1% (n=5) in group 2 (elevation > 26 mm). The subjective failure rate was 3.5% (n=1) in