International Continence Society August 22-26, 1999 29th Annual Meeting Denver, Colorado USA

Category No. 2 | Video Demonstration | Ref. No. 312

Abstract Reproduction Form B-1

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Title (type in CAPITAL LETTERS): PELVIC ANTATOMY CHANGES AFTER TVT PROCEDURE ASSESSED BY MRI

AIMS OF STUDY

Magnetic resonance imaging (MRI) with its excellent soft tissue differentiation seems to be a useful method in the evaluation of urinary incontinence and pelvic floor disorders. Our aim is to use its capacity for the studying of the continence mechanism of Tension-Free Vaginal Tape (TVT) prospectively. Our long-term intention is to optimize the examination technique and its parameters for prospective randomized study, comparing Burch and TVT supported by the Grant Agency of the Czech Ministry of Health grant No. 4855-3.

METHODS

We included 10 women with proven stress urinary incontinence. The mean age in the group was 53.5 years (SD 9.14), mean parity 1.8 (SD 0.6), Gaudenz UI 12.5, MR 4.1. The urogynecologic assessment consisted of a history, Gaudenz questionnaire, vaginal examination, urodynamics and ultrasound. MRI was performed before and 6 weeks after the operation. Siemens Vision 1.0 T unit with a pelvic phased array coil was used. After the analysis of all sagital, axial and coronal scans at the beginning of the study we decided to use static axial images from the bladder base to the level of distal urethra. Slice thickness was chosen to be 3 mm with 1 mm gap. Thereafter, dynamic sagital scans were performed. The analyzed parameters were: the area of the retropubic space of Retzius, bladder neck mobility (scipp line versus orthogonal axes system), funneling, pubourethral and inclination angles, size of the urogenital hiatus, thickness of the levator ani muscles all at rest, with contraction and during Valsalva. Values were analyzed statistically.

TVT operation was performed by the technique described by Ulmsten and Petros in local analgesia. With two patients we discovered bladder injury during endoscopic control with successful reinsertion of the needle.

Fig.1.: Sagittal image during Valsalva-before operation

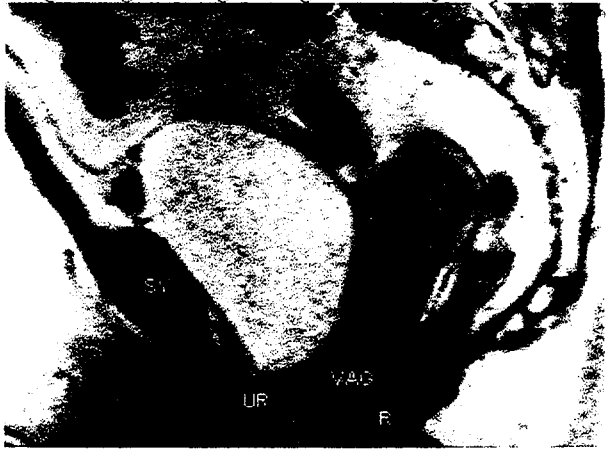
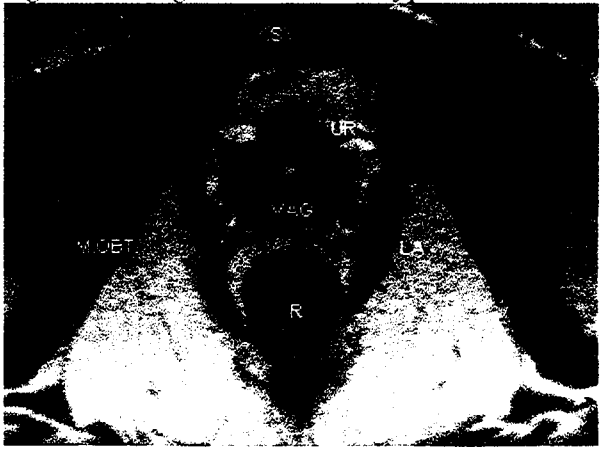


Fig.2.: Axial image at rest at the level of proximal urethra



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RESULTS AND CONCLUSIONS

In our group, all 10 patients are continent after 6 months. Stress test was negative with the urethral pressure profile remaining – as before the operation- hypotonic. In two patients we noted severe urgency with frequency >12/day and 4 women complained of nocturia > 2/ night. These symptoms are controlled by parasympatholytics.

Results of measured distances in axial image are displayed in the following table:

Parameter	AP	D1	D2	D3	LL	LP	RS	SU
Pre-op	62.4	31.4	48.4	41.0	5.3	5.2	831.3	8.4
Post-op	63.4	29.0	48.9	42.6	5.4	4.9	821.7	9.4

A functional morphology evaluated by the MRI examination with consequent analysis of all parameters and comparison of values before and after the operation, by different statistical methods, revealed no difference in the bladder neck mobility which is in accord with the theory of authors of the method about the new -distal urethral- suspension and continence mechanism. This preliminary more or less methodological study, introduces the prospective comparison of the Burch colposuspension and TVT procedure where these parameters will be used and compared between the methods.

Ongoing extensive data analysis of pelvic structures mobility may bring new knowledge about functional anatomy of urethra after the surgery as demonstrated in the presentation of dynamic MRI of our patients.

Thus we conclude that MRI with its soft tissue differentiation and its different parameters is a useful method for monitoring the morphological as well as the functional outcome of genuine stress incontinence surgery.

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