the obturator nerve led to limping and adhesion formation on the Achilles tendon and an adhesiotomy was required; (b) a vaginal haematoma was treated by surgical evacuation; (c) a possible urethra lesion was detected and the procedure was interrupted. There were 34 cases (2.3%) of complete postoperative urinary retentions (range of duration 6 hours - 6 months): (a) in one case the tape had to be cut off; (b) twenty-nine cases were managed by catheterization; (c) one case was spontaneously cured; (d) in three cases the intervention used was not reported. There were 109 cases (7.5%) of minor postoperative voiding difficulties with a residual urine volume more than 100 ml after the first postoperative day (range of duration 48 hours - 4 months): in two cases the tape had to be cut off and 107 cases where treated with conservative methods or spontaneously cured. There were 27 cases (1.9%) of retropubic haematomas (range of size 3-10 centimetres): three cases were punctured, two cases were evacuated by surgery, three cases required blood transfusion. There were 12 cases (0.8%) of wound infections: eight cases were treated with antibiotics, four cases of abscess formations needed drainage. There were 10 cases (0.7%) of defect healings of the vaginal incision: four cases were resuturated, in two cases the tape was partially removed. There were 59 cases (4.1%) of urinary tract infections. No case of tape rejection occurred. The total amount of some other kind of postoperative complications was 33 (2.3%): (a) in 13 cases de novo urge symptoms occurred, the old urge component became worse or there were some kind of voiding discomfort; (b) seven haematomas were found outside the retropubic area; (c) a vesicovaginal fistula was discovered which led to tape removal and fistulectomy; (d) there was one case of urinary retention where a rudimentary kidney and a double ureter system were detected which led to cutting of the tape, ureterolysis and unilateral removal of the rudimentary kidney and the double ureter system; (e) three cases of pain in the region of the gluteal muscle and the thigh occurred, two cases were cured by anti-inflammatory drugs, in one case there was a suspicion of compression on the obturator nerve but a laparoscopic exploration showed no evidence of nerve compression and the pain disappeared after cutting of the tape; (f) there was one case of venous thrombose which was treated with anticoagulants; (g) one seroma formation around the tape which needed drainage was found; (h) there were six cases of various minor complications. All together the majority of complications were mild complications such as minor postoperative voiding difficulties or urinary tract infections and only five cases (0.3%) of major complications requiering laparotomy occurred. Conclusions: The TVT procedure is a safe method for the treatment of stress urinary incontinence.

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CHANGE OF THE MOBILITY OF THE FEMALE URETHRA AFTER TVT PROCEDURE - COMPUTER ANALYSIS OF DYNAMIC MRI

Aims of Study

Insertion of Tension Free Vaginal Tape (TVT) has proved to be effective method for treatment of genuine urinary stress incontinence (GSI). The procedure was designed to support middle urethra on behalf of defective pubourethral ligaments (PUL). Because there is no accord about the role of normal PUL and discussion about continence mechanisms is far from its end, new methods for evaluation of anatomy, function and its changes after different procedures need to be introduced. Our aim was to study the mobility and shape of urethra and bladder

base in GSI patients and its changes after TVT. Dynamic magnetic resonance (MR) with its good tissue resolution clearly shows the situation at rest and during pressure manoeuvres.

Methods
10 women with proved GSI according to International Continence Society (ICS) standards were examined before and 2-4 months after TVT procedure. After emptying, the bladder was filled with 300 cc of sterile saline. In supine position, dynamic MR study of sagital plane was done with 1.0 Tesla machine equipped with pelvic phased-array coil.
Images at rest, during maximal squeezing and Valsalva manoeuvre were analysed. For better visualisation, the outlines of structures were traced and drawn (Figure 1). Within the urethra, 3 points were marked: A – inner meatus, B – lumen in middle urethra, C – outer meatus (Figure 2). In case of funnelling, point A was placed at the level of bladder base in the middle of the open urethra. The position and mobility of these points, the shape of urethra and presence of funneling were noted. Distances from lower edge of symphysis (point D) and from the lower one sixth of the posterior aspect of symphysis (point E) to the mentioned urethral points and their changes were measured. Point E should simulate the insertion of PUL, point D is a classical landmark of urogynecological imaging. The results before and after TVT were compared.
With the use of average values, models of pre and post TVT procedure were created and the dynamics of the changes were computer simulated.

Figure 1: Sagital MR image at rest – outlines.

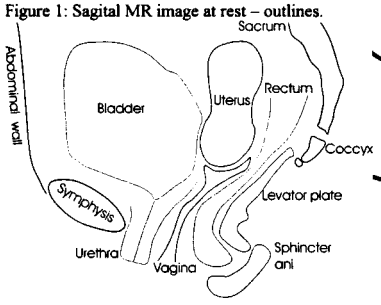
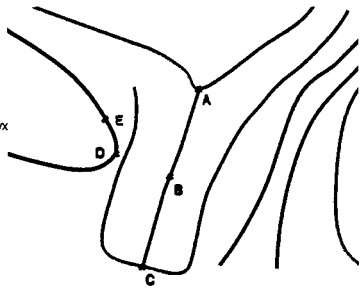


Figure 2: Traced points A-E.



Results:
We found statistically significant changes of urethral mobility in its entire course. The movement of the middle and proximal urethra was influenced less than the distal end.
The shape of the urethra during Valsalva manoeuvre has changed, but classical "kinking" was not dominant.
After the procedure funneling was less pronounced.
Spectacular video presentations were made.

Conclusions
Contemporary dynamic MRI gives clear picture of female pelvic organs at rest and during pressure manoeuvres and produces data suitable for analysis of its mobility and involved forces.
TVT is a clinically successful method, but its precise mode of action is still not clear. We doubt the "kinking" is the only mechanism, our results favour the theory of increased hydrostatic pressure within the loop created by the tape and lower edge of symphysis pubis.
New informations are needed, a study involving intraabdominal pressure monitoring during MRI, 3-dimensional dynamic model and well correlated urodynamics could give definite answers.

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Title (type in CAPITAL LETTERS, leave one blank line before the text):
TVT AND COLPOSUSPENSION: COMPARISONS AND CONTRASTS OF POSSIBLE MECHANISMS

Aims: Tension free Vaginal Tape (TVT) is believed to correct stress incontinence (SI) by mid-urethral