

TOT: TENSION-FREE OR TENSION-LOW?

Hypothesis / aims of study

The TransObturator Tape (TOT) for stress urinary incontinence (SUI) is regarded a tension-free tape. However, positive results in intrinsic sphincter deficiency as well as a risk of postoperative retention suggest at least some tensile effects. The aim of this study is to evaluate the influence of TOT on uroflow parameters, parameters that should remain uninfluenced in case of a real tension-free procedure.

Study design, materials and methods

This retrospective single-center study included all women who underwent a TOT procedure (Uretex®/Align®, BARD) from May 2005 to February 2011. The tape was inserted tension-free in a horizontal plane underneath the middle of the urethra between the two obturator foramina.

All study patients had to have proven SUI or mixed urinary incontinence with stress as the main component on urodynamic examination, as well as uroflowmetry (UFM) prior to and after the TOT procedure. Patient charts were evaluated and the following UFM variables were assessed: micturition volume, maximal flow rate, average flow rate, voiding time and post-void residual volume. According to ICS standards only UFM with micturition volumes ≥ 150 ml were included. Patients with postoperative retention requiring (self)catheterization were excluded from the study, as were patients with unsatisfying continence results. Statistical analysis was performed using paired sample T-tests with SPSS Statistics 18.

Results

A total of 103 women (mean age: 56 years, range: 38-76) underwent a TOT procedure in the study period. In 72 patients UFM from before and after operation were available. Of these women, only 40 met the ICS criteria regarding a minimal voided volume of 150 ml on UFM. Postoperative UFM was performed on average after 15.2 weeks (range 3-132). The mean preoperative micturition volume was 376 ± 173 ml compared to 357 ± 168 ml postoperatively. This was not significant ($p=0.545$). Maximal flow rate significantly decreased after surgery to 29.3 ml/s ± 15.2 , compared to 39.7 ml/s ± 18.2 prior to the procedure ($p<0.001$). The same went for the average flow rate: Average flow rates were 17.0 ml/s ± 7.8 and 14.2 ml/s ± 7.0 , respectively ($p=0.016$). Voiding time as well as residual volume proved not to change significantly in this study: 24.8 s ± 13.8 to 28.3 s ± 11.4 ($p=0.200$) and 73.8 ml ± 185 to 50.5 ml ± 49.2 ($p=0.461$) for both of the parameters.

Interpretation of results

Maximal flow rate as well as average flow rate was significantly decreased after TOT surgery. Voiding time and residual volume prior and after surgery were not significantly changed. These findings suggest that there is at least some tension on the midurethral plane causing subtle obstruction to the urinary flow.

Concluding message

The TOT female urethral sling is regarded to be inserted tension-free underneath the midurethra. Therefore, there should be no difference in flowmetry before and after surgery. However, in this study maximal and average flow rates were significantly reduced, suggesting at least minor tension of the sling on the midurethral plane.

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Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Medisch-Etische Commissie Rijnstate Ziekenhuis Arnhem was contacted: no special approval necessary
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	No