

Tumor specific survival at 5 years was 80% and 69%, respectively (not significant). In the group of patients treated with immediate cystectomy 48% died. Even more interestingly, for tumor specific survival the difference was significant in favor of deferred cystectomy ($p = 0.02$).

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FEMALE UROLOGY

Mechanical properties of urogynecologic implant materials

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Int Urogynecol J Pelvic Floor Dysfunct. 2003; 14: 239-43

Synthetic suburethral slings have recently become popular despite the risk of erosion commonly associated with synthetic implants. Some of these materials seem to have unexpectedly low erosion rates. Based on the hypothesis that erosion is due, in part, to biomechanical properties, we undertook an in vitro study. The biomechanical properties of eight non-reabsorbable synthetic implant materials, stiffness (slope, N/mm) and peak load (N) were determined from load vs. displacement curves. Open-weave Prolene mesh showed unique biomechanical properties compared to other tested materials. The tension-free vaginal tape had the lowest initial stiffness (0.23 N/mm), i.e. low resistance to deformation at forces below the elastic limit, whereas the stiffest implant tested, a nylon tape, reached 6.83 N/mm. We concluded that the TVT and other wide-weave Prolene tapes have unique biomechanical characteristics. These properties may be at least partly responsible for the apparent clinical success of the implants

Editorial Comment

The authors review the biomechanical properties of currently popular implant materials used in the treatment of female stress urinary incontinence and pelvic reconstruction. Materials reviewed included polypropylene as well as polyethylene terephthalate (mersilene), expanded polytetrafluoroethylene (Gortex) and nylon. Parameters quantified included initial stiffness (load needed before the material begins irreversible deformation) and the mean peak load at which time the material will rupture. Testing indicated that the tension free vaginal tape was the least stiff of the materials tested.

The authors utilized a testing system, which is valuable to review for future researchers in this area. It would have been of great value to the reader if the authors had been able to also test the reviewed materials at identical widths; they noted in the report that some specimens were of smaller width than others secondary to their commercial production. The discussion section raises some valuable points regarding the interaction of the graft material on the native tissues and the effect of a biomechanical difference between the two. Though this paper does not comment on the manner of weave and mesh pore size it makes for excellent reading for those interested in the physical properties of these popular synthetic graft materials.

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A prospective multicenter randomized trial of tension-free vaginal tape and colposuspension for primary urodynamic stress incontinence: two-year follow-up

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Am J Obstet Gynecol. 2004; 190: 324-31

Objective: This study was undertaken to compare tension-free vaginal tape (TVT) with colposuspension as the primary treatment for stress incontinence.

Study Design: The trial was conducted in gynecology or urology departments in 14 centers in the United Kingdom and Ireland. Three hundred forty-four women with urodynamic stress incontinence were randomly assigned to groups: 175 to TVT and 169 to colposuspension. Patients were assessed using the Short Form-36 health status questionnaire, the Bristol Female Lower Urinary Tract Symptoms questionnaire, clinical examination, and a 1-hour perineal pad test. Unpaired and paired data were analyzed with the Wilcoxon rank sum and matched pairs tests, respectively, and proportions were compared with the Fisher exact test.

Results: When data were analyzed on an intention-to-treat basis, assuming patients with missing data to be treatment failures, 63% of the TVT group and 51% of the colposuspension group were objectively cured at 2 years (odds ratio 1.67, 95% CI 1.09-2.58).

Conclusion: The TVT procedure appears to be as effective as colposuspension for the treatment of urodynamic stress incontinence at 2 years.

Editorial Comment

The authors publish a follow up article to their six-month outcomes report between tension-free vaginal tape (TVT) and colposuspension (1). This is an excellent paper, which addresses surgical outcomes in patients who were randomized to one of the two anti-incontinence procedures. The paper's strength lies in its strict measurement tools including validated questionnaires, clinical examinations and pad tests. The comments section holds an interesting discussion regarding the possible patient desire for minimally invasive surgery to explain the differentially higher withdrawal rate after randomization but before surgery in the colposuspension group as opposed to the TVT group. This preference has been previously noted (2).

References

1. Ward K, Hilton P: Prospective multicentre randomized trial of tension-free vaginal tape and colposuspension as primary treatment for stress incontinence. *BMJ* 2002; 325: 67-70.
2. Karantanis E, Stanton S, Parsons M, Robinson D, Blackwell AL, Cardozo L, et al.: Women's preference for treatment for stress incontinence - physiotherapy or surgery [abstract]. *Neurourol Urodyn.* 2003; 22: 522-3.

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