

DE NOVO URGE SYMPTOMS AFTER CONTINENCE TAPING PROCEDURE-A HISTOPATHOLOGICAL AND IMMUNOHISTOCHEMICAL STUDIES

Hypothesis

The suburethral vaginal tissue reaction against implanted polypropylene mesh may elicit new onset urgency and other lower urinary tract symptoms (LUTS).

Materials and methods

Between January 1999 and January 2003, 14 women developed LUTS in particular, urge symptoms after undergoing the continence taping procedures. Explantation of the tape with surrounding vaginal tissue was performed after they failed to respond to the anticholinergic regimen and subsequent loosening of the sling. A voiding diary recording the urge & incontinence episodes experienced and other voiding symptoms was started immediately after the presence of LUTS till 3 weeks after the definitive treatment for the study group.

The specimens of the 14 women and those redundant vaginal wall of another 7 control who have developed symptomatic anterior vaginal wall prolapse (without LUTS) after the TVT procedure were sent for light microscopic (hematoxyline-eosin stain) and immunohistochemical (IHC) studies. Using monoclonal antibodies against the following antigens: CD4, CD8, CD21 and CD68, a microwave antigen-retrieval was performed. For the IHC evaluation, the entire specimen of all biopsies was surveyed and the number of lymphocytes and macrophages within the stroma was semiquantified with use of transmission light microscope. The BMI and status of menopause were compatible between the study and control groups. The exclusion criteria were vaginal infection and patients with LUTS before continence taping procedures.

Results

Of those 21 subjects aged 37-68 years (mean 5.2), the period from implantation to discovery of the LUTS or repair of the vaginal prolapse varied from 13-32 months (mean 21). The suburethral implantation sites were intact and no sling erosion was noted in these 21 women. The analyses of voiding diary revealed that the LUTS have improved or cured after the explantation. The significant histologic features (H&E stain) of the study group showed mesh filaments were fragmented and surrounded by palisading histiocytes and occasional multinucleated giant cells. The inflammatory process was accompanied by pronounced perifilamentous fibrosis and a predominant foreign body reaction and occasional perivascular mononuclear cell infiltration. IHC staining showed that B cells (CD21+) formed small aggregates around the mesh filaments, or were randomly distributed in the stroma. CD4+ T cells were distributed in the fibrotic stroma around mesh filaments. CD8+ T cells were also present in the fibrotic stroma. The mesh filaments were surrounded by CD68+ histiocytes and multinucleated foreign body giant cells. The H&E stainings for the 7 controls showed mild mononuclear cell infiltration without fibrosis in the submucosa. IHC stainings showed most of the inflammatory cells were CD4+ cells; some CD8+ and CD21+ cells were also noted. CD68+ macrophages were randomly distributed in the submucosa. A comparison of the cell density percentage for different antibodies in IHC study was tabulated and to be presented. The Mann-Whitney U test was used to compare differences between the 2 groups and the Wilcoxon signed-rank test was employed for the intra-group comparison.

Conclusion

The prominent foreign body reaction and immunologic reaction of the periurethral vaginal tissue to polypropylene mesh in this study might have played a role in the pathogenesis of new onset urge symptoms.

Reference

Determinants of patient dissatisfaction after a tension-free vaginal tape procedure for urinary incontinence: *Urology* 2002; 167: 2093-97.