

EFFICACY OF TENSION-FREE VAGINAL TAPE IN RELATION TO COLLAGEN TYPE III CONTENT OF PUBOCERVICAL FASCIA

Aims of Study

Genuine stress urinary incontinence (GSI) in women has been associated with a reduction in the quantity of collagen content of pubocervical fascia (1,2,3). It has been reported a 30% reduction of total collagen content of pubocervical fascia in women with GSI (2), but it has not been associated with an increase in collagenase activity (3). In addition, despite the interesting research about collagen quantity and GSI in women there is very limited information about the effect of collagen quantity in the efficacy of anti-incontinence operations. Objective of this study was to investigate if the quantity of collagen type III in the pubocervical fascia of women with GSI affects the efficacy of Tension-Free Vaginal tape procedure in the management of GSI in women at 24 months follow-up.

Methods

Sixty-seven patients participated in the study and were divided in two groups as follow: 39 patients with GSI and pelvic organ prolapse stage I (group 1) and 28 patients with neither GSI nor pelvic organ prolapse (control group), (Table 2)). Urodynamic studies confirmed the diagnosis of GSI. Biopsies were obtained during surgery from the pubocervical fascia. The presence of collagen type III was determined by immunohistochemical technique and the structure and organization of collagen fibers was examined under the microscope using a magnification of 20X. Immunohistochemical analysis was performed in the histopathology laboratory of our hospital by two histopathologists. Specimens with disagreement between the examiners about the findings were excluded from the study. The reduction in the quantity of collagen type III was classified as follow: significant (-), Intermediate (+), and Normal (++). The patients of groups I had stage I pelvic organ prolapse according to the International Continence Society classification and the presence of genital prolapse was assessed during straining with the patient in lithotomy position. Cure was defined as no loss of urine on urodynamic assessment with bladder filled at maximum cystometric capacity. All biopsies were performed from the same operator to ensure adequacy of the samples.

The X test was used for statistical analysis. A $p < 0.05$ was considered statistically significant.

Results

The two groups were comparable in respect to age, parity and body mass index.

The efficacy of TVT procedure in patients with significant reduction of collagen type III was 84% cure (16 out of 19 patients cured), in patients with intermediate reduction was 88% cure (8 out of 9 patients cured) and in patients with normal quantity of collagen type III was 82% cure (9 out of 11 patients cured). (Table 1). The efficacy of TVT procedure had no statistically significant difference between patients with GSI and significant reduction of collagen type III and patients with GSI and intermediate or no reduction of collagen type III ($p > 0.05$). We had no cases of haematoma formation postoperatively, the incidence of postoperative urinary tract infection was 4.4% and the incidence of detrusor instability was 10.4%. We had 3 cases of bladder perforation 4.4%.

Table 1. Efficacy of TVT procedure in relation to collagen content of pubocervical fascia.

Specimen	Staining reaction		
	(-) (19 patients)	(+) (9 patients)	(++) (11 patients)
TVT Procedure	16 (84%)	8 (88%)	9 (82%)

Table 2. Collagen type III in the control group.

	Staining reaction		
	(-)	(+)	(++)
Paravaginal fascia	1 (3.5%)	3 (10.8%)	25 (89.2%)

Conclusions

The findings of the present study suggest that the quantity of collagen type III in the pubocervical fascia does not affect the efficacy of TVT procedure at 24 months follow-up.

References

1. Br J Obstet Gynecol 1997; 104:994-998.
2. Obstet Gynecol 1994; 84: 583- 586.
3. Am J Obstet Gynecol 1998; 179: 1511-1514.