

TENSION-FREE VAGINAL MESH FOR PELVIC ORGAN PROLAPSE: TENSION ADJUSTMENT OF THE DISTAL MESH ARM PREVENTS STRESS URINARY INCONTINENCE

Hypothesis / aims of study

Stress urinary incontinence (SUI) after pelvic organ prolapsed surgery frequently challenges the skill and judgment of urologists and urogynecologists. Although the tension-free vaginal mesh (TVM) procedure is effective to treat cystocele, rectocele or the both, it is rather powerless in the management of stress urinary incontinence. We attempt to assess whether adjusting distal mesh arm tension based on an intra-operative cough stress test (ICST) is effective to eradicate SUI.

Study design, materials and methods

A total of 132 women were operated on by TVM and tested by the ICST. In 65 women of Group 1, distal mesh arm tension was not adjusted regardless of outcomes of ICST, while in 67 women of Group 2 tension at the distal mesh arm was adjusted according to ICST. Under general anesthesia, a sagittal colpotomy was performed starting 1.5 cm from the urethral meatus, which was longer to anterior direction than original TVM technique described 2cm from bladder neck. After placement of the anterior mesh and when necessary the posterior mesh also, the muscle relaxant discontinued, a suction tube was inserted into the trachea to stimulate the cough reflex. The stimulation caused bucking and coughing during operation under general anesthesia and this ICST was used to check urinary leakage with more than 150mL of bladder volume during cough stress.

Results

In Group 1, although preoperative SUI was negative in 67% of patients, 27% of them developed de novo SUI. Contrastively, the preoperative SUI was positive in 32% of patients, 71% of them were cured SUI after TVM. In over all, post operative SUI was positive in 28% without anti-incontinence procedure. Namely 12 of 44 women who had been continent developed de novo SUI and 6 of 21 women who had been incontinent remained the same. On the contrary, only 1 % of Group 2 (1 woman) demonstrated SUI postoperatively where difference was statistically significant.

Interpretation of results

It is well recognized that postoperative SUI is common in POP surgery. Concomitant anti-incontinence surgery like mid-urethral sling procedure accompanying POP surgery underwent in several reports, however, these procedures increased medical costs and risk of complications due to both mid-urethral sling tape and distal mesh arms in similar place. Although the perioperative cough stress test with or without gauze packing is plausible prediction for postoperative SUI, 5-15% of cases with negative perioperative cough stress test had postoperative de novo SUI. The ICST is frequently used during tension free vaginal tape (TVT) procedure under topical anesthesia with sedation for the patients with genuine SUI. Using this test, many urogynecologists are adjusting tightness of the TVT tape. We examined ICST during TVM procedure with POP surgery using intentional bucking under general anesthesia. The ICST predicted postoperative SUI with 98% specificity. Moreover, ICST indicated adequate degree of distal arm elevation without postoperative voiding difficulty. After fixation of POP, checking urinary leakage during cough stress should be the most practical test for prediction of post operative SUI. The distal arm adjustment using ICST controlled both POP and SUI by a single stage operation and required no additional sling material for concomitant or subsequent mid-urethral sling.

Concluding message

It is found that stimulating cough reflex under general anesthesia provoked a series of strong coughs and that adjusting distal mesh arm tension according to ICST is effective to prevent occurrence of post-operative stress urinary incontinence.

References

1. Obstet & Gynecol(2007), 109(2), 303-308
2. Int Urogynecology J Pelvic Floor Dysfunct(2007),18(7), 743-752

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Is this a clinical trial?	Yes
Is this study registered in a public clinical trials registry?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
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Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes