

DISTAL SYNTHETIC ARM ADJUSTMENT USING INTRAOPERATIVE COUGH STRESS TEST PREVENTS POSTOPERATIVE STRESS URINARY INCONTINENCE AFTER TENSION FREE VAGINAL MESH FOR PELVIC ORGAN PROLAPSE

Hypothesis / aims of study

The use of synthetic grafts for the trans-vaginal treatment of pelvic organ prolapse (POP) became popular to prevent recurrence. However, de-novo and pre-existing persistent stress urinary incontinence (SUI) remain problematic for percentage of patients. In a recent multi-centric trial of tension free vaginal mesh (TVM) in France, although 40% of cases have concomitant mid-urethral sling, de novo SUI appeared in 5.4% of total cases. Based on our preliminary results, we believe that postoperative SUI can be greatly eliminated by our modified TVM technique with its distal arm adjustment using the intraoperative cough stress test (ICST).

Study design, materials and methods

We reviewed 131 consecutive patients received TVM using Gynemesh[®] with ICST from Sept 2006 to Aug 2007, which separated Group 1 (n=66) and Group 2 (n=65). Anterior repair was performed in 56 patients (43%), and combined anterior and posterior repair in 75 patients (57%). The cases with only posterior repair were excluded from the study. 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. After placement of the anterior mesh and its four arms, the muscle relaxant was 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. In Group 1, all patients received TVM without the anti-incontinence procedure to allow comparison of ICST results and incidence of postoperative SUI. In Group 2, when ICST was positive, bilateral anterior distal arms were pulled up until leakage almost stopped. Minimum follow-up was 6 months for all patients. Negative SUI was defined by 24hour pad test and self reported leakage.

Results

ICST was positive in 38%. In Group 1, although preoperative SUI was negative in 67% of patients, 28% of them developed de novo SUI. However, 71% of the preoperative SUI positive cases were cured SUI after TVM without any anti-incontinence procedure. Correlation between ICST and postoperative SUI was 98% (42/43) specificity and 74% (17/23) sensitivity. The cases with negative ICST did not suffer from postoperative SUI except one case with history of uterine cancer operation. In Group 2, none developed de novo SUI and only one case remained SUI (1%), which was significantly lower than 18 cases (28%) had postoperative SUI in Group 1 (p<0.001). Complication rate was not significantly different between two groups. None of our patients needed self intermittent catheterization at home postoperatively.

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. 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

ICST can be the best method to predict postoperative SUI of POP surgery. When ICST is negative, anti-incontinence procedure is unnecessary. The distal synthetic arm adjustment using ICST significantly reduced postoperative SUI after TVM procedure.

References

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

Specify source of funding or grant	None
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?	No
This study did not require ethics committee approval because	This study did not need ethical approval because part of normal clinical practice but followed the Declaration of Helsinki Informed Consent was obtained from the patients.
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes