

SURGICAL OUTCOME OF OCCULT STRESS URINARY INCONTINENCE IN PELVIC ORGAN PROLAPSE

Hypothesis / aims of study

Advanced pelvic organ prolapse (POP) is associated with stress urinary incontinence (SUI). Some POP patients complain of concomitant SUI. Furthermore, a certain percentage of SUI is masked preoperatively, since advanced POP may cause urethral kinking and external urethral compression. However, the outcome of preoperatively diagnosed occult SUI following POP surgical repair has been rarely reported.¹ Using cough stress testing with prolapse reduction, we examined how precisely preoperative evaluation of occult SUI can predict the development of SUI after POP surgery.

Study design, materials and methods

After obtaining Institutional Review Board approval, we reviewed retrospectively the records of all 119 women who underwent surgery for symptomatic POP during the 30-month period beginning February 2007. Degree of POP was staged according to the pelvic-organ-prolapse quantification (POP-Q) system. The International Consultation on Incontinence Questionnaire Short Form for urinary incontinence (ICIQ-UI) was used for evaluation of urinary incontinence (UI). Women were considered to have UI if they reported symptoms of UI on the ICIQ-UI and required a pad usage during activities of daily living. POP repair was performed with the use of polypropylene mesh (GyneMesh PSTM, Ethicon, USA) cut by the surgeon according to the Trans Vaginal Mesh (TVM) technique described previously.² In the case of patients who had not undergone hysterectomy previously, the uterus was preserved. Whenever the patients with symptomatic SUI and/or a positive stress test wished for operative correction or prevention, the trans-obturator mid-urethral sling (TOT) procedure was performed concurrently. All patients underwent the preoperative evaluation including a pad test, cough stress test and urodynamic testing. For prediction of postoperative urinary conditions, all these tests were performed with prolapse reduction using a vaginal gauze pack or a ring pessary. A one-hour pad test was performed according to the recommendation of the ICS. A stress test was performed at a bladder volume of 300 ml or maximal bladder capacity, whichever was less, in a 45° lithotomy position. A positive stress test was defined as the involuntary loss of urine upon coughing. During filling cystometry, it was confirmed that involuntary detrusor contraction was not provoked by coughing. Occult SUI was defined as a positive stress test without history of SUI symptoms. Postoperative SUI was determined by symptom assessment and a pad usage 6 months after surgery. SUI symptoms were verified by stress testing. For estimating the predictive power of preoperative testing for postoperative SUI development, the Fisher's exact probability test was used. Logistic multiple regression analysis was performed to examine the relationships between the result of cough stress test and age and POP stage. A level of $p < 0.05$ was considered to be statistically significant.

Results

In 119 patients, ranging from 45 to 83 years of age (mean 68.4), mean number of vaginal deliveries and body mass index were 2.5 (range 0-7) and 24.7 (range 14.2-35.6), respectively. Thirty-four patients had previously undergone hysterectomy and 7 had previous cystocele repair. Of 116 patients with cystocele, 28 had rectocele, 30 rectocele and uterine or vault prolapse, and 14 uterine or vault prolapse concomitantly. One patient had uterine prolapse alone and 2 patients had rectocele with vault prolapse. POP-Q degree was stage 2 in 8 patients, stage 3 in 67 and stage 4 in 44. Surgical POP repair involved anterior TVM in 48 patients, anterior and posterior TVM in 45, anterior TVM with posterior colporrhaphy in 24, and posterior TVM in 2 patients. Symptomatic SUI was found in 20 (17 %) patients, of whom 18 exhibited a positive stress test. Of 99 patients without SUI symptoms, 28 (28 %) had a positive stress test (occult SUI). Thus, the stress test with prolapse reduction was positive in 46 (39 %) patients. Of 28 patients with occult SUI, 11 wished for concurrent TOT to prevent a possible development of SUI. Of 17 patients with occult SUI who did not undergo TOT, 9 (53 %) developed symptomatic SUI postoperatively, 4 of whom required anti-SUI surgery later. The TOT for occult SUI was effective to prevent the postoperative development of symptomatic SUI (Fisher's exact probability test, $p = 0.004$). On the other hand, of 73 patients with a negative stress test, only 4 (5 %) developed SUI postoperatively, but required no further therapy. In total 90 patients that did not undergo TOT concurrently, the results in stress testing correlated significantly with postoperative SUI development ($p < 0.0001$). Neither age ($b = -0.10$, $p = 0.26$) nor POP stage ($b = -0.08$, $p = 0.40$) correlated with the result of stress test. The one-hour pad test with prolapse reduction was positive (≥ 2 g) in 17 of 20 patients with symptomatic SUI and in 6 of 28 patients with occult SUI. In 15 of 73 patients with negative stress test, the pad test was positive, in most cases as a result of UUI. In the cases without concurrent TOT, the results in preoperative pad testing showed no correlation with postoperative SUI development ($p = 0.53$).

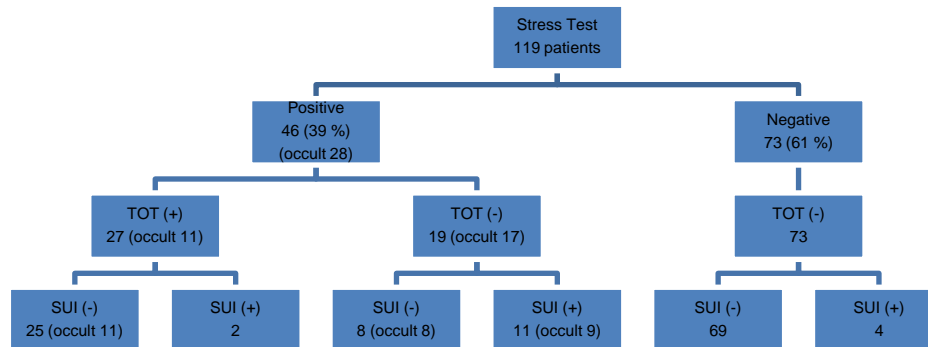
Interpretation of results

In our study, 53 % of patients diagnosed with occult SUI using stress testing developed symptomatic SUI after POP surgery, if they did not undergo TOT concurrently. In contrast, of 73 patients with a negative stress test, only 5 % developed SUI postoperatively. Thus, cough stress test with prolapse reduction may be sufficient for diagnosis of occult SUI. However, some of the patients with a positive stress test (47 %) did not develop SUI postoperatively without the TOT procedure. We think that a preventive effect of TVM on SUI is unlikely, since TVM leaves the bladder neck perfectly free. The detection rate of occult SUI with a cough stress test varies by method of prolapse reduction and examiner. It is thus possible that occult SUI is somewhat overdiagnosed and that false positive findings occur on stress testing, as previously suggested.^{1,3}

Concluding message

Occult SUI diagnosed preoperatively may alter the surgical strategy. Thus, a cough stress test with simple filling is essential for diagnosis of occult SUI. Our findings seem to support the usefulness of concurrent performance of anti-SUI surgery with POP repair in patients with symptomatic and occult SUI, however the criterion for a positive stress test needs the refinement.

Figure.



References

1. Liang CC, Chang YL, Chang SD, et al (2004) *Obstet Gynecol* 104: 795-800
2. Collinet P, Belot F, Debodinance P, et al (2006) *Int Urogynecol J* 17: 315-320
3. Holroyd-Leduc JM, Tannenbaum C, Thorpe KE, et al (2008) *JAMA* 299: 1446-1456

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Is this a clinical trial?	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?	No