

POSITION OF SUBURETHRAL SLING AT THE BLADDER NECK MAY PREDICT A HIGHER RECURRENT RATE OF SUI

Hypothesis / aims of study

Many surgical procedures for stress urinary incontinence (SUI) have been reported, and the best one remains controversial. Most of the research focuses on the comparison of the effectiveness and safety among different surgical techniques of suburethral sling. However, little data are available on the influence of the position of the suburethral sling on the treatment outcomes of SUI. The aim of this study was to investigate the relationship between the position of the suburethral sling and the outcomes of anti-incontinence surgery.

Study design, materials and methods

From 1998 to 2010, 154 women with SUI who received pubovaginal sling procedure using a polypropylene suburethral sling were retrospectively reviewed. Patients with preoperatively urodynamic proven detrusor overactivity, detrusor underactivity, neurogenic bladder dysfunction, high grade cystocele requiring concomitant colporrhaphy or pelvic floor reconstruction were not included. All patients had been investigated preoperatively and postoperatively by transrectal sonography of the bladder and urethra (TRUS-B). The BN incompetence at resting status and urethral incompetence during straining were also examined in TRUS-B to identify the BN and urethral condition after sling procedure. The suburethral sling positions in TRUS were classified as at the bladder neck (BN, 0-20% of the urethral length), proximal urethral (PU, 21-40% of the urethral length), middle urethral (MU, 41-60% of the urethral length), and distal urethral (DU, 61-80% of the urethral length). (Fig.1) Their post-operative continent status and the lower urinary tract symptoms such as urgency/urgency urinary incontinence or difficult voiding were compared among different groups of patients with different suburethral sling position.

Results

All patients received the pubovaginal sling procedures by the same urologist and the procedure was standardized as previously published technique. The mean age was 60.7 years (ranged from 30 to 85 years), and the median follow-up was 48 months (from 6 to 124). Postoperatively, the sling was found to locate at BN in 18, PU in 82, MU in 45, and DU in 9 patients. The overall rate of recurrent SUI was 15.5% (24 patients). Among the 154 patients, there was a significant higher recurrent rate of SUI in the group of BN (BN 38.9%, PU 8.5%, MU 17.8%, and DU 22.2%) ($p=0.012$) (Table1). The occurrence of BN incompetence at the resting status in TRUS-B was significantly higher in the group of DU (BN 27.8%, PU 40.2%, MU 71.1% and DU 88.9%) ($p<0.001$). The occurrence of incompetent urethra in TRUS-B was significantly higher in the groups of BN and DU (BN 22.2%, PU 2.4%, MU 6.7%, and DU 22.2%) ($p=0.007$). De novo urge symptoms occurred in 14.9% of overall patients, and de novo difficult voiding symptoms occurred in 18.2% of patients. There was no significant difference among these four groups in either de novo urge symptoms ($p=0.571$) or voiding symptoms ($p=0.934$).

Interpretation of results

The patient group with sling at the BN had a higher recurrence rate of SUI, and the groups with sling at the PU and MU had a better continence rate. When the suburethral sling was located at the more distal position, the BN incompetence rate in TRUS-B was higher. In the groups of BN and DU, there was higher incidence rate of urethral incompetence in TRUS-B. The data indicated that suburethral slings at the BN contributed more in the BN competence during resting, but cannot assure a competent urethra during straining. On the other hand, the sling position at the PU and MU gave more contribution in maintaining urethra competence and therefore, a higher continence rate in long-term follow-up. Nevertheless, no significant difference was noted in the aspects of de novo urge or voiding symptoms among different groups, suggesting the de novo urge might be from the bladder origin and difficult urination was result from sling tension on the bladder outlet rather than the sling position.

Concluding message

Positioning of the suburethral sling at the BN may predict a higher recurrent rate of SUI. The position of the suburethral sling played an important role in the effect of anti-incontinence surgery. Sling locating at the PU and MU had the best continence rate, which implies a good hammock effect can be achieved when placing the suburethra sling at these positions. The sling position has no effect on de novo urge or difficult voiding symptoms

Figure 1. The sling position after pubvaginial sling procedure.

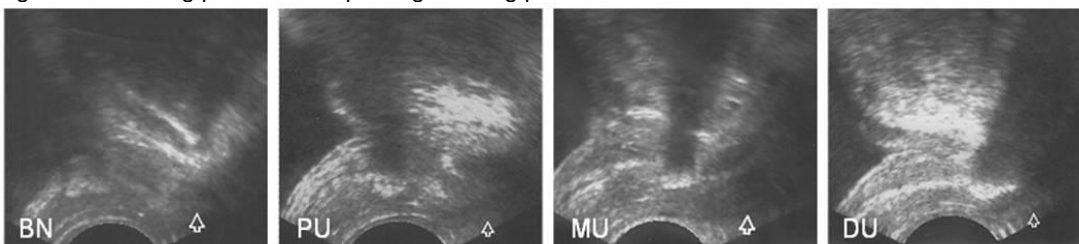


Table 1. Outcomes of pubovaginal sling procedure among groups with different sling positions

	Bladder neck	Proximal urethra	Middle urethra	Distal urethra	Total	p value
No. of patients	18	82	45	9	154	
Recurrence of SUI	7 (38.9)	8 (8.5)	8 (17.8)	2 (22.2)	24 (15.6)	0.012
De novo urge symptoms	1 (5.6)	14 (17.1)	6 (13.3)	2 (22.2)	23 (14.9)	0.571
De novo voiding symptoms	3 (16.7)	15 (18.3)	9 (20.0)	1 (11.1)	28 (18.2)	0.934
BN incompetence in resting TRUS-B	5 (27.8)	33 (40.2)	32 (71.1)	8 (88.9)	78 (50.6)	<0.001
Urethral incompetence in straining TRUS-B	4 (22.2)	2 (2.4)	3 (6.7)	2 (22.2)	11 (7.1)	0.007

(): percentage

<i>Specify source of funding or grant</i>	none
<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	Research Ethics Committee of Buddhist Tzu Chi General Hospital
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	No