

## LEAKAGES CIRCUMSTANCES: NEW FACTORS INFLUENCING THE OUTCOME OF SUBURETHRAL SLING PROCEDURES FOR FEMALE URINARY INCONTINENCE.

### Hypothesis / aims of study

Many authors focused on prognostic factors associated with failure of the suburethral sling procedures in women with stress urinary incontinence (SUI). However, preoperative leakage circumstances have not been considered yet as potential prognostic factors. Our team has previously developed a self-assessment questionnaire (SAQ) in order to characterise leakage circumstances in women consulting for urinary incontinence (1). The aim of this study was to evaluate its accuracy in predicting failure of the suburethral sling procedure.

### Study design, materials and methods

We conducted a retrospective analysis of 155 consecutive patients operated for SUI by suburethral sling between January 2003 and December 2006. Each one was evaluated using a SAQ recording leakage occurrence in 21 casual circumstances. Principal components analysis was performed to determine the dimensions for leakage circumstances. Cronbach's  $\alpha$  was calculated to assess the internal consistency for each dimension. Other preoperative data were assessed by clinical and urodynamical examinations. Leakage recurrence after surgery was evaluated by mailed questionnaire.

### Results

123 patients responded the questionnaire (79.4%) (Table 1) and the cumulative continence rate one year after surgery was 71.2%. Among the leakage circumstances, the principal components analysis permitted to distinguish 5 dimensions: leakage occurring while brief efforts (laughing, sneezing and coughing;  $\alpha = 0.68$ ), while long efforts (lifting, sport, running;  $\alpha = 0.77$ ), under stimulating circumstances (contact with water, cold, fear, urge and irritation;  $\alpha = 0.99$ ), while changing position (standing up, leaving bed, leaning forward and having sex;  $\alpha = 0.93$ ) and permanently (standing, sitting and lying down;  $\alpha = 0.75$ ). For each patient, dimension scores were determined as the sum of the item values within their own dimension.

In univariate analysis, the brief score had a significant association with the suburethral sling success (odds ratio per unit, 0.770; 95% confidence interval, 0.652–0.909;  $P=0.0210$ ). Inversely, the permanent score (odds ratio per unit, 1.367; 95% confidence interval, 1.015–1.841;  $P=0.0393$ ) and the stimulation score (odds ratio per unit, 2.16; 95% confidence interval, 1.025–1.266;  $P=0.0160$ ) were associated with the suburethral sling failure.

After adjusting for urodynamical and clinical parameters significantly associated with the suburethral sling procedure (age, previous anti-incontinence surgery, VLPP<60 cm/H<sub>2</sub>O and MUCP<30 cm/H<sub>2</sub>O), urine leakage dimensions with a significant association with the suburethral sling failure or success were: the brief score (odds ratio per unit, 0.829; 95% confidence interval, 0.698–0.985;  $P=0.0326$ ), the permanent score (odds ratio per unit, 1.413; 95% confidence interval, 1.001–1.995;  $P=0.0494$ ) and the stimulation score (odds ratio per unit, 1.125; 95% confidence interval, 1.002–1.262;  $P=0.0455$ ) (Table 2).

### Interpretation of results

The suburethral sling procedure appears to be particularly efficient when stress urinary incontinence concerns brief efforts. Inversely, the risk of failure is increased when preoperative leakages occur under stimulating circumstances or permanently.

### Concluding message

Using a SAQ about leakage circumstances could improve clinicians' prediction of the success after the suburethral sling procedure for SUI.

### References

1. J Urol (2008) in press.

### Tables

Table1: Patients' clinical and urodynamical characteristics.

	Patients operated for SUI n=155	Patients who responded to the questionnaire n=123	p
Mean age (range)	54.2 (30 – 84)	54.7 (33 – 83)	0.929 <sup>a</sup>
Mean BMI (range)	25.2 (16 – 35)	25.1 (16 – 34)	0.948 <sup>a</sup>
Menopausal women	83 (53.5%)	67 (54.5%)	0.904 <sup>b</sup>
Previous anti- incontinence surgery	23 (15%)	25 (19%)	0.264 <sup>b</sup>
<b>Reasons for consulting</b>			
Urinary incontinence	121 (78.1%)	96 (78%)	0.905 <sup>b</sup>
Prolapse	28 (18%)	21 (17.1%)	
Bleeding	6 (3.9%)	6 (4.9%)	
Mean VLPP +/- SD (range) (cm/H <sub>2</sub> O)	62.5 (25 - 120)	62.1 (25 - 120)	0.9202 <sup>a</sup>
Mean MUCP +/- SD (range) (cm/H <sub>2</sub> O)	45.6 (13 – 99)	44.6 (17 - 88)	0.6372 <sup>a</sup>
Concomitant vaginal surgery	32 (20.7%)	24 (19.5%)	0.881 <sup>b</sup>
% prolapse surgery	26 (16.8%)	19 (15.4%)	0.870 <sup>b</sup>
% hysterectomy alone	6 (3.9%)	5 (4.1%)	1.000 <sup>b</sup>
<b>Suburethral sling procedure</b>			
% TVT	56 (36.1%)	42 (34.1%)	0.801 <sup>b</sup>
% TVT O	99 (63.9%)	81 (65.9%)	

BMI, Body Mass Index;

VLPP, Valsalva Leak Point Pressure; MUCP, Maximum Urethral Closure Pressure;

SD, Standard Deviation. <sup>a</sup> Mann-Whitney U test; <sup>b</sup> Fisher's exact test

Table 2: Univariate and multivariate logistic regression analysis of leakage circumstances on the outcome of the suburethral sling procedure (OR odds ratio, CI confidence interval).

	Unadjusted			Adjusted		
	OR	95% CI	P	OR	95% CI	P
<b>Brief score</b>	0.770	0.652 – 0.909	0.021	0.829	0.698 – 0.985	0.0326
<b>Long score</b>	0.999	0.870 – 1.147	0.9882	-	-	-
<b>Position score</b>	1.140	0.989 – 1.313	0.0701	1.109	0.955 – 1.287	0.1757
<b>Permanent score</b>	1.367	1.015 – 1.841	0.0393	1.413	1.001 – 1.995	0.0494
<b>Stimulation score</b>	1.139	1.025 – 1.266	0.0160	1.125	1.002 – 1.262	0.0455

<i>Specify source of funding or grant</i>	None
<i>Is this a clinical trial?</i>	Yes
<i>Is this study registered in a public clinical trials registry?</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>	Le comité d'éthique de la recherche en gynécologie–obstétrique - CEROG
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes