PROPOSAL OF A NEW WAY TO EVALUATE THE EXTERNAL SPHINCTER FUNCTION PRIOR MALE SLING SURGERY

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AIMS OF STUDY

To propose a new way to objectively evaluate the external sphincter function prior to male sling

METHODS

Study Group

Between April 2016 and April 2017 ten consecutive patients with median age 68.5 (54-79) and duration on incontinence 88.3+ 71.4 months had comprehensive incontinence workup done for stress urinary incontinence (SUI). Etiology of incontinence was retropubic radical prostatectomy (RRP) in 4 (40%), transurethral resection of the prostate (TURP) in 4 (40%) and RRP associated with salvage radiation therapy in 2(20%). The incontinent assessment included the International Consultation on Incontinence Questionnaire – Short Form (ICIQ-SF), 24-hour pad test, urodynamics, urethroscopy and RT.

Urodynamics was performed according to the International Continence Society (ICS) recommendations.7 During urodynamics the urethral pressure profilometry (UPP) was performed to evaluate sphincter function[1] Measurements of SPAR and SPUC were recorded (detailed description below). RT was performed during cystoscopy to evaluate urethral mobility and sphincter function as described by Rehder P. All patients underwent a RTS surgery and the same assessment were repeated in the postoperative (except urodynamics). Postoperatively patients were divided in two groups: continent or incontinent. Definition of continence was no pad usage.

The time elapsed between prostate and sling surgery was greater than 26 months. The surgeries were performed by two experienced urologists according to the technique described by Redher and Gozzi.[2] A polyvinylidene fluoride (PVDF) sling was used, which is a highly non-reactive thermoplastic fluoropolymer produced by the polymerization of vinylidene difluoride, Dynamesh-PR™ . Exclusion criteria included the presence of anastomotic or urethral strictures on cystoscopy, high glucose blood levels (glycosylated hemoglobin higher than 7.5%), and previously failed treatments for incontinence. Informed consent was obtained from all patients and ethical institutional review board approved the study

Sphincter pressure at rest and under contraction (SPAR and SPUC)

The SPAR and SPUC evaluation was done according to the Brown-Wickham water perfusion method of urethral profilometry profile with a 10F catheter with four holes around the circumference, 5cm distal of the tip.5 Transducers were zeroed to atmospheric pressure at the pubic symphysis level. The catheter was introduced into the bladder. The bladder was filled with 150 ml of normal saline solution at room temperature, and with the patient in the lying position the urethral catheter was manually withdrawn. The perfusion rate was 2 mL/min. The infusion and transducer lines were connected to the bladder catheter through a three-way tap to register initial bladder pressure. The catheter was withdrawn at 1mm/s traction down the urethra and the pressure profile was recorded. The point of high pressure was considered the external sphincter localization. At this point the pressure was recorded as the SPAR. Then patients were asked to perform a pelvic floor contraction maneuver and the SPUC was recorded. This maneuver was repeated five times, with a three minutes interval and the medium value of the three highest SPUC was obtained for statistical analyses. Finally, the catheter was withdrawn until the holes around the circumference were clear of the external meatus (Fig. 1)

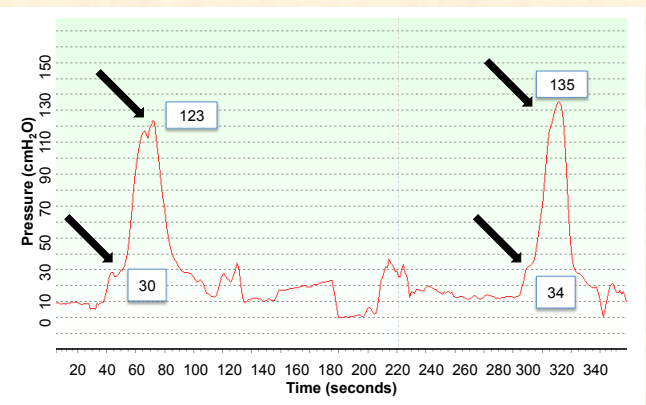

Figure 1: SPAR and SPC evaluation using the Brown-Wickham perfusinon method of urethral profilometry

RESULTS

Table 1 - Pre and postoperative 24-h pad test, SPAR, SPUC and RT in postoperative continent and incontinent patients

	24-h Pad test (gm)				
Patients	**Preop**	**Postop**	**SPAR (cmH2O)**	**SPUC (cmH2O)**	**RT**
Continent					
#1	80	0	40.6	184.3	positive
#2	200	0	67.3	181	negative
#3	80	0	58.3	186	positive
#4	245	0	94.6	201	positive
Incontinent					
#5	740	100	58	163.6	positive
#6	1200	570	27	35.6	negative
#7	750	400	23	120	positive
#8	1400	670	40.3	42.3	negative
#9	550	320	42	100.6	positive
#10	1200	600	47	119.3	negative

Interpretation of results

To the best of our knowledge, there is no report using the SPAR and SPUC to predict success in RTS surgery. In our opinion RT is extremely observer dependent. The correct classification of positive or negative test is completely visual and may vary between observers. On this way the RT is a subjective and non-numeric test. It is also hard to compare RT results and consequently preoperative characteristics between different cohorts. This test seems to be very useful in the selection but its subjectivity may be a barrier to a widely usage. In our cohort false positive rates in RT were found in 30% of the patients, which may be a possible explanation to failure rates on "ideal" candidates to RTS. The RT was positive in three patients that did not achieve complete continence. In these three patients, SPUC were respectively 163.6, 120 and 100.6 cmH2O demonstrating that they presented contraction but not enough to get continence after sling implantation. In our study, all patients that presented with SPUC values higher than 180cmH2O had low weight pad test (under 245gm) demonstrating good correlation between the two methods. On this preliminary report, the SPAR and SPUC (especially SPUC) presented good association with sling surgery success.

CONCLUSIONS

This is a preliminary report proposing the use of SPUC as objective evaluation of the external sphincter function prior male sling surgery. SPUC needs to be reproduced in larger cohorts to be validated and standardized but seems to be a way for optimizing the sphincter evaluation as well to become a useful tool for patient selection to RTS surgery.

REFERENCES

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