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READJUSTABLE SLING TRT REMEEX® HAS GOOD SHORT AND LONG TERM EFFICACY FOR STRESS URINARY INCONTINENCE FEMALES WITH SPINAL CORD LESION

Hypothesis / aims of study

The few literature on the treatment of stress urinary incontinence (SUI) in adult female spinal cord injury (SCI) patients report an efficacy of 22-77% with synthetic slings[1, 2]. These are high risk patients often with urinary tract infection, incomplete voiding, intrinsic sphincter deficiency (ISD), or a combination of these risk factors for failure. Precise tensioning of the sling during and after surgery might be warranted to overcome and/or control the risk conditions.

We report the short and long term efficacy of the Re-Adjustable TRT Remeex® sling in SUI women with neurogenic bladder secondary to SCI.

Study design, materials and methods

This is a retrospective study that included 16 women with SUI and SCI, who underwent Remeex® Sling surgery between April 2007 and May 2015. We reviewed the medical and surgical history, urodynamic findings and postoperative follow-up (FU). Cure was defined as a negative cough test, improvement as positive cough test with subjective symptom of SUI, and failure as positive cough test with no subjective improvement in SUI.

To evaluate long term efficacy we did a telephone survey with the urinary distress inventory (UDI-6) questionnaire. Patient long-term satisfaction was also evaluated by answering satisfied/improved/same to the global assessment question: “are you satisfied with the outcome of the performed operation?’

Postoperative surgical complications, post void residual volume (PVR), flow pattern, maximum flow rate (Qmax) and readjustments were also recorded.

Results

The baseline characteristics are shown in table 1. 31.2% patients complained of SUI and 68.8% of mixed urinary incontinence. When comparing the voiding patterns before and after surgery, there was no significant difference (table 2).

Table 1. Baseline Characteristics (N=16)

Age (years), mean ± SD	61.1 ± 14.9
Body mass index (kg/m^2), mean ± SD	26.9 ± 5.6
Etiology, n (%)	
• Spinal tumor metastasis	1 (6.2)
• Spinal stenosis	6 (37.5)
• Ependimoma/ Schwamoma	1 (6.2)
• Cauda equine syndrome	2 (12.5)
• Compression fracture and surgery	2 (12.5)
• Herniated disc surgery	3 (18.7)
• LMCC	1 (6.2)
Diabetes mellitus, n (%)	6 (37.5)
Previous anti-incontinence surgery, n (%)	5 (31.2)
Surgery indication, n (%)	
• Intrinsic sphincter deficiency	6 (37.5)
• Underactive bladder	5 (31.2)
• Redo surgery	4 (25)
• Redo surgery + Underactive bladder	1 (6.2)
URODYNAMIC FINDINGS	
• BC (cc/cmH_2O), median (IQR)	48 (25-86)
• MCC (cc), mean ± SD	405 ± 166
• Contractility at filling phase, n (%)	
○ Normal	12 (75)
○ IDC	4 (25)
• Contractility at voiding phase, n (%)	
○ Normal	2 (12.5)
○ Underactive bladder	6 (37.5)
○ Neurogenic acontractile detrusor	8 (50)
• VLPP (cmH_2O), mean ± SD	72 ± 25
• Qmax (cc/s), median (IQR)	6 (4-9)
• PdetQmax (cmH_2O) , median (IQR)	20 (8-36)
• MUCP (cmH_2O) , median (IQR)	35 (23-59)

BC (bladder compliance), IDC (involuntary detrusor contraction), MUCP (maximum urethral closure pressure) Qmax (Maximum flow), SUI (stress urinary incontinence), TOT (transobturator tape), TVT (transvaginal tape), VLPP (Valsalva leak point pressure)

Table 2. Comparison of voiding pattern, use of antimuscarinics, Qmax and PVR volume before and after surgery (n=16)

	Before surgery	After surgery	P value
Voiding pattern, n (%)			
• Normal	3	6	0.25†
• Straining	10	4	0.12†
• Clean intermittent catheterization	3	7	0.12†
OAB medication/antimuscarinics, n (%)	10 (62.5)	7 (43.7)	0.52€
Qmax (cc/s), median (IQR)	6 (4-9)	14.2 (9.6-17.9)	0.197‡
Post void residual volume (cc), median(IQR)	178 (22-243)	68.5 (26-255)	0.873‡

IQR (interquartile range), OAB (overactive bladder), Qmax (maximum flow rate)
† McNemar test; ‡ Wilcoxon rank sum test, € Chi-square

Table 3. Subjective improvement of the patients

Variable	Immediate FU N=16	Median FU (after readjustments) N=16	Long term FU (phone survey) N=13	P value*
FU (days), median (IQR)	10 (6-12)	580 (123-1420)	1056 (804-2852)	-
Cured, n (%)	13 (81.25)	13 (81.25)	9 (69.2)	0.18
Improved, n (%)	2 (12.5)	3 (18.75)	3 (23.1)	0.37
Same, n (%)	1 (6.25)	0 (0)	1 (7.7)	0.37

FU (follow-up), *Friedman's test

Table 3 shows the efficacy of the Remeex sling at immediate, mediate and long term FU. Of the cured patients at mediate FU, 7 (53.8%) had urgency and of those 4 (57.1%) had urgency incontinence (UI). Five (31.2%) patients stopped antimuscarinics and 5 (31.2%) had to continue.
At a median FU of 117 days (21-238), 6 (37.5) patients had readjustments. Four had 1, two had 2 and one had 3 readjustments, respectively. Afterwards 3 patients still leaked drops but did not want more readjustments. There was no significant difference in the PVR and Qmax at mediate FU.
At long term FU 13 patients could be contacted (1 died and 2 were unavailable). 2 (15.4%) were completely satisfied, 69.2% referred improvement and 1 (7.7%) referred feeling the same. 8 (61.5%) complained of UI, of whom 62.5% referred a moderate volume of leakage.
Five patients presented complications: 2 de novo urgency, 2 urinary tract infections and 1 defective varitensor that had to be changed and afterward explanted.

Interpretation of results
The neurogenic pelvic floor dysfunction added to the intrinsic sphynteric deficiency, previous anti-incontinence surgery, or underactive bladder that these patients may present, make the surgery more complex. Remeex sling has a cure rate of 81% which decreased to 69.2% by a median FU of 2.9 years. Some of these patients still leak "quite a bit" but are not bothered. In they are, Remeex sling permits readjustment without a new vaginal and urethral dissection.

Concluding message
The re-adjustable Remeex sling is a feasible and safe option at short and long term for patients with SUI and SCI.

References

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