

ASSESSMENT OF SEXUAL FUNCTIONS IN WOMEN WHO RECEIVED MIDURETHRAL SLINGS

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ABSTRACT

Background: Midurethral slings (MUS) are widely considered first-line surgery for treatment of female stress incontinence because of similar efficacy which may have consequences of female sexual functions after operation.

Aim and objectives: To assess sexual function associated with surgical improvement of stress incontinence after Midurethral slings in females

Subjects and Methods: 30 patients were included in our study were classified in 2 groups according to the approach of MUS. Each group included 15 patients, group I (TOT) & group II (TVT). Those patients were invited to participate in survey regarding their overall improvement using the global response assessment scale and FSFI questionnaire.

Results: Majority of both groups were marked improved with 80% and 93.3% respectively with no significant difference. All items of FSFI score were improved Desire, Arousal, Lubrication, Orgasm, Satisfaction and Pain and also total FSFI score was improved and increased significantly from pre to post management. No significant difference between two interventions.

Conclusion: Our findings support Mid urethral slings have high patient satisfaction rates regarding the improvements in sexual function scores on short-term and are relatively safe procedures.

Keywords: Midurethral Slings, Sexual Functions

Introduction

Although urinary incontinence (UI) is not a life-threatening problem, it is a public health condition that affects approximately 35%-50% of women worldwide with physical, psychological, social, and economic implications (1).

UI is also a major factor contributing to nursing home admission and hospital readmission among older women with comorbid conditions such as diabetes mellitus and hypertension (2).

Stress UI (SUI) is defined as a condition of involuntary leakage of urine upon effort, exertion, sneezing, or coughing or as the inability to hold urine within the bladder at times other than during voluntary micturition (3).

SUI is the most common type of UI, and its prevalence ranges between 8% and 33%. The most common risk factors for SUI are female gender, parity, obstetric history, chronic cough, advanced age, estrogen levels, obesity, and pelvic surgery history (4).

Midurethral slings are widely considered first-line surgery for treatment of female stress incontinence because of similar efficacy, yet reduced morbidity, as compared to historical operations including fascial slings and colposuspensions. Previously, the Urinary Incontinence Treatment Network reported equivalence for objective outcomes in 597 women who participated in a large randomized surgical trial comparing retropubic and transobturator midurethral slings, the Trial of Midurethral Slings (TOMUS) (5).

Participants in a large randomized surgical trial comparing the Burch colposuspension to the fascial sling (SISTER trial) experienced greater satisfaction related to better incontinence symptom control and reduced symptom distress in both treatment groups. These investigators also reported that participants who had more preoperative urge incontinence symptoms were less likely to experience satisfaction postoperatively. In nonsurgical patient populations, satisfaction is also related to patient perception of improvement and reduced bother from incontinence-related symptoms (6; 7)

Although treatment success traditionally has been defined by cure rate and symptom improvement, patient reported outcomes, particularly satisfaction, have become increasingly recognized as complementary measures of success (7).

We aimed at this work to assess female sexual functions associated with surgical improvement of stress incontinence after Midurethral slings.

Patients and Methods

A retrospective study including 30 patients, 15 underwent Transobturator Vaginal Tape (TOT) and 15 underwent Tension free vaginal tape (TVT) operation for stress urinary incontinence during the period between Jan 2019 to Jan 2020 in female urology unit in Urology Department, Faculty of Medicine, Zagazig University.

Inclusion criteria: Female patients who underwent transobturator tape (TOT) or tension free vaginal tape (TVT) for SUI.

Exclusion criteria: Patients with neurological disease that might affect bladder function, Patients who required surgical repair of cystocele or rectocele and recurrent cases for SUI surgeries. Written Informed consent was obtained from the patient and relative in order to participate in the study. The approval for the study was obtained from Institutional Review Board (IRB). The work was carried out according to the Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans

Pre-treatment evaluation

Included a detailed urological and gynecological history and a physical examination, Global response assessment scale and Female Sexual Function Index (FSFI).

FSFI DOMAIN SCORES AND FULL SCALE SCORE

The individual domain scores and full scale (overall) score of the FSFI can be derived from the computational formula outlined in the table below. For individual domain scores, add the scores of the individual items that comprise the domain and multiply the sum by the domain factor (see below). Add the six domain scores to obtain the full scale score. It should be noted that within the individual domains, a domain score of zero indicates that the subject reported having no sexual activity during the past month. Subject scores can be entered in the right-hand column.

Domain	Questions	Score Range	Factor	Minimum Score	Maximum Score	Score
Desire	1, 2	1 – 5	0.6	1.2	6.0	
Arousal	3, 4, 5, 6	0 – 5	0.3	0	6.0	
Lubrication	7, 8, 9, 10	0 – 5	0.3	0	6.0	
Orgasm	11, 12, 13	0 – 5	0.4	0	6.0	
Satisfaction	14, 15, 16	0 (or 1) – 5	0.4	0.8	6.0	
Pain	17, 18, 19	0 – 5	0.4	0	6.0	
Full Scale Score Range				2.0	36.0	

Postoperative: all cases recruited after 12 months from time of Midurethral slinginsertion for evaluation ofthe Global Response Assessment (GRA) Scale and FSFI. Lower Marked and moderateimprovements of symptoms on the GRA Scale were considered a successful outcome. Slight improvement, neutral response and worsening of symptoms were considered asfailures.

Statistical analysis: Data collected over the course of the history, basic clinical examination, laboratoryinvestigations and outcome measures are coded, entered and analyzed using MicrosoftExcel software. Data was then imported into the Analysis Software Statistical Packagefor Social Sciences (SPSS version 20.0) (Statistics Package for Social Sciences). Depending on the type of qualitative data represented by number and percentage, thequantitative continuous group represented by mean ± SD, the following tests were usedto test differences for significance. Difference and association of the qualitative variableby the Chi square test (X²) or the Fisher test. Differences between quantitativeindependent groups by t-test paired with t-test. The P value was set at < 0.05 forsignificant results and < 0.001 for high significant results.

Results

Mean age was distributed as 41.26±10.88 for TOT group and 42.73±11.62 for TVT group and BMI was distributed as 27.22±3.17 for TOT group and 28.12±3.20 for TVT group with no statistical difference between both groups. Figures (1,2).

There was no statistical difference between both groups regarding clinical data distribution. **Table (1)**

Majority of both groups were marked improved according to global response assessment with 80% and 93.3% respectively with no significant difference **Table (2)**

All items of FSFI score were improved Desire, Arousal, Lubrication, Orgasm, Satisfaction and Pain and also total FSFI score was improved and increased significantly from pre to post management. **Table (3)**

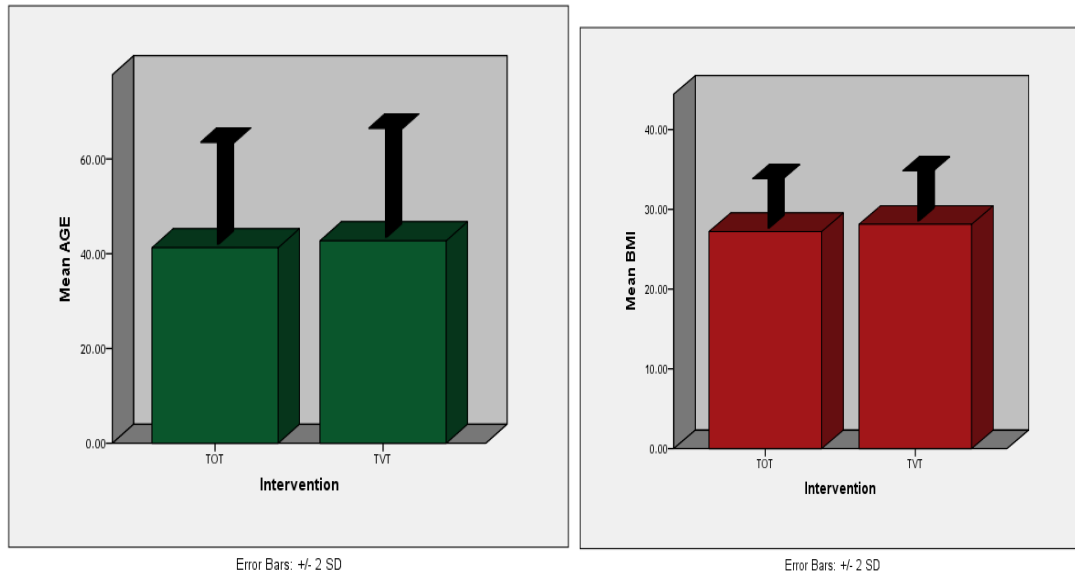


Figure (1): Demographic distribution between studied groups.

Table (1) Global response assessment of scale:

			TOT	TVT	X ² Fisher	P
Improvement	Marked	N	12	14	3.89	0.15
		%	80.0%	93.3%		
	Moderate	N	3	1		
		%	20.0%	6.7%		
	Mild	N	0	0		
		%	0.0%	00.0%		
	Neutral	N	0	0		
		%	0.0%	00.0%		
	Worsening	N	0	0		
		%	0.0%	00.0%		

Table (2) Clinical data distribution between studied intervention groups

			TOT	TVT	T/X ²	P
Menopause	No	N	11	9		0.43
		%	73.3%	60.0%		
	Yes	N	4	6	0.60	0.204
		%	26.7%	40.0%		
Parity	Zero	N	0	1		0.204
		%	0.0%	6.7%		
	One	N	3	5		
		%	20.0%	33.3%		
	2-4	N	10	7	8.50	
		%	40.0%	20.0%		
>4	N	2	2			
	%	13.3%	13.3%			
Hysterectomy	No	N	14	13		0.54
		%	93.3%	86.7%		
	Yes	N	1	2	0.37	0.36
		%	6.7%	13.3%		
Previous CS	No	N	13	11		0.36
		%	86.7%	73.3%		
	Yes	N	2	4	0.83	0.36
		%	13.3%	26.7%		

Table (3) FSFI score distribution between studied intervention groups:

	TOT	TVT	t	P
Desire	0.93±0.33	1.11±0.38	-0.739	0.466
Arousal	1.20±0.41	1.13±0.35	0.165	0.870
Lubrication	1.13±0.41	1.0±0.33	0.333	0.742
Orgasm	1.0±0.41	0.85±0.28	0.695	0.493
Satisfaction	0.93±0.33	1.0±0.38	-0.174	0.863
Pain	0.86±0.28	0.87±0.23	0.008	0.952
Total FSFI score	6.06±2.3	5.93±1.87	0.077	0.939
Desire POST	3.60±1.12	4.06±1.43	0.805	0.427
Arousal POST	3.46±1.12	3.86±1.12	0.752	0.459
Lubrication POST	3.40±1.21	3.93±1.32	0.962	0.344
Orgasm POST	2.66±1.21	3.60±1.21	1.933	0.063
Satisfaction POST	2.53±1.35	3.40±1.29	1.788	0.085
Pain POST	2.53±0.83	3.26±1.22	1.590	0.123
Total FSFI score POST	18.20±6.23	22.13±7.43	1.365	0.183

Discussion

Stress urinary incontinence (SUI) occurs when coughing, sneezing, laughing, or severe physical activity increases intra-abdominal pressure accompanied by involuntary urinary leakage. SUI is the most common form of urinary incontinence and might appear at any age (8).

Recently, the Urinary Incontinence Treatment Network reported equivalence for objective outcomes in 597 women who participated in a large randomized surgical trial comparing retropubic and transobturator midurethral slings, the Trial of Midurethral Slings (TOMUS). Although treatment success traditionally has been defined by cure rate and symptom improvement (objective patient success), patient reported outcomes, particularly satisfaction, have become increasingly recognized as complementary measures of success. Subjective patient satisfaction depends on many factors, including subjective results and presence of adverse events(5).

Mean age of our patients was distributed as **41.26±10.88** for TOT group and 42.73±11.62 for TVT group and BMI was distributed as **27.22±3.17** for TOT group and 28.12±3.20 for TVT group with no statistical difference between both groups. The objective success rate at 3 months and 12 months was the same (all 30 patients were dry with –ve pad test).

There is little consensus in literature about the effect of age and weight on surgical outcome success rate of those undergoing MUS. This could be explained by the use of different outcome parameters and different follow up timing used in different trials. **Laterza1 et al.(9)** reported that age and BMI at surgery may affect the objective long-term outcomes of SUI surgery, but not the early. Explaining that by the immediate mechanical effect of mid urethral slings which is independent of ageing of the tissue and patient's weight. When positioned correctly, a mid-urethral sling supports the urethra in a "hammock-like" way, and its curative effect is shown after 3 months. But After 5 years, the remodelling occur around the sling along with deterioration of pelvic floor muscle support also, the overweight may affect pelvic floor structures thereby, increasing intra-abdominal pressure in older and overweight patients, resulting in the loss of the therapeutic effect of the sling.

Other study by **Anger et al.(10)** reported that treatment failure 12 months postoperatively was higher in patients over 75 years than in patients between 65 and 75 years old (10.5% vs 7.2%). **(10)**.

On contrast **Stav et al. (11)** conclude that the age was not a risk factor for surgical failure at 24 months. **(11)**.

So longer follow up period is needed to establish such relationship in our study which is one of limitations in this study.

There was no statistical difference between both groups in our study regarding clinical data distribution including parity, menopause, hysterectomy and previous CS.

The Global Response Assessment Scale revealed marked improvement in 93.3% and 80% of patients following the retropubic and transobturator approaches respectively (table 8). The difference in results between the two approaches was not statistically significant the success rate based on marked and moderate improvement on the GRA Scale was 13.3% higher following the retropubic approach.

Regarding the sexuality; according to the total FSFI score it was preoperatively 6.06±2.3 and improved by TOT into 18.2±6.23. This improvement was less than the TVT improvement which reach 22.13±7.43 postoperatively from 5.93±1.87 preoperatively.

This was comparable with **Naumann et al.(12)** which show total satisfaction according to FSFI score improvement from 23.86±5.67 to 27.25 ±4.66 **(12)**.

Also, **Pace.Vicentini et al.(13)** Before surgery, all FSFI score domains were higher in the TOT group, except for orgasm and satisfaction, which were instead superior in the TVT group. After intervention, the FSFI score domains were higher in the TOT group, apart from the orgasm domain, which was superior in the TVT group **(13)**.

Conclusion

This study demonstrated that sexual function improved with surgical improvement of stress incontinence by anti-incontinence procedures with no significant difference between the retropubic TVT procedure and the transobturator TOT procedure.

Conflicts of interest:None.

References:

1. **Minassian VA, Bazi T & Stewart WF (2017):** Clinical epidemiological insights into urinary incontinence. *International urogynecology journal*, 28(5), 687-696.
2. **Hagan KA, Erekson E, Austin A, Minassian VA, Townsend MK, Bynum JP, et al. (2018):** A prospective study of the natural history of urinary incontinence in women. *American journal of obstetrics and gynecology*, 218(5), 502-e1.
3. **Lucente VR & Ephraim SN (2015):** Diagnosis and surgical treatment of stress urinary incontinence. *Obstetrics & Gynecology*, 125(4), 979.
4. **Sensoy N, Dogan N, Ozek B & Karaaslan L (2013):** Urinary incontinence in women: prevalence rates, risk factors and impact on quality of life. *Pakistan journal of medical sciences*, 29(3), 818.
5. **Richter HE, Albo M E, Zyczynski HM, Kenton K, Norton PA, Sirls LT, et al. (2010).** Retropubic versus transobturator midurethral slings for stress incontinence. *New England Journal of Medicine*, 362(22), 2066-2076.
6. **Burgio KL, Brubaker L, Richter HE, Wai CY, Litman HJ, France DB et al. (2010).** Patient satisfaction with stress incontinence surgery. *Neurourology and Urodynamics*, 29(8), 1403-1409.

7. **Wai CY, Curto TM, Zyczynski HM, Stoddard AM, Burgio KL, Brubaker L, et al. (2013):** Patient satisfaction following Midurethral sling surgery for stress urinary incontinence. *Obstetrics and gynecology*, 121(5), 1009.
8. **Ghaderi F, Oskouei AE (2014):** Physiotherapy for women with stress urinary incontinence: a review article. *Journal of physical therapy science.*; 26 (9):1493-9.
9. **Laterza RM, Halpern K, Ulrich D, Graf A, Tamussino K, Umek W, Austrian (2018):** TVT vs. TVT-O Study Group. Influence of age, BMI and parity on the success rate of midurethral slings for stress urinary incontinence. *PloS one.* 16;13(8):e0201167.
10. **Anger JT, Litwin MS, Wang Q, Pashos CL, Rodríguez LV (2007):** The effect of age on outcomes of sling surgery for urinary incontinence. *Journal of the American Geriatrics Society.*; 55(12): 1927-31.
11. **Stav K, Dwyer PL, Rosamilia A, Schierlitz L, Lim YN, Lee J (2010):** Midurethral sling procedures for stress urinary incontinence in women over 80 years. *Neurourology and urodynamics.*; 29 (7): 1262-6.
12. **Naumann G, Steetskamp J, Meyer M, Laterza R, Skala C, Albrich S., et al. (2013):** Changes in sexual function and quality of life after single-incision mid-urethral sling for treatment of female stress urinary incontinence. *European Journal of Obstetrics & Gynecology and Reproductive Biology.* 1;168(2):231-5.
13. **Pace G, Vicentini C (2008):** Female sexual function evaluation of the tension-free vaginal tape (TVT) and transobturatorsuburethral tape (TOT) incontinence surgery: results of a prospective study. *The journal of sexual medicine.* 1;5(2):387-93.