

## Original paper

# Minimal Invasive Mini-Sling Procedure for Female Stress Urinary Incontinence

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## Abstract

**B**ackground: Surgery for stress urinary incontinence has been modernized by the introduction of tension free vaginal tape technique TVT (1). Minisling introduction has been simplifying this surgical procedure.

**Aim:** To make an assessment of the success rate of minisling for ladies with stress urinary incontinence.

**Method:** Our study enrolls 40 ladies. The mean patients age was 44 years,. 75% of them with pure SUI and 25% had mixed UI. Patient's assessment postoperatively was made by clinical assessment 3 months and 1 year after the procedure.

**Result:** success rate was very good 97.5%. Post operative complications was 5% retention, and 12.5% UTI. The 1-3 months follow up shows a 5% de novo urgency and a 1 year follow up shows satisfaction rate of 97.5%.

**Conclusion:** Minisling procedure for SUI has low morbidity with low rate of complications and high success rate.

**Keyword:** stress incontinence, minisling procedure.

## Introduction

Urinary incontinence (UI), the involuntary urine loss from the bladder <sup>(2)</sup>, is regarded a specific symptom of lower urinary system abnormalities. Urine is keep hold in the bladder by the double action of urethra and midurethral sphincter, which plays major role in a closure mechanism <sup>(3)</sup>. The urinary bladder and the urethra also supported by pelvic floor muscles. Continence also involves proper performance of the related anatomy in addition to the involvement of the related neurological system <sup>(3)</sup>; stress urinary incontinence (SUI) result from abnormalities in the urethra, defect in the bladder or both<sup>(1)</sup>.

Women SUI is the most familiar form of incontinence and is characterized by the uncontrolled urine outflow in response to raised abdominal pressure secondary to exertion, heavy lifting, coughing, or any effort, <sup>(4)</sup>. Intrinal sphincter deficiency and hyper mobility of bladder neck and urethra during physical exertion <sup>(1)</sup>. Since the time

of establishment of 20<sup>th</sup> century, sling procedure have been employed for the treatment of ladies with SUI. near the beginning in 20<sup>th</sup> century, VonGiordano employed the first urethral sling by using gracilis muscle <sup>(3)</sup>.multiple modifications to this procedure were consequently described. <sup>(4,5,6)</sup>.

Now aday, the emphasis has shifted to minimal invasive procedures because of the documented benefits of less morbidity, rapid recovery and and decreased cost. The tension-free vaginal tape (TVT) operations, had been developed by Ulf Ulmsten at the 1990s. The TVT procedure is performed with a prepackaged kit that permits the surgeon to use very small incisions, resulting in minimal discomfort to the woman and a rapid recovery <sup>(7)</sup>.

The synthetic single-incision midurethral sling was first introduced in 2006 as a modification to traditional transobturator, retropubic and transvaginal slings <sup>(5)</sup>. These slings were designed to require less dissection in the midurethral area without

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the need to make additional incisions suprapubically or in the groin <sup>(6)</sup>.

The single-incision midurethral sling system differs from TVT, in that single needle required, the needle is thinner and smaller pass in an antegrade fashion from a small vaginal incisions permitting added control of the needles' passageway in compare to TVT technique <sup>(8)</sup>.

Our early experience supports the conception that the single-incision midurethral sling delivery system is easy to use and incorporate into our daily practice

## Patients and Methods

Forty female patients were assigned to undergo minisling procedure in Al-Sadar Medical City and Al Hayat center. Thirty of the cases had pure SUI and ten had mixed UI. All patient were evaluated with age, parity, gynaecological history, and medical and surgical history. Clinically evaluated with physical examination, vaginal examination, stress cough test, urinalysis, urodynamic assessment with cystometry.

All operation were done under spinal anaesthesia. Small vaginal incision 1.0 -1.5 cm about 1.5 cm from urethral meatus, minimal dissection of the vaginal wall around urethra, then fitting sling tip to the delivery needle, which is subsequently introduced through obturator foramen for deployment of sling into obturator internus muscle. this procedure repeated at opposite site, tension of sling was controlled by operator by advancing the needle tip untill appropriate tension achieved, once sling was deposite in place, vaginal incision closed with three zero vicryl suture. Folyes

catheter and vaginal pack removed 12 hours later.

## Results

A total of 40 ladies were enrolled in our study. Mean patients age was 44 years (range 35-60 years) as shown in table 1. Thirty patient (75%) had pure stress incontinence and 10 women (25%) had mixed urine incontinence.

All procedures were done under spinal anaesthesia. In general, the subjective cure rate at twelve months was (97.5%), which was estimated by negative cough stress test as shown in figure 1.

Mean operation time was 21 minute (15-30) as shown in table 2. No intraoperative recognized complication. Postoperatively 2 patient (5%) had retention of urine, one (2.5%) treated by conservative management, and one patient (2.5%) needed removal of the tape. Five patient (12.5) had UTI after operation, 2 patients (5%) developed de novo urgency and one women (2.5%) developed temporary perineal tenderness. As shown in figure 2.

Mean hospitalization period was 2 days (range 1-4 days). Some patients were discharged in less than 48 hours, but most of the patients were discharged between 48 and 72 hours. The discharge was dependant on the timing of the removal of catheter and subsequent satisfactory urinary flow. Table 3

Mean follow-up period was 12±1 months (3 to 19 months). The overall subjective cure rate was 97.5% using cough provocative test at three months and one year after surgery. Table 4

Table 1. age of patients enrolled to undergo sling procedure.

Mean Patient age	35-40	40-45	45-50	50-55	55-60
No. of patients	8	12	9	7	4

Table 2. mean time of sling operation in our study.

Mean oper. time	15-20	20-25	25-30	30-35
No. of cases	12	12	9	7

Table 3. mean time of patient hospitalization after sling procedure.

Mean hosp. time	1day	2days	3days	4days
No. of cases	20	14	5	1

Table 4. mean time of patient follow up after sling procedure.

Mean follow up	3months	6months	12months	19months
No. of cases	4	5	20	11

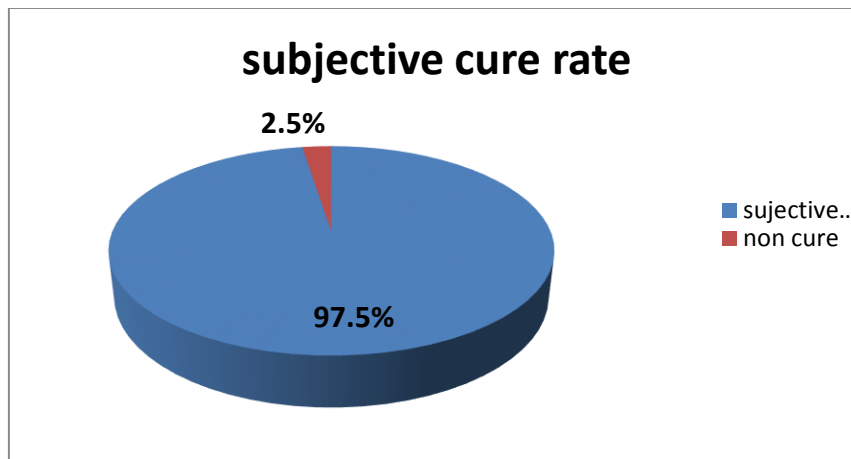


Figure 1. show subjective cure rate of minisling operation.

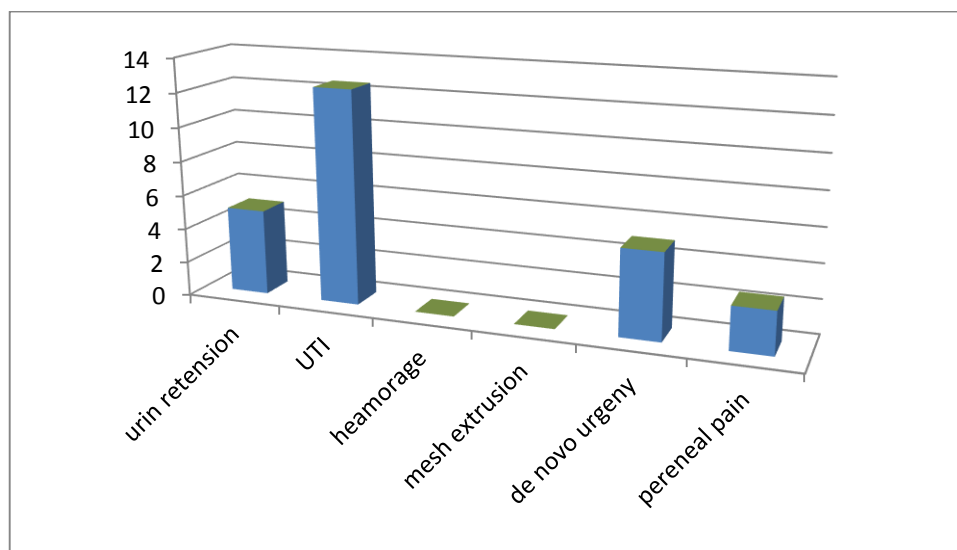


Figure 2. incidence of complication following minisling operation.

### Discussion

These results prove the practicability and safety of minisling procedure for treatment of stress urine incontinence

A current review of eleven studied with objective cure rate of about 87.3% (7,8,9), in our series the satisfaction rate was 97,5% at 1 year.

No patient suffer from vascular, intestinal or neurological injuries at our study during

minisling positioning. In contrast, Ulmsten et al reported two cases of uncomplicated hematomas in the retropubic space at their multicenter trial (11).

In our study, urinary catheters were regularly inserted in the bladder at the time of operation and usually removed the next day or within 24 hours. Urinary retention after catheter removal, and voiding difficulties were observed in tow patients. One transient retention and one required

division of the tape. Deval et al reported 10.7% cases of temporary urine retention, 3.7% of them necessitated midurethral tape division<sup>(12)</sup>

There were 3 UTIs, 6.4%, it was found to have no correlation with length of operation, length of catheter insitu or retention of urine in this study; this result is comparable to Deval et al (8.6%)<sup>(12)</sup>, and to Jaffry et al (6.4%)<sup>(13)</sup>. One women (2.5%) developed temporary perineal tenderness; this outcome is comparable to Jaffry et al outcome of (6.4%)<sup>(13)</sup>

Minisling operation can be considered an alternate to traditional surgical techniques; its advantages comprise a short and simple learning curve, a low incidence of postoperative complications, and a promising operation success rate.

## Conclusion

Stress urinary incontinence operation have to meet up the demands of efficient operation with minimal complications and low morbidity. The minisling procedure seems to attain benefits regarding morbidity and safety joint with a reduce incidence of complications.

## References

1. Abrams P, Cardozo L, Fall M et al. The standardisation of terminology of lower urinary tract function: report from the Standardisation Sub-committee of the International Continence Society. *Neurourol Urodyn* 2012; 21: 167 78.
2. Victor W. Nitti, Jeppy G. Blaivas. Definition and classification of urinary incontinence. In: Alan J. WeinLouis, R. Kavoussi, Andrew C. Novick, Alan W. Partin, and Craig A. Peters. *Campbell-Walsh urology*, 11th eddition . Saunders Elsevier.2016;2187.
3. Victor W. Nitti, Jeppy G. Blaivas. Epidemiology of urinary incontinence. In: Alan J. WeinLouis, R. Kavoussi, Andrew C. Novick, Alan W. Partin, and Craig A. Peters. *Campbell-Walsh urology*, 11th edition. Saunders Elsevier.2016; 2187.
4. Wilson PD, Bø K, Hay-Smith J et al. Conservative treatment in women. In Abrams P, Cardozo L, Khoury S, Wein A eds, *Incontinence*, 2nd edn. Committee 10C, Plymouth: Plymbridge Distributors Ltd 2002: 571 624.
5. Hannestad YS, Rortveit G, Sandvik H, Hunskaar S. A community-based epidemiological survey of female urinary incontinence: the Norwegian EPINCONT study. *J Clin Epidemiol* 2000; 53: 1150 7.
6. Burch J. Urethrovaginal fixation to Cooper's ligament for correction of stress incontinence, cystocele, and prolapse. *Am J Obstet Gynecol*. 1961;81:281–290.
7. Viktrup L. Female stress and urge incontinence in family practice: insight into the lower urinary tract. *Int J Clin Pract* 2012; 56: 694 700.
8. Dmochowski RR, Blaivas JM, Gormley EA, Juma S, Karram MM, Lightner DJ, et al. Update of AUA guideline on the surgical management of female stress urinary incontinence. *J Urol*. 2010;183:1906–1914.
9. Hunskaar S, Burgio K, Diokno AC et al. Epidemiology and natural history of urinary incontinence. In Abrams P, Cardozo L, Khoury S, Wein A eds. *Incontinence*, 2nd edn. Plymouth UK: Health Publication Ltd 2002: 165 201.
10. Henly DR, Barrett DM, Weiland TL, O'Connor MK, Malizia AA, Wein AJ. Particulate silicone for use in periurethral injections: local tissue effects and search for migration. *J. Urol*. 1995;153:2039–2043.
11. Ulmsten U, Petros P. Intravaginal slingplasty (IVS): an ambulatory surgical procedure for treatment of female urinary incontinence. *Scand J Urol Nephrol*. 1995;29:75–82.
12. Deval B, Levardon M, Samain E et al. A French multicenter clinical trial of suprapubic midurethral sling for stress urinary incontinence. *Eur Urol* 2003; 44: 254–9.
13. Jaffry at al. Tensionless mid urethral polypropylene sling for stress urinary incontinence, morbidity assessment. *Urology* 2009; 58: 702–6 CrossRef, PubMed.