

## TRANSOBTURATOR SUBURETHRAL SLING (T.S.S) : FOR TREATING FEMALE STRESS INCONTINENCE

### Hypothesis / aims of study

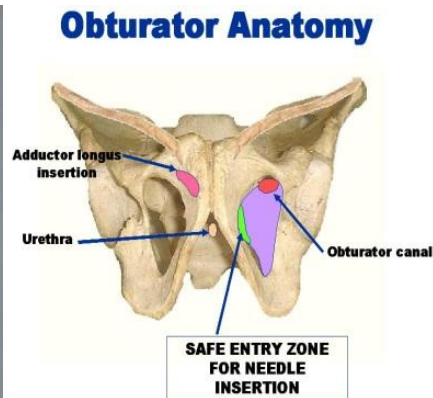
To evaluate the efficacy and safety of a new minimally invasive and inexpensive surgical procedure the Transobturator Suburethral Sling (T.S.S) for treating female stress urinary incontinence.

### Study design, materials and methods

35 patients with stress urinary incontinence (SUI) underwent the (TSS) procedure between August 2004 to December 2006. All patients were subjected to detailed history and Q.O.L. questionnaire, clinical examination, Urodynamic studies, Pelvic ultrasound and Lab tests. Vaginal infection, cystitis, and detrusor over activity were treated prior to surgery, MUCP was < 27 cm H<sub>2</sub>O, mean age was 43.6 years, mean parity was 4.4. Non of the patients had previous abdominal / pelvic surgery, 22/35 patients had an associated pelvic prolapse (cysto / rectocele) that required surgical correction, 20/35 patients had detrusor over activity, confirmed by cystometry (mixed incontinence) that required medical treatment and pelvic floor exercises. A polypropylene tape 1 cm wide by 30 cm long was inserted, tension free, underneath the mid urethra between the two obturator foramens by a special needle using the outside- in technique, as the retro pubic space was preserved intact, cystoscopy was not needed.

17/35 patients had spinal anesthesia, 18/35 patients had general anesthesia. 23/35 patients had a multifilament tape inserted and 12/35 had a monofilam. The tape used was acquired from a 30 X 30 cm polypropylene mesh, when excessive elasticity was found, a tensioning suture of 2/0 vicryl was placed in the middle of the tape all through its length, with knots at the ends of the tape and at the junctions of middle third and the outer third (every 10 cm), to anchor the tape and decrease it's elasticity. The remaining of the mesh was cut in a similar fashion and re-sterilized for further use. The special curved needle used to perforate the obturator membrane was hand made, with a tapered blunt tip and an eye for the tape to be passed through.

Patient was put in the lithotomy position with the buttocks slightly outside the table margin, and the thighs abducted and flexed towards the abdomen. A 2 cm longitudinal incision is made in the vagina 1.5 cm below the urethral meatus, dissection with Medsumbaum scissors is led laterally towards the ischiopubic ramus and the obturator foramen, an index finger is put in the vaginal incision and the thumb placed in front of the obturator foramen (pinch test) to assess the size of the blind area, and angle of needle rotation. An index finger is then used to identify the lateral margin of the ischiopubic ramus, and a 1cm incision is made, just lateral to the ischiopubic ramus and below the insertion of the adductor longus tendon, at the level of the clitoris. The special needle is held in the same hand as the side the operator is working on, the needle is held vertically with the handle downwards, slight pressure is applied to perforate the obturator membrane and the obturator muscles, there are no major vessels or nerves near the ischiopubic ramus, the obturator canal containing the obturator vessels and nerve is very lateral and superior (3-4 cm) to the ischiopubic ramus. The needle handle is then rotated medially in a horizontal plane ( between 40 – 80 ) degrees depending on pelvic shape), the needle tip is led medially towards the urethra, to curve around the descending ischiopubic ramus, while remaining in close contact with it, and runs above the fibrous pudendal canal containing the int. pudendal vessels and nerve in the inferior border of the ischiopubic ramus, the needle is guided through its course by an index finger placed in the vaginal incision, to protect the urethra by folding it upwards, and to protect the bladder, by making it safer than a blind passage, the needle then passes through the pelvic fascia to exit the vaginal incision. The polypropylene mesh tape, is attached to the needle through its eye and brought back through the incision towards the obturator foramen, the same is done on the opposite side. The tape is placed tension free and adjusted into position between the middle of the urethra and the vaginal wall. Depending on needle angle and curve, bladder perforation may ensue if the needle passes more anteriorly or superiorly, and vaginal and urethral perforation if the needle passes more posteriorly or inferiorly.



### Results

30/35 patients were completely dry, 1 patient had improved symptoms, 4/35 patients failed due to tape extrusion and mesh erosion, 5 patients had bleeding less than 100 cc, 2 patient had a vaginal wall puncture, 2 patient developed mild de-novo urgency, and 2 patients had a mild voiding disorder, there were no bladder, urethral, or blood vessel injuries.

### Interpretation of results

T.S.S has shown good short term cure and improvement rates, 31/35 patients were completely dry postoperatively, 1/35 showed some improvement, 4 had tape extrusion and vaginal erosion, that needed complete tape removal after 3 and 5 months, these 4 cases had a multifilament tape insertion.

No major blood vessel injuries, no bladder, urethral, and bowel perforation was noted, complications were minimal such as mild bleeding, vaginal puncture, de novo urgency, and mild voiding dysfunction.

### Concluding message

T.S.S – a modification of the TOT technique - is a safe, simple, effective, and inexpensive, minimally invasive technique for correction of female stress urinary incontinence, the price of similar incontinence kits in the market ranges from (2800 – 3300 EGP) per set , this handmade device has a price tag of 200 EGP, the mesh was acquired from the local market and the needle was forged locally. The transobturator sub urethral sling results are encouraging, with approximately 88% cure rate, although it is unclear whether it is effective in patients with severe intrinsic sphincter deficiency (ISD) and patients with fixed or lead-pipe urethra. We feel that more study is needed to evaluate the long term results and complications of such a procedure. We found higher erosion and extrusion rates with multifilament tapes, thus we recommend the use of monofilament tapes, the trans-obturator route is highly effective in cases of urethral hyper mobility, we believe in cases of intrinsic sphincter deficiency a slightly tensioned tape may give better results.

### References

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### Disclosures

**Funding:** self funding **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** al galaa teaching hospital ethical committee **Helsinki:** Yes **Informed Consent:** Yes