

Assessment of Transobturator Tension-Free Vaginal Tape Techniques: Inside-Out Versus Outside-In, for Stress Urinary Incontinence

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Hypothesis / aims of study

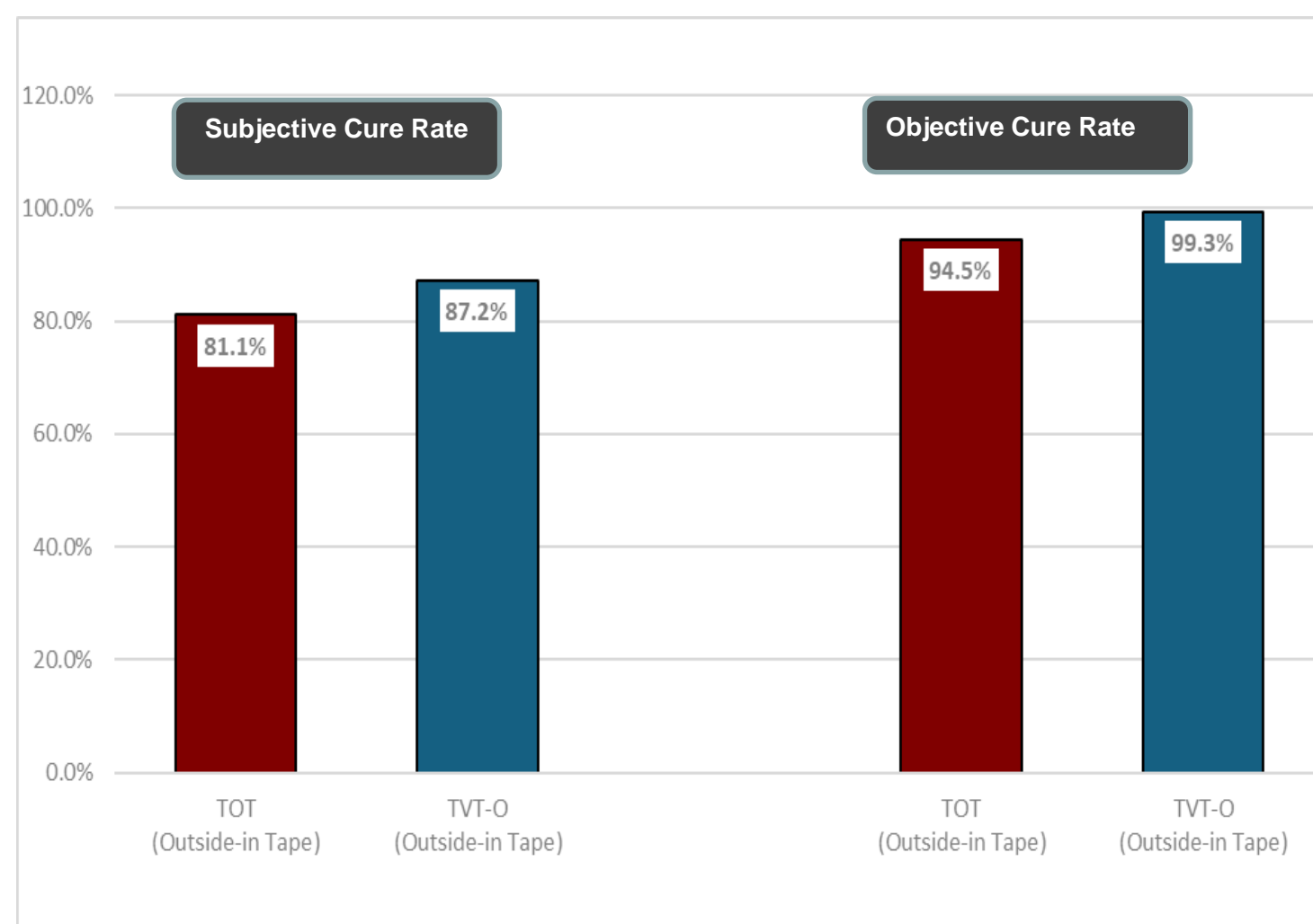
This study examined the clinical outcomes of female stress urinary incontinence (SUI) patients who underwent either the outside-in transobturator tape (TOT) or inside-out transobturator tape (TVT-O) procedures.

Study design, materials and methods

An Observational Retrospective study was carried out for women with urinary stress incontinence who underwent transobturator tension-free vaginal tape from February 2014 to September 2020 in a tertiary urogynecology hospital in U.A.E and compared cure and complication rate. Total number of 193 patients were enrolled, had either an outside-in (n = 39) or inside-out (n =154) procedure. They were followed up at intervals of 4,8,12 weeks, 6 months then 1 year after the operation. 7 cases were excluded as they failed to attend follow-up appointments. The primary outcome was clinical cure including Subjective and Objective cure . Other outcomes assessed were DeNovo OAB, Voiding Dysfunction & groin pain.

Results

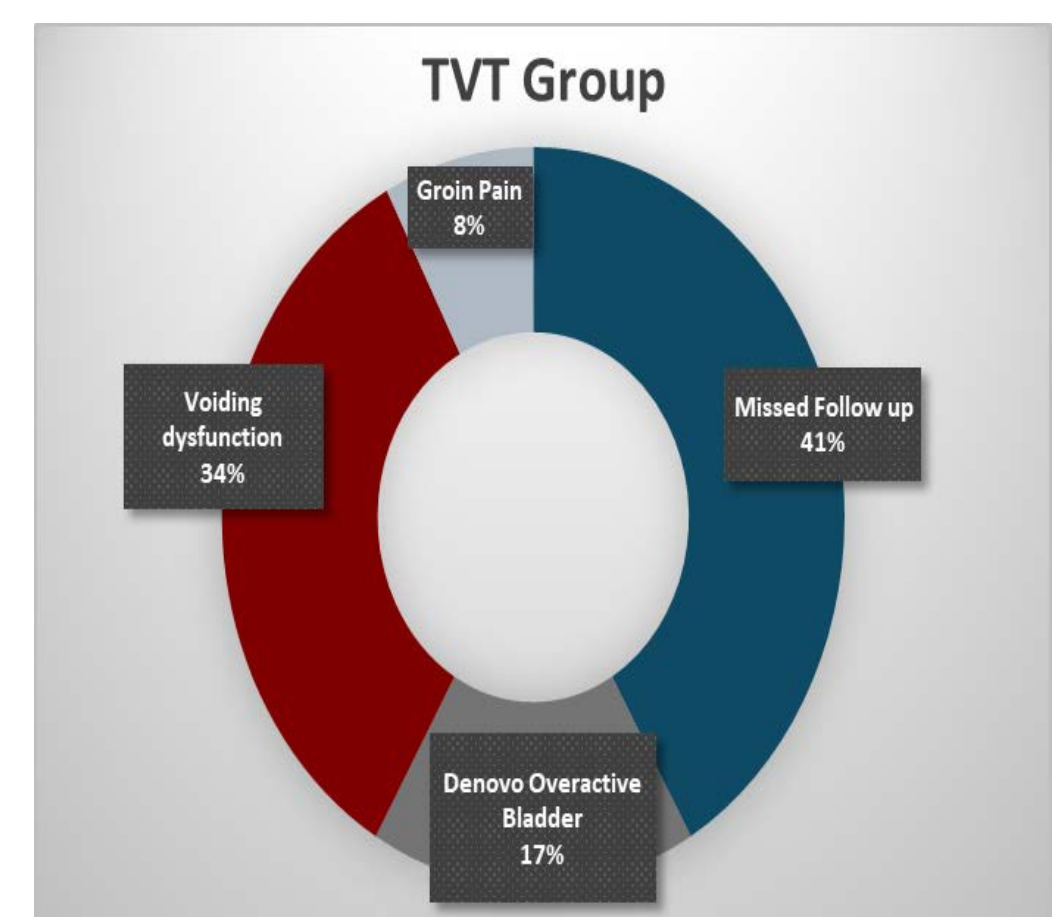
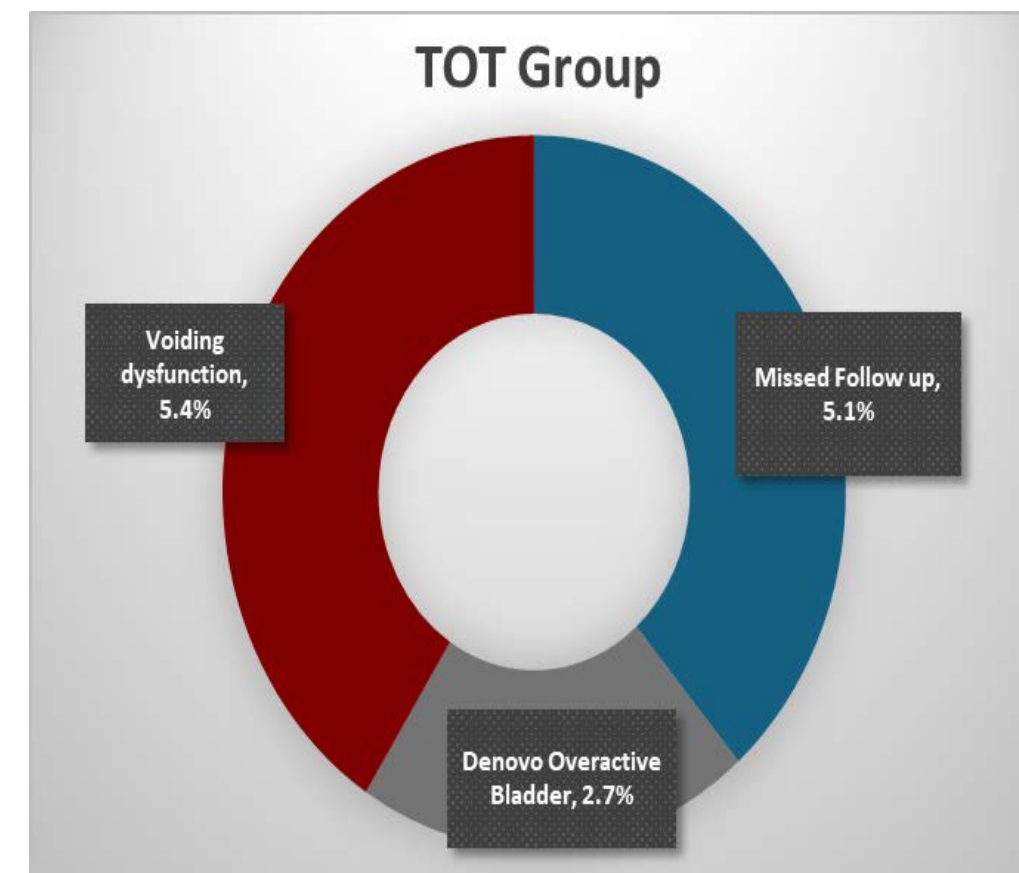
The TOT procedure (outside-in tape) showed a subjective cure rate of 81.1%, whereas the TVT-O procedure (inside-out tape) demonstrated a higher cure rate of 87.2%. Objectively, the TOT procedure had an objective cure rate of 94.5%, whereas the TVT-O procedure had a higher cure rate of 99.3%. In the TOT group, 5.1% of patients missed follow-up appointments, 2.7% experienced DeNovo Overactive Bladder (OAB), and 5.4% developed voiding dysfunction. In contrast, in the TVT-O group, 3.2% of patients missed follow-up appointments, 1.3% experienced DeNovo OAB, 2.6% developed voiding dysfunction, and 0.6% reported groin pain.



Interpretation

Since the introduction of the mid-1990s, the retropubic sling, a form of the mid-urethral sling (MUS), has emerged as the preferred method for addressing female Stress Urinary Incontinence (SUI). This surgical intervention is renowned for its high rates of both subjective and objective SUI resolution, ranging from 80% to 90%, even after a follow-up period exceeding 11 years. Originally described by Ulmsten et al., the technique of the tension-free vaginal tape (TVT) sling involved the insertion of the tape via a retropubic approach. However, complications during both the intraoperative and postoperative phases have been documented, primarily stemming from the inadvertent penetration of pelvic organs (such as the bladder and bowel), nerves, and blood vessels by the surgical device. In efforts to mitigate these risks, Delorme proposed a modified technique in 2001 known as the outside-in transobturator (TOT) approach, which involves passage through the obturator foramen for suburethral tape placement.

Subsequently, in 2003, De Leval introduced the inside-out procedure (TVT-O) as an alternative method, further refining the approach to minimize the potential for complications associated with blind passage through the retropubic space, including significant bleeding and bladder injury. The aim of our study was to draw a comparison between the clinical outcomes of female stress urinary incontinence (SUI) patients who underwent either the outside-in transobturator tape (TOT) or inside-out transobturator tape (TVT-O) procedures. A total of 193 patient with Stress urinary Incontinence were included in our study, Outcome assessed were Clinical Cure. Subjective cure was characterized by the absence of urine loss during physical activity in women. Objective cure was defined as the absence of urine leakage during a stress test induced by coughing. Other outcomes assessed were DeNovo OAB, Voiding Dysfunction & groin pain. The TOT procedure (outside-in tape) showed a subjective cure rate of 81.1%, whereas the TVT-O procedure (inside-out tape) displayed a superior cure rate of 87.2%. In terms of objective assessment, the TOT procedure achieved a cure rate of 94.5%, whereas the TVT-O procedure boasted a higher cure rate of 99.3%. In the TOT group, 5.1% (n=2) of patients missed follow-up appointments, 2.7% (n=1) experienced DeNovo Overactive Bladder (OAB), and 5.4% (n=2) developed voiding dysfunction. Conversely, in the TVT-O group, 3.2% (n=5) of patients missed follow-up appointments, 1.3% (n=2) experienced DeNovo OAB, 2.6% (n=4) developed voiding dysfunction, and 0.6% (n=1) reported groin pain.



Conclusions

Our study suggests that both the outside-in and inside-out approaches are similarly safe and effective in managing urinary stress incontinence in women for up to one year, although TVT-O demonstrated slightly superior outcomes. The transobturator tape operation consistently yields high success rates in addressing stress urinary incontinence, irrespective of the particular technique used. Future recommendations include extending patient follow-up to five years.