In women who have stress incontinence and intrinsic sphincter deficiency, which midurethral sling produces the best long-term results?

The TVT sling. Among 164 women who had urodynamically confirmed stress urinary incontinence (SUI) and intrinsic sphincter deficiency (ISD), the tension-free vaginal tape (TVT) produced significantly greater long-term cure rates, compared with the transobturator tape (TOT). After 3 years, 15 of 75 women (20%) in the TOT group underwent repeat surgery to correct SUI, compared with one woman of 72 (1.4%) in the TVT group ($P<.001$).

FAST TRACK

Women who underwent placement of a TVT sling for SUI with ISD were significantly less likely to require a repeat procedure, compared with those who underwent placement of a TOT sling

Schierlitz L, Dwyer PL, Rosamilia A, et al. Three-year follow-up of tension-free vaginal tape compared with transobturator tape in women with stress urinary incontinence and intrinsic sphincter deficiency. Obstet Gynecol. 2012;119(2 Part 1):321–327.

EXPERT COMMENTARY
Ladin A. Yurteri-Kaplan, MD, Clinical Fellow, Section of Female Pelvic Medicine and Reconstructive Surgery, MedStar Washington Hospital Center and Georgetown University School of Medicine, Washington, DC; **Amy J. Park, MD**, Assistant Professor, Section of Female Pelvic Medicine and Reconstructive Surgery, MedStar Washington Hospital Center and Georgetown University School of Medicine.

When ISD is present, the urethra cannot coaptate and loses its ability to maintain a watertight seal. Women who have this condition often are severely incontinent, leaking urine at low volumes and pressures and with minimal exertion.

In this randomized trial, Schierlitz and colleagues hypothesized that TOT would produce higher objective and subjective failure rates than the TVT. This was confirmed by 6-month data published in 2008.

Details of the trial

Women who had SUI were included in the trial if they had ISD based on urodynamic findings (i.e., maximum urethral closure pressure ≤20 cm H_2O or Valsalva leak-point pressure ≤60 cm H_2O, or both) and were randomly assigned to TVT or TOT. The primary endpoint was symptomatic SUI (confirmed by repeat urodynamic testing) that required a second procedure upon patient request.

Participants were followed for 3 years. If a patient reported symptoms, urodynamic testing was repeated. In addition, the patient was offered another surgery, usually involving placement of a TVT sling.

Schierlitz and colleagues concluded that, if TVT were used in all patients, repeat surgery

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WHAT THIS EVIDENCE MEANS FOR PRACTICE

Long-term success is more likely with placement of a TVT sling in women who have SUI with ISD.

Urodynamic assessment still serves an important role in the diagnosis of ISD, and aids in preoperative planning.

››LADIN A. YURTERI-KAPLAN, MD, AND AMY J. PARK, MD

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would be avoided in one in every six patients. The risk of repeat surgery was 15 times greater for TOT, compared with the TVT sling. The median time to failure was 15.6 months for the TOT sling, compared with 43.7 months for the TVT.

Of the 16 patients who underwent repeat surgery, 56% were cured, 25% reported minimal leakage, and 19% remained unchanged.

Quality-of-life scores were similar between groups at the 6-month follow-up.

Why did the TVT outperform the TOT in this population?

Investigators theorized that there is a difference in sling axis, with the TVT placed at a more acute angle than the TOT sling. In addition, the location of the TOT sling is more distal than that of the TVT, based on ultrasonographic imaging. As a result, more effective urethral kinking and support are likely with the TVT sling, improving continence rates.

Strengths and limitations of the trial

The randomization of participants and long-term follow-up bolster the trial's credibility.

Weaknesses include unblinded participation and postoperative surgical assessment.

Although the sample size was underpowered, there was a significant difference in the primary outcome between the two groups.