

TVT Hybrid Sling

- Long-Term Outcomes of a Unique Combination of “Autologous” Safety and “Synthetic” Effectiveness for Stress Urinary Incontinence in Patients at Increased Risk of Postoperative Mesh Erosion

Van den Ende M¹, Hervé F¹, Everaert K¹, Bou Kheir G¹

1 Dept. of Urology, ERN eUROGEN Accredited Centre, Ghent University Hospital, Ghent, Belgium

HYPOTHESIS / AIMS OF STUDY

Stress urinary incontinence (SUI) is common and debilitating in women. The **TVT sling** is highly effective (1) but carries risks of **mesh erosion**, especially in patients performing **intermittent self-catheterisation (ISC)** or with **prior failed synthetic sling surgery** (2,3). **Hybrid slings** combine an autologous fascial graft with synthetic mesh arms to reduce this risk while preserving efficacy. We report **long-term outcomes of TVT-Hybrid sling surgery** in this high-risk population.

STUDY DESIGN, MATERIALS AND METHODS

Retrospective, single-centre study of women **undergoing TVT-Hybrid sling surgery** (Jan 2024–Oct 2025). A 4×2 cm tensor fascia lata graft, harvested from the lateral thigh, is sutured to a synthetic TVT mesh with 4 non-absorbable sutures and placed per **standard TVT technique**, tension-free, with the autologous portion on the urethral side. **Surgery success** is defined as a subjective symptom improvement (UDI) or reduced daily pad use.

Figure 1. Baseline characteristics and perioperative outcomes (N=20)

Patient Characteristics	N=20, n(%) or median (IQR)
Age	55 (44-68)
BMI	27 (23-30)
Parity	2 (1-2)
SUI Severity (patient-reported UDI)	
mild	5 (25.0)
moderate	5 (25.0)
severe	10 (50.0)
Pads/day for SUI	4 (1-4)
Concomitant UUI	14 (70.0)
Intermittent self-catheterisation (ISC)	5 (25.0)
ISC frequency per day	5 (4-7)
Previous failed synthetic SUI surgery	12 (60.0)
Symptom duration	
<2 years	5 (25.0)
2-5 years	11 (55.0)
>5 years	4 (20.0)
Clinical Examination	
(Urethro)cystocele	11 (55.5)
Grade	2 (1-2)
Vaginal prolaps	2 (10.0)
Grade	2 (1-3)
Rectocele	5 (27.8)
Grade	1 (1-3)
Positive stress-test	16 (80.0)
Positive Ulmsten-Bonney manoeuvre	14 (70.0)
Urodynamic Investigation (n = 18)	
Detrusor hypocontractility	9 (50.0)
Detrusor Overactivity (DO)	4 (22.2)
Urethral Hypermobility	13 (72.2)
Intrinsic Sphincter Deficiency (ISD)	3 (16.7)
Peri-operative outcomes	N=20, n(%) or median (IQR)
Tensor fascia lata graft	18 (100.0)
Left leg	6 (30.0)
Right leg	14 (70.0)
Operating time (min)	70 (55-94)
Catheter time (days)	1 (1-6)
Hospital stay (days)	2 (2-2)

	Baseline (n= 20) n(%) or median (IQR)	Short-term outcomes n=20, n(%) or median (IQR)	p-value	
First post-operative visit (weeks)		5 (4-6)		
Treatment success		17 (85,0)		
Resolution SUI symptoms		17 (85,0)		
Decreased Pads/day for SUI		17 (85,0)		
Pads/day for SUI	4 (1-4)	0 (0-1)	0,001	
Need for intermittent self-catheterisation (ISC)	5 (27,8)	9 (45,0)	0,046	
ISC frequency per day	5 (4-7)	4 (3-5)	0,317	
Post-operative pain		3 (15,0)		
VAS-Score		1 (0-2)		
Storage LUTS	14 (70,0)	10 (50,0)	0,102	
Re-intervention		3 (16,6)		
Placement of suprapubic catheter (SPS)		2 (11,1)		
Intravesical onabotulinumtoxinA injections		1 (5,6)		
	Baseline (n= 16) n(%) or median (IQR)	Short-term outcomes (n=16) n(%) or median (IQR)	Long-term outcomes (n=16) n(%) or median (IQR)	p-value compared to baseline
Second post-operative visit (weeks)			22 (15-52)	
Treatment Success		13 (86,7)	15 (93,8)	
Resolution of SUI symptoms		13 (86,7)	13 (86,7)	
Decreased pads/day for SUI		13 (86,7)	15 (93,8)	
Pads/day for SUI	4 (2-5)	0 (0-2)	0 (0-3)	0,001
Need for intermittent self-catheterisation (ISC)	4 (25,0)	8 (50,0)	7 (46,7)	0,180
ISC frequency per day	6 (3-7)	4 (3-5)	3 (2-4)	0,317
Post-operative pain			3 (20,0)	
VAS-Score			1 (0-1)	
Storage LUTS	12 (75,0)	8 (50,0)	9 (56,3)	0,180
Re-intervention			3 (20,0)	
Removal of suprapubic catheter (SPS)			1 (6,7)	
Intravesical onabotulinumtoxinA injections			1 (6,7)	
Sacral Neuromodulation (SNM)			1 (6,7)	

Figure 2. Short- and long-term postoperative outcomes

60%

prior failed synthetic sling surgery

50%

had severe SUI at baseline

25%

already on ISC pre-operatively

RESULTS

At first follow-up (median 5 weeks), **SUI symptoms improved in 85%** of patients and **pad use decreased in 55%**; **ISC frequency fell to 4/day** (IQR 3–5). Irritative LUTS occurred in 50% (all had preoperative mixed incontinence); 2 patients required a suprapubic catheter, unrelated to the procedure. In a subgroup (n=16) followed to a median 22 weeks, **improvement persisted in 86.7%**, with **ISC frequency declining further to 3/day** (IQR 2–4); 1 patient developed de novo urgency.

CONCLUDING MESSAGE

The TVT-Hybrid sling is a **promising** treatment for SUI in **patients at elevated risk of synthetic mesh erosion**, reducing symptoms and ISC frequency. Prospective studies with longer follow-up are needed to confirm these findings and optimise patient selection.

1. Ulmsten U. Int Urogynecol J. 2001;12(S2):S3–4. 2. Pergialiotis V, et al. Int Urogynecol J. 2017;28(11):1631–8. 3. Haudebert C, et al. Prog Urol. 2022;32(7):500–8.