Management of complicated SUI

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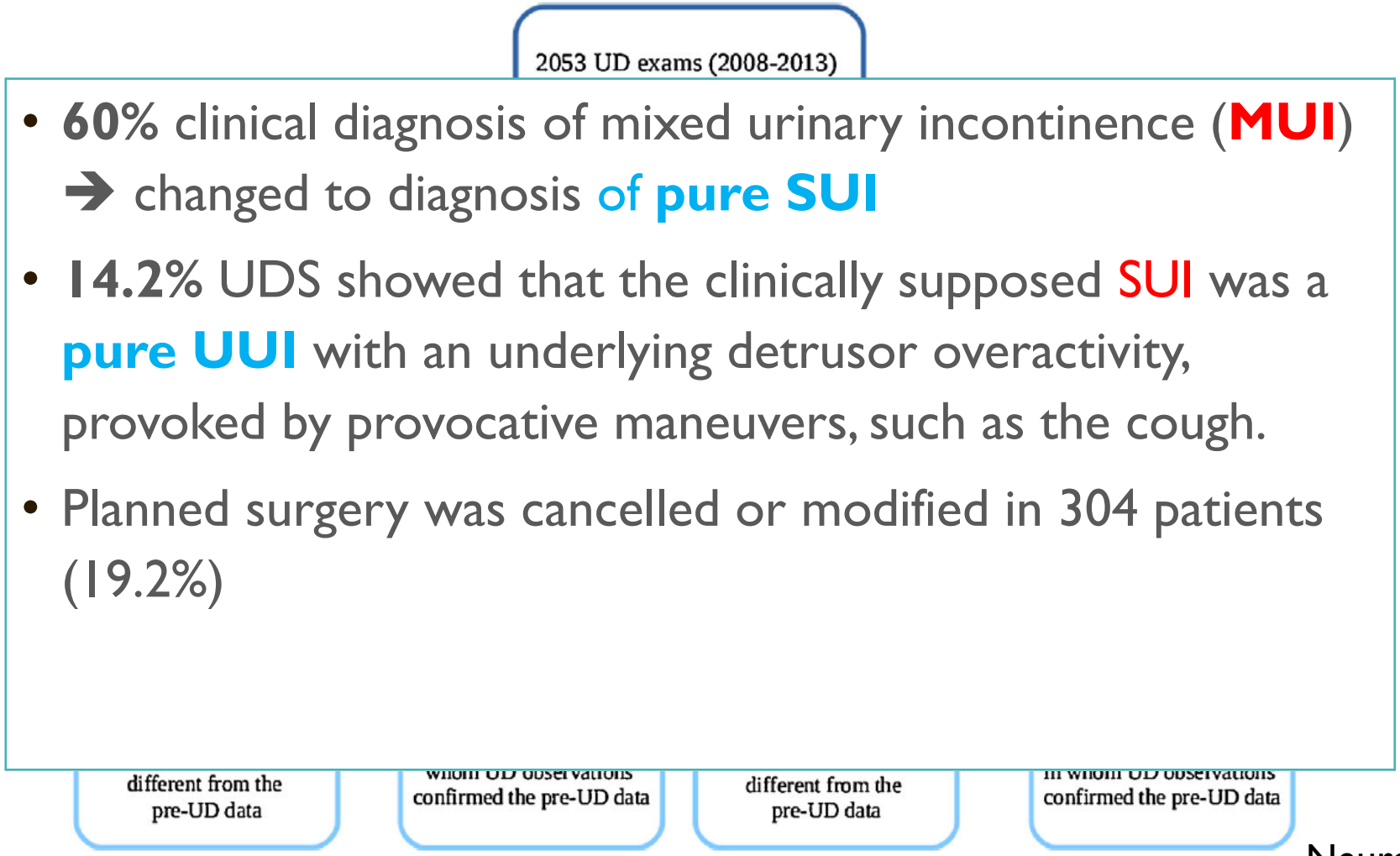
DEFINITION OF COMPLICATED SUI

- The Value of Urodynamic Evaluation (VALUE) study: RCT

  ➔ For women with uncomplicated, SUI, preoperative office evaluation alone was not inferior to urodynamic for outcomes at 1 year.
- Exclusion criteria were previous surgery for incontinence,
- a history of pelvic irradiation,
- pelvic surgery within the previous 3 months,
- Anterior or apical pelvic-organ prolapse
- postvoiding residual urine volume of less than 150 ml

N Engl J Med 2012; 366:1987-1997

COMPLICATED OR UNCOMPLICATED ?



- **60%** clinical diagnosis of mixed urinary incontinence (**MUI**) ➔ changed to diagnosis of **pure SUI**
- **14.2%** UDS showed that the clinically supposed SUI was a **pure UUI** with an underlying detrusor overactivity, provoked by provocative maneuvers, such as the cough.
- Planned surgery was cancelled or modified in 304 patients (19.2%)

- According to the ValUE trial's criteria, only 36.0% were 'uncomplicated
- 13.4% of them had voiding dysfunction
- 40% of them had different UD result from pre-UD data

Neurourol Urodyn. 2016;35(7):809-12

COMPLICATED SUI

- previous surgery for incontinence (repeat surgery)
- pelvic irradiation
- pelvic-organ prolapse
- postvoiding residual urine volume of less than 150 ml
- UUI predominant MUI

- Outcome
- complication

Repeat Synthetic Mid Urethral Sling Procedure for Women With Recurrent Stress Urinary Incontinence

Kobi Stav,* Peter L. Dwyer, Anna Rosamilia, Lore Schierlitz, Yik N. Lim, Fay Chao, Alison De Souza, Elizabeth Thomas, Christine Murray, Christine Conway and Joseph Lee

Primary vs Recurrence

- 1,225 consecutive underwent a synthetic mid urethral sling procedure

Table 1. *Comparison of demographics, and clinical and surgical characteristics*

	Primary	Repeat*	p Value
No. bladder perforation (%)	31 (3)	2 (3)	0.84
	Postop + followup		
Mean ± SD days hospitalization†	1.05 ± 1.9	0.95 ± 1.5	0.27
No. failed TOV (%)†	72 (11)	7 (11)	0.37
No. sling division (%)	13 (1)	1 (1)	0.54
Mean ± SD mos followup	51 ± 24	40 ± 19	<0.001
No. subjective cure rate (%)	894 (86)	48 (62)	<0.001
No. urgency (%):			
De novo	149 (14)	27 (30)	<0.001
Persistent	279 (68)	23 (70)	0.41
Resolution	131 (32)	10 (30)	0.44
No. UUI (%):			
De novo	49 (5)	17 (22)	<0.001
Persistent	219 (73)	18 (69)	0.24
Resolution	81 (27)	8 (31)	0.17
No. de novo voiding difficulty (%)	70 (7)	3 (4)	0.33

Cure rate: About 62% in repeat

Repeat midurethral sling had **lower subjective cure rate**, higher de novo urgency and UUI

J Urol. 2010;183(1):241-6.

Table 2. *Comparison of retropubic and transobturator approach in the repeat group*

	Retropubic	Transobturator	p Value
No.	48	29	
Mean ± SD age	62 ± 12	61 ± 13	0.98
Mean ± SD BMI	29.7 ± 5.5	28.4 ± 5.0	0.29
No. postmenopausal (%)	43 (90)	21 (72)	0.06
No. urodynamics diagnosis (%):			
SUI	34 (71)	26 (90)	0.07
Mixed type incontinence	14 (29)	3 (10)	
Mean ± SD cm H_2O MUCP	29 ± 15	35 ± 15	0.12
Mean ± SD cm H_2O VLPP	57 ± 30	84 ± 19	0.006
No. with ISD (%)	18 (38)	6 (21)	0.12
No. experienced surgeon (%)	33 (69)	15 (52)	0.13
No. concomitant prolapse surgery (%)	7 (14)	6 (21)	0.34
No. failed TOV (%)*	5 (10)	2 (7)	0.26
Mean ± SD mos followup	35 ± 20	42 ± 17	0.11
No. subjective cure rate (%)	34 (71)	14 (48)	0.04
No. de novo UUI (%)	13 (27)	4 (14)	0.17

* In patients who had isolated sling procedure.

- Favor for retropubic

Surgical Treatment of Recurrent Stress Urinary Incontinence in Women: A Systematic Review and Meta-analysis of Randomised Controlled Trials

Wael Agur [a,], Mohamed Riad [a], Silvia Secco [b], Heather Litman [c], Priya Madhuvrata [d], Giacomo Novara [b], Mohamed Abdel-Fattah [e]*

Recurrence:
TVT vs TOT

- 350 women in 10 RCTs with a mean follow-up of 18.1 mo
- comparison of retropubic tension-free vaginal tape (RP-TVT) versus transobturator tension-free vaginal tape (TO-TVT) in five RCTs (n = 135).

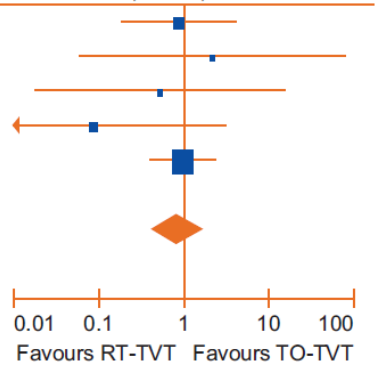
Patient-reported cure/ improvement

a

Study or Subgroup	TOT Events	TOT Total	RT-TVT Events	RT-TVT Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Aniuliene et al [10]	13	18	12	16	20.6%	0.87 (0.19–4.01)
Barry et al [11]	1	1	3	5	2.6%	2.14 (0.06–77.54)
Porena et al [12]	6	8	2	2	6.1%	0.52 (0.02–15.10)
El-Hefnawy et al [13]	1	3	3	3	12.8%	0.09 (0.00–3.10)
Richter et al [14]	18	41	17	38	57.9%	0.97 (0.40–2.35)
Total (95% CI)		**71**		**64**	**100.0%**	**0.84 (0.41–1.69)**
Total events	39		37			

Heterogeneity: chi-square = 1.99, *df* = 4 (*p* = 0.74); I^2 = 0%

Test for overall effect: *z* = 0.50 (*p* = 0.62)



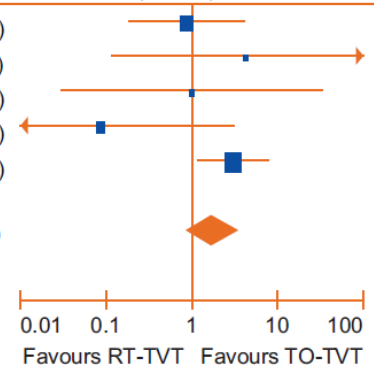
objective cure/improvement

b

Study or Subgroup	TOT Events	TOT Total	RT-TVT Events	RT-TVT Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Aniuliene et al [10]	13	18	12	16	30.3%	0.87 (0.19–4.01)
Barry et al [11]	1	1	2	5	2.7%	4.20 (0.12–151.97)
Porena et al [12]	7	8	2	2	5.4%	1.00 (0.03–33.32)
El-Hefnawy et al [13]	1	3	3	3	18.7%	0.09 (0.00–3.10)
Richter et al [14]	30	41	18	38	43.0%	3.03 (1.18–7.75)
Total (95% CI)		**71**		**64**	**100.0%**	**1.75 (0.86–3.54)**
Total events	52		37			

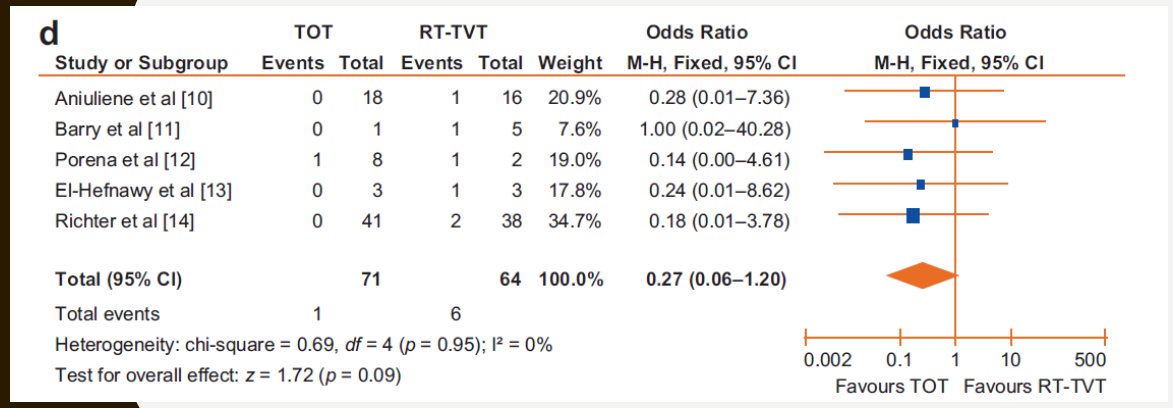
Heterogeneity: chi-square = 5.16, *df* = 4 (*p* = 0.27); I^2 = 23%

Test for overall effect: *z* = 1.55 (*p* = 0.12)

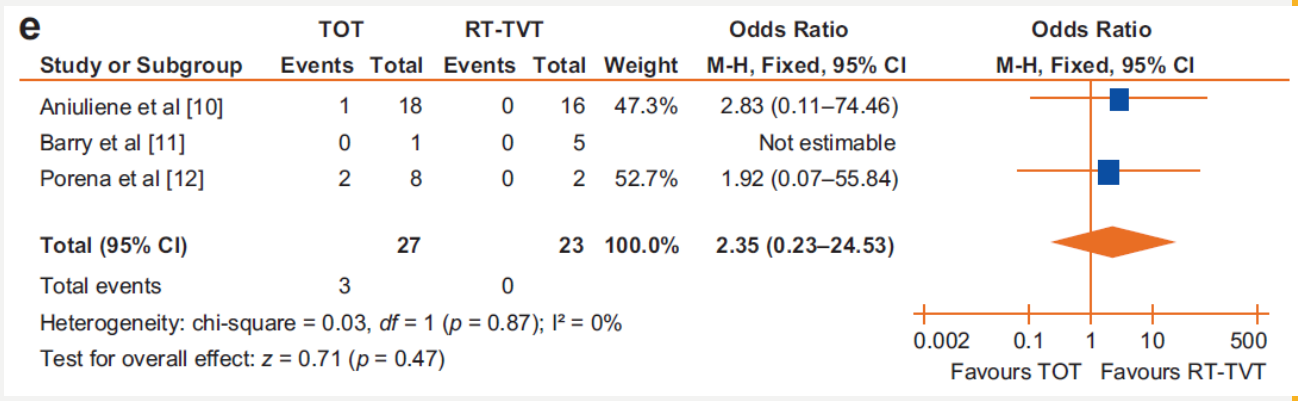


Eur Urol. 2013;64(2):323-36

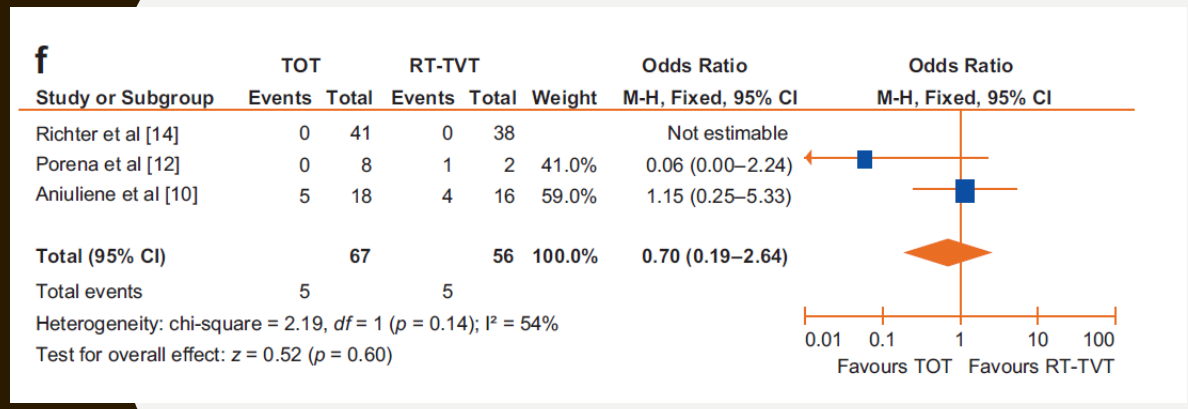
bladder/urethral injury



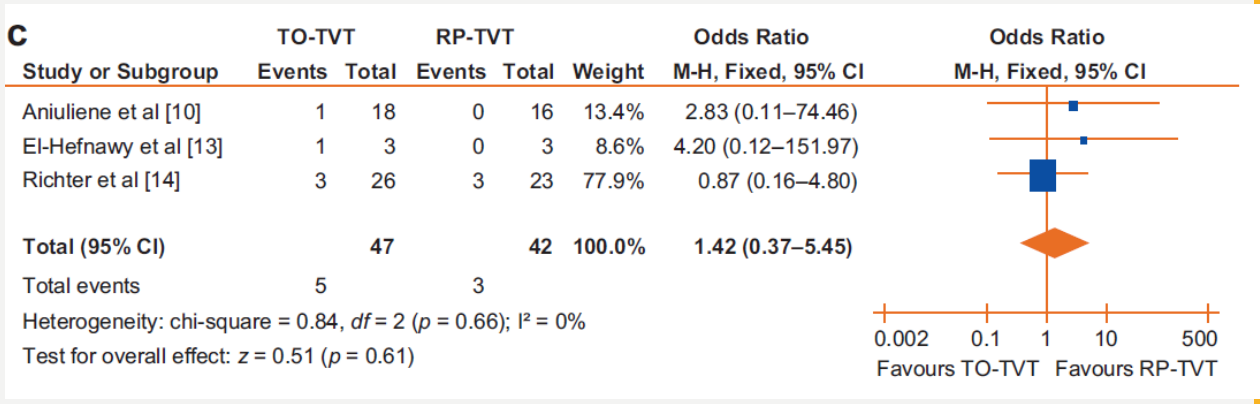
tape erosion



voiding dysfunction



repeated continence surgery



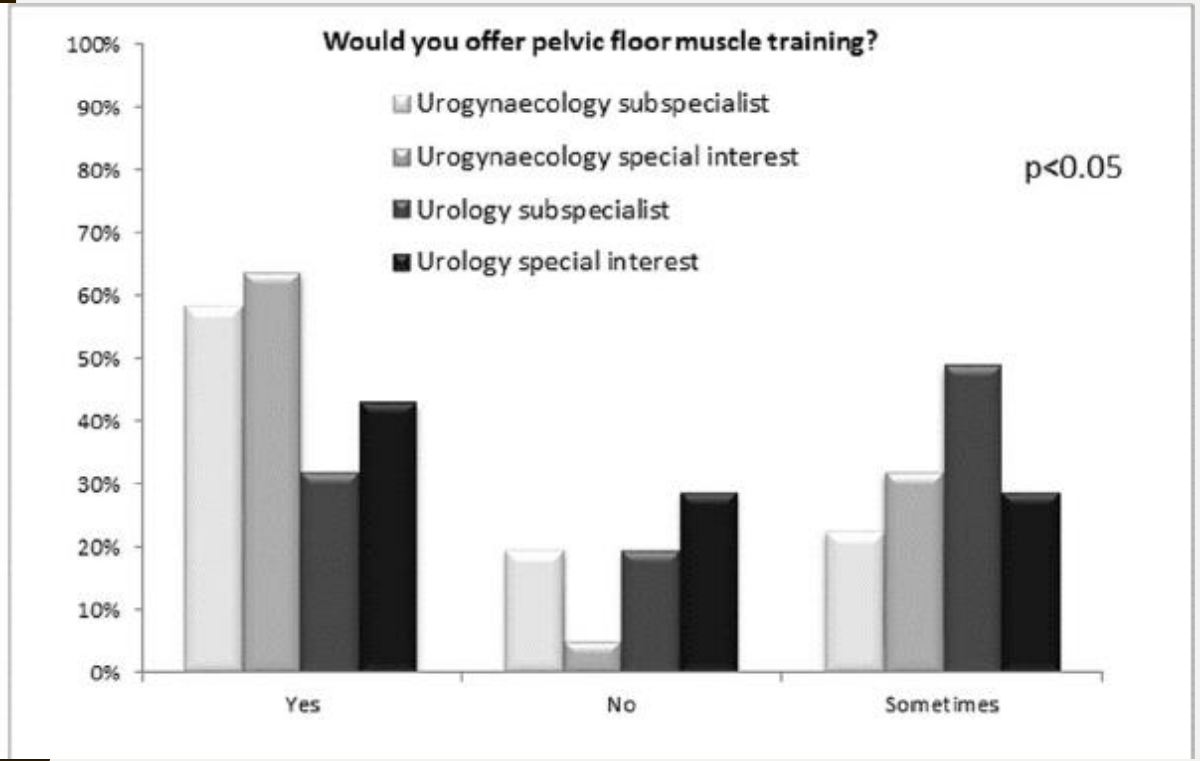
PREVIOUS SURGERY FOR INCONTINENCE (REPEAT SURGERY)

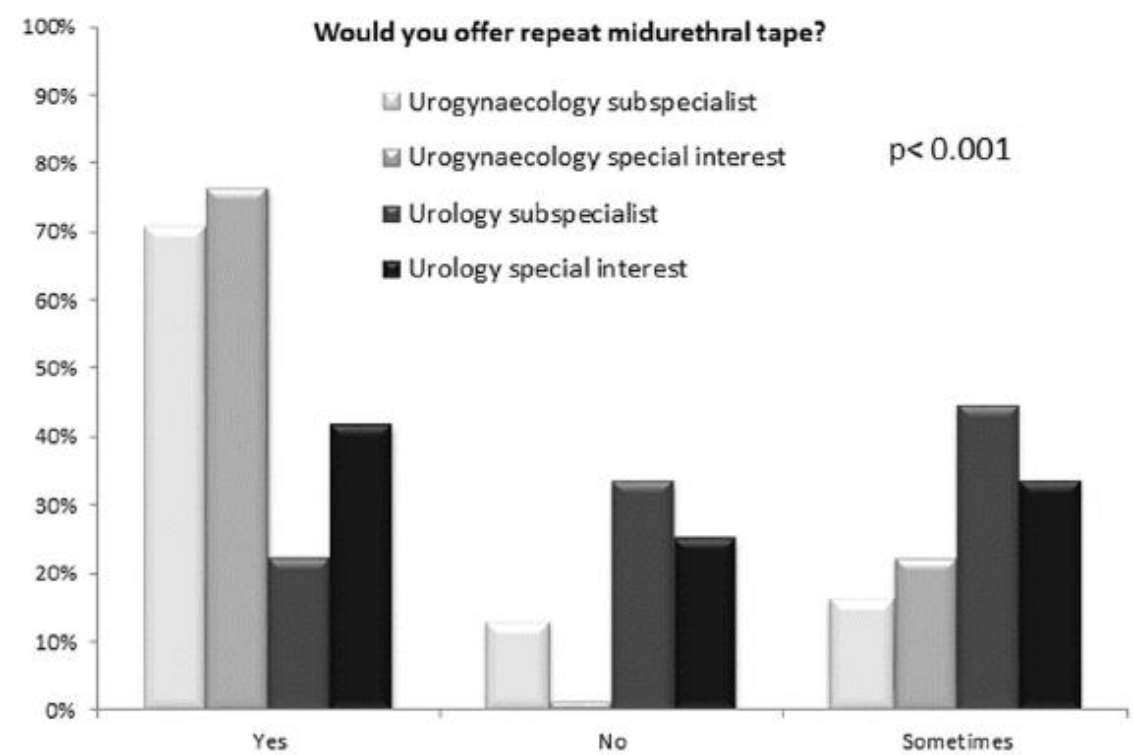
Surgery for recurrent stress urinary incontinence: the views of surgeons and women

Douglas G. Tincello [1,2] · Natalie Armstrong [1] · Paul Hilton [3] · Brian Buckley [4] · Christopher Mayne [2]

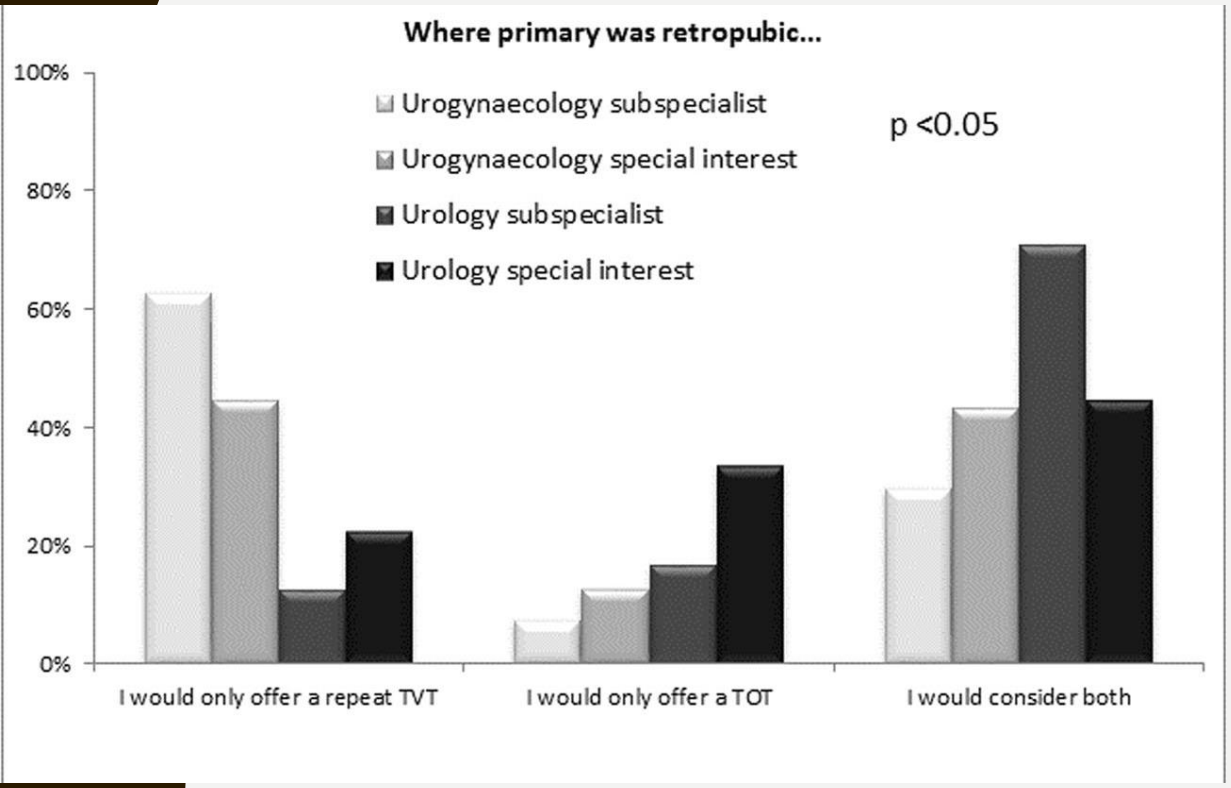
176 gynaecology; 80 urology UK

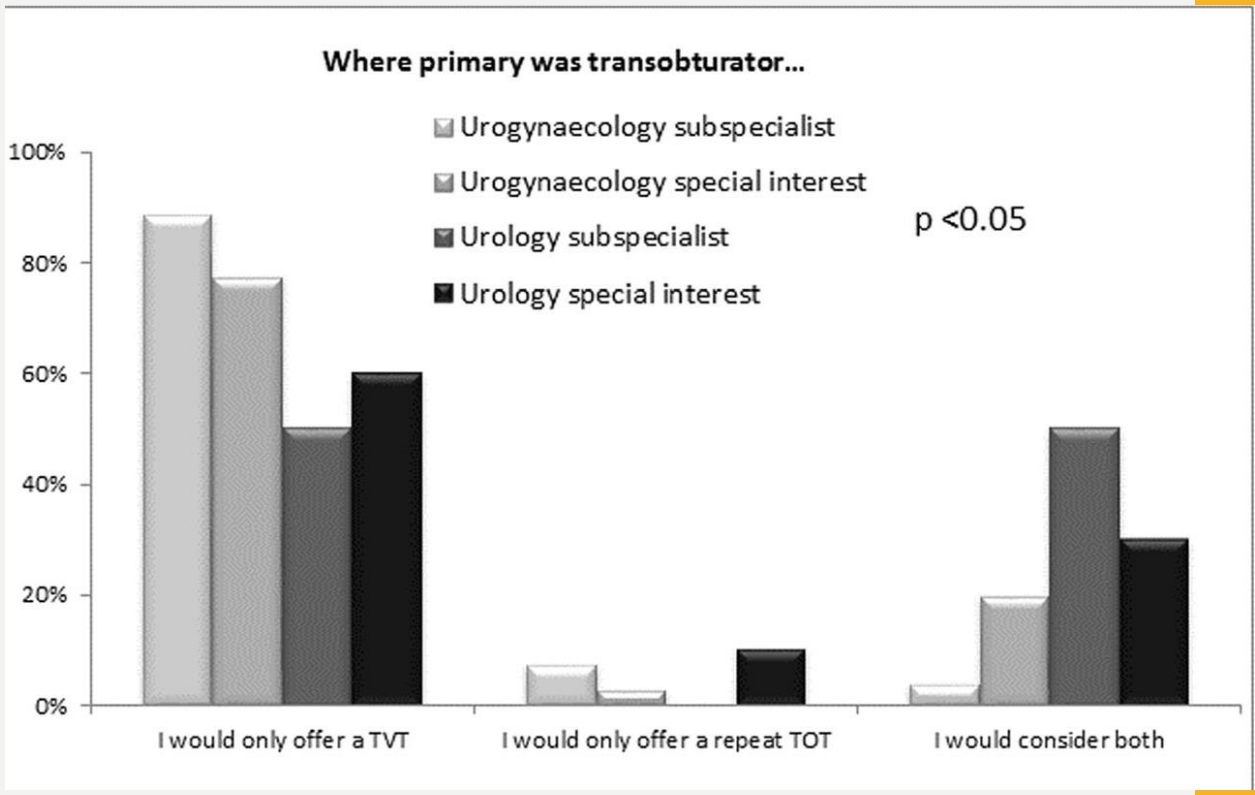
Urogynaecologists were more likely to offer pelvic floor exercises, and repeat midurethral tape





Int Urogynecol J. 2018; 29(1): 45–54.


Where primary was retropubic...
100%
80%
60%
40%
20%
0%
Urogynaecology subspecialist
Urogynaecology special interest
Urology subspecialist
Urology special interest
p <0.05
I would only offer a repeat TVT
I would only offer a TOT
I would consider both


Where primary was transobturator...
100%
80%
60%
40%
20%
0%
Urogynaecology subspecialist
Urogynaecology special interest
Urology subspecialist
Urology special interest
p <0.05
I would only offer a TVT
I would only offer a repeat TOT
I would consider both

urethral buking agent for rSUT ICI recommendation 2020

Grade B

Should not be offered first line for women desiring a one time, durable solution for primary or recurrent SUI

Grade B

Are an option for selected individuals with SUI after appropriate counselling regarding the lack of long term durability

Grade C

May be offered to women as first line therapy for recurrent or persistent SUI following failed surgery although the outcome is likely to be inferior to redo surgery

May be offered to women at first-line therapy for recurrent or persisted SUI following failed surgery although the outcome is inferior to surgery

Minerva Urol Nephrol. 2021 May 5. doi: 10.23736/S2724-6051.21.04269-5. Online ahead of print.

Bulking agents for the treatment of recurrent stress urinary incontinence: a suitable option?

- A multicenter, prospective study, only patients who completed at least a 3yr follow up.
- 47 patients with urodynamically proven recurrent SUI, and with a history of previous failed anti-incontinence surgical procedure
- All patients treated with urethral bulking agents
- At 3 yr after surgery, **38 of 47 patients (81%) declared themselves cured**
- 39 of 47 patients (83%) were objectively cured. Only 5 patients (10.6 %) required reoperation for UBA failure.

Minerva Urol Nephrol. 2021

PELVIC IRRADIATION


REVIEW ARTICLE

WILEY Urodynamics ICS

Evaluation and treatment of female stress urinary incontinence after pelvic radiotherapy

- limited published literature on the treatment of stress urinary incontinence in women following pelvic radiotherapy
- Reviewed 22 articles

- Acute & Observation phase: During the acute phase, histology of the bladder demonstrates reversible inflammation characterized by loss of the glycosaminoglycan layer
- Acute symptoms are self limiting during the first 90 days

Neurourol Urodyn. 2019;38 Suppl 4:S59-S69

Non-surgical stress urinary incontinence treatment:

Pelvic floor musculature					
Bernard (2016)	$n = 692$ (13 studies) Systematic review of effect of RT on pelvic floor muscle function ($n = 160$ women)	N/A	RT affects structure of PFM (level 2B), no change in anal sphincter thickness (level 2B)	RT worsens PFM contractile response (level 1B)	78 weeks (mean) interval between RT and PFM assessment

Urethral bulking agent

only bulking agents have been studied in a prospective fashion, and specifically enrolled women with a history of prior radiotherapy

Author	Cohort (n)	Follow-up	Objective findings	Subjective findings	Notes
Urethral bulking agents					
Castillo-Vico (2007)	$n = 1$ prior RT; Case report, periurethral granuloma after Dx/HA injection	4 months	NR	Incontinence cured at the 1-month follow-up	18 year interval between RT and injection
Plotti (2009)	$n = 24$ ($n = 5$ prior RT); Single arm prospective observational study of Macroplastique in women with de-novo SUI after radical Hx	12 months (minimum)	Frequency of incontinence on the 3-day voiding diary reduced (14.5 ± 5.8 vs 4.3 ± 7.9 episodes per 3 days, $P < 0.05$)	Overall success rate was 84% (10 patients cured and 10 improved)	No intraoperative or postoperative early complications were found. Preoperative urethral hyper-mobility noted in the 4 patients who were not success
Krhut (2016)	$n = 46$ ($n = 24$ prior RT); Multi-center single arm prospective observational study of Bulkamid in women with severe SUI (with vs without prior RT)	12.4 months (mean)	No clinically significant between group changes in urodynamic parameters after Bulkamid (VV, Qmax, PVR, Cap, MUCP)	Complete continence in 25% of patients after RT (vs 36.4% without RT). Improved urine leakage[a], ICIQ-UI[a] and PPBC[a] both groups	Mean 93 month (range 16-384) interval between RT and injection

Macroplastique

Bulkamid

periurethral granuloma

synthetic midurethral sling

Midurethral sling (synthetic)					
Kinn (2001)	$n = 75$ ($n = 2$ prior RT); Case series of TVT in women with SUI	2 years (minimum)	NR	80% cured, 9% improved, 11% failure	Two women had vaginal erosion, and 1 had prior RT. 50% of RT patients had erosion
Al-Singary (2005)	$n = 120$ ($n = 2$ prior RT); Single arm prospective observational study of TVT for urodynamic SUI or MUI	26 months (mean); 6-42 months (range)	72% dry on cough test	18% ($n = 16$) subjective patient reported failures (leakage >1×/day and/or persistent urgency/frequency syndrome)	87 of 120 patients completed study. No erosions. Of the 16 TVT failures, two had prior RT. 100% of RT patients were subjective failure
Jankiewicz (2005)	$n = 1$ prior RT; Case report, Tyco IVS retropubic sling after cervical cancer RT	4 months	Negative cough test	Full control over micturition and significant improvement in QoL	10 year interval between RT and TOT
Chuang (2009)	$n = 49$ ($n = 16$ prior RT); Case series of urologic complications after radical Hx ($n = 7$ treated with sling)	3 months (minimum)	NR	Seven patients ($n = 2$ prior RT) treated with pubovaginal sling for ISD (6 of 7 continent for >3 months; 4 of 7 recurrent mild SUI at >6 months)	5.9 ± 4.5 year interval between RT and surgical intervention. 100% of RT sling patients ($n = 2$) had recurrent mild SUI at >6 months
Hazewinkel (2009)	$n = 2$ ($n = 1$ prior RT); Case series TVT-Secur after radical Hx	6 months	NR	SUI no longer present 6 weeks after surgery in RT patient	5 year interval between RT and TVT-Secur. Erosion × 2 in RT patient (6 and 10 weeks after surgery)

strong association between subjective sling failure and rates of erosion after prior radiotherapy

Autologous fascia pubovaginal sling

Seems to be safe

Midurethral sling (biologic)					
O'Reilly (2002)	$n = 121$ ($n = 1$ prior RT); Case series cadaveric fascia lata sling in women with SUI	6.5 months (mean); 4-13 months (range)	RT LPP 10 cmH_2O preoperative and 21 cmH_2O postoperative	8 of 121 women had recurrent SUI	100% of RT patients ($n = 1$) had recurrent SUI at 12 months
Lowman (2007)	$n = 1$; Case report, TVT with porcine interposition graft after vulvar cancer RT	3 months	Positive cough stress test at 3 months	80% subjective improvement in symptoms, occasional SUI	19 year interval between RT and surgical intervention

Artificial sphincter

Safety concern

Artificial urinary sphincter					
Mundy (1989)	$n = 30$ ($n = 9$ prior RT); Case series total urethral substitution ($n = 4$ treated with AUS)	NR	50% sphincter weakness incontinence with AUS	2 of 4 patients (colonic substitution and AUS) failed and required diversion "not satisfactory"	All post-RT had hysterectomy. Interval between RT and surgery NR.
Duncan (1992)	$n = 29$ ($n = 7$ prior RT); Case series AUS in women	NR	NR	4 of 12 patients had "satisfactory result" ($n = 7$ prior RT)	8 of 12 patients cuff erosion ($n = 7$ prior RT).
Vayleux (2011)	$n = 215$ ($n = 9$ prior RT); Case series AUS in women	6 years (mean)	Overall 73.5% continent (0-1 pad per day). Failure (Incontinence) after AUS in 23.7%	Overall 79% satisfied	Pelvic radiotherapy (Continence failure OR 4.37, CI 1.02-18.5). Erosion in three of nine RT patients

PELVIC-ORGAN PROLAPSE

- About 40–50% of the women with POP also report SUI before surgery
- 20–30% Continent women can also develop SUI after surgery.

Clin Obstet Gynecol 1998;41:777.
Int Urogynecol J Pelvic Floor Dysfunct 2006;17:27–9.

Cochrane Library

Cochrane Database of Systematic Reviews

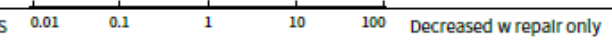
Surgery for women with pelvic organ prolapse with or without stress urinary incontinence (Review)

1. A concomitant MUS probably improves postoperative rates of subjective SUI
2. probably decreases the need for further continence
3. SUI with POP surgery alone :39%, SUI with an MUS is between 8-19%.
4. No report about recurrent of POP, de novo OAB, voiding difficulties

Cochrane Database Syst Rev. 2018

Analysis 1.1. Comparison 1 Comparisons of surgery in women with POP and SUI, Outcome 1 Vaginal POP surgery with vs without concomitant continence surgery: additional MUS vs vaginal repair alone.

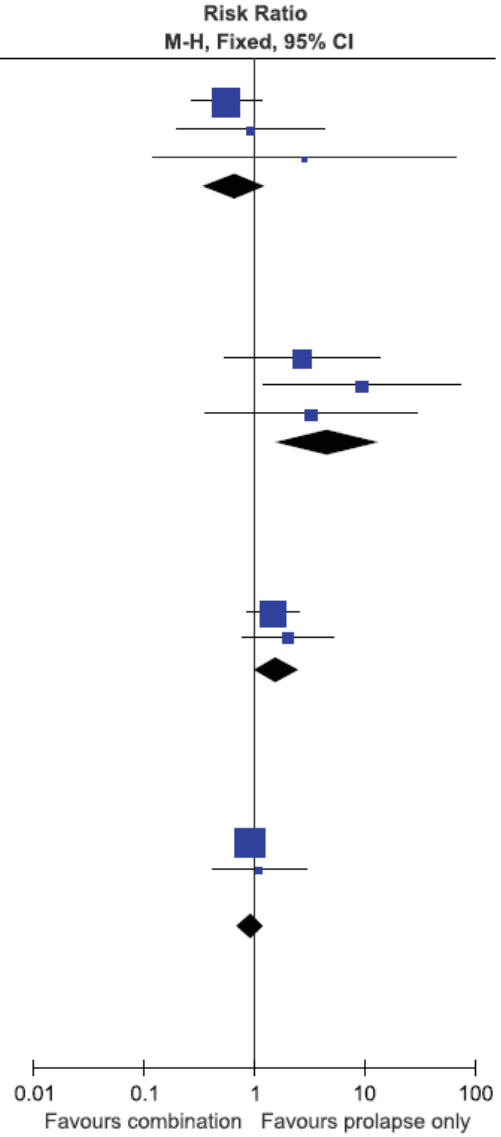
Study or subgroup	Add MUS n/N	Vag repair only n/N	Risk Ratio M-H, Fixed, 95% CI	Weight	Risk Ratio M-H, Fixed, 95% CI
1.1.1 Subjective postoperative SUI					
Borstad 2010	4/91	22/94		34.87%	0.19[0.07,0.52]
van der Ploeg 2015 (CUPIDO I)	14/63	43/71		65.13%	0.37[0.22,0.6]
Subtotal (95% CI)	**154**	**165**		**100%**	**0.3[0.19,0.48]**
Total events: 18 (Add MUS), 65 (Vag repair only)					
Heterogeneity: Tau^2=0; Chi^2=1.39, df=1(P=0.24); I^2=28.07%					
Test for overall effect: Z=5.14(P<0.0001)					
1.1.2 Recurrent POP on examination					
Subtotal (95% CI)	**0**	**0**			**Not estimable**
Total events: 0 (Add MUS), 0 (Vag repair only)					
Heterogeneity: Not applicable					
Test for overall effect: Not applicable					
1.1.3 Overactive bladder symptoms (cured/improved)					
Subtotal (95% CI)	**0**	**0**			**Not estimable**
Total events: 0 (Add MUS), 0 (Vag repair only)					
Heterogeneity: Not applicable					
Test for overall effect: Not applicable					
1.1.4 Overactive bladder symptoms (de novo overactive bladder)					
Subtotal (95% CI)	**0**	**0**			**Not estimable**
Total events: 0 (Add MUS), 0 (Vag repair only)					
Heterogeneity: Not applicable					
Test for overall effect: Not applicable					
1.1.5 Voiding dysfunction difficulties					
Subtotal (95% CI)	**0**	**0**			**Not estimable**
Total events: 0 (Add MUS), 0 (Vag repair only)					
Heterogeneity: Not applicable					
Test for overall effect: Not applicable					
1.1.6 Further continence surgery					
van der Ploeg 2015 (CUPIDO I)	0/63	12/71		100%	0.05[0,0.74]
Subtotal (95% CI)	**63**	**71**		**100%**	**0.05[0,0.74]**
Total events: 0 (Add MUS), 12 (Vag repair only)					
Heterogeneity: Not applicable					



Prolapse surgery with or without stress incontinence surgery for pelvic organ prolapse: a systematic review and meta-analysis of randomised trials

JM van der Ploeg,[a] A van der Steen,[b] K Oude Rengerink,[c] CH van der Vaart,[d] JP Roovers[c]

Study or Subgroup	Combination surgery Events	Total	Prolapse surgery Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
4.1 urgency incontinence in women asymptomatic for SUI preoperatively						
Brubaker (CARE trial 2y)	10	147	19	155	83.5%	0.55 [0.27, 1.15]
Liapis (2y)	3	43	3	39	14.2%	0.91 [0.19, 4.23]
Costantini (continent 8y)	1	34	0	32	2.3%	2.83 [0.12, 67.01]
Subtotal (95% CI)		**224**		**226**	**100.0%**	**0.66 [0.35, 1.24]**
Total events	14		22			
Heterogeneity: Chi² = 1.19, df = 2 (P = 0.55); I² = 0%						
Test for overall effect: Z = 1.29 (P = 0.20)						
4.2 prolonged catheterization (1 week or longer) after vaginal prolapse repair with or without midurethral sling						
Borstad (1y)	5	87	2	94	49.7%	2.70 [0.54, 13.56]
Wei (OPUS trial 1y)	9	163	1	169	25.4%	9.33 [1.20, 72.83]
Schierlitz (6m)	3	25	1	27	24.9%	3.24 [0.36, 29.15]
Subtotal (95% CI)		**275**		**290**	**100.0%**	**4.52 [1.54, 13.28]**
Total events	17		4			
Heterogeneity: Chi² = 0.96, df = 2 (P = 0.62); I² = 0%						
Test for overall effect: Z = 2.74 (P = 0.006)						
4.3 SAE after vaginal prolapse repair with or without midurethral sling						
Wei (OPUS trial 1y)	28	165	20	172	77.2%	1.46 [0.86, 2.49]
Borstad (1y)	11	87	6	94	22.8%	1.98 [0.77, 5.13]
Subtotal (95% CI)		**252**		**266**	**100.0%**	**1.58 [0.99, 2.51]**
Total events	39		26			
Heterogeneity: Chi² = 0.30, df = 1 (P = 0.58); I² = 0%						
Test for overall effect: Z = 1.93 (P = 0.05)						
4.4 SAE after sacrocolpopexy with or without Burch colposuspension						
Brubaker (CARE trial 2y)	56	153	64	158	91.1%	0.90 [0.68, 1.20]
Costantini (continent 8y)	7	34	6	32	8.9%	1.10 [0.41, 2.92]
Costantini (with UI 5y)	0	24	0	23		Not estimable
Subtotal (95% CI)		**211**		**213**	**100.0%**	**0.92 [0.70, 1.21]**
Total events	63		70			
Heterogeneity: Chi² = 0.14, df = 1 (P = 0.71); I² = 0%						
Test for overall effect: Z = 0.59 (P = 0.55)						



- Prolong catheterization
- In the OPUS trial , rates of **adverse events** plausibly related to the MUS procedure were higher in the sling group than in the sham group:
- **bladder perforation**, 7% versus 0%;
- **urinary tract infection,** 31% versus 18%;
- **major bleeding** 3% versus 0%.
- Borstad: the rate of complications 18% in combination surgery and 5% in POP surgery only

BJOG 2014;121:537–547.

SUI WITH LARGE PVR

Postvoid Residual Urine in Women With Stress Incontinence

Ling-Hong Tseng,[1] Ching-Chung Liang,[1] Yao-Lung Chang,[1]
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- Enrolled patients with:
  (1) A main **complaint of stress urinary incontinence**;
  (2) A diagnosis of urodynamic stress incontinence; and
  (3) No previous pelvic surgery, advanced pelvic prolapse or neurological deficit
- 170 female patient enrolled
- **About 10-15% patients had PVR>100ml (while mean Qmax 14.8ml/s)**

TABLE I. Urogynecologic Characteristics of Sample (n = 107)

Characteristics	Values	
Age (years)	49 (9.9)	
Weight (kg)	59 (10.1)	
BMI	24.4 (3.8)	
Parity	3.1 (1.2)	
MFR (ml/sec)	22.1 (8.8)	
VV (ml)	348 (156.1)	
$Q_{max.p}$ (ml/sec)	14.8 (5.8)	
CA=L> (cm H_2O)	21 (16.5)	
PVR	Catheterization, n (%)	BladderScan, n (%)
<50 ml	69 (64.5)	84 (78.5)
50–100 ml	21 (19.6)	12 (11.2)
≥100 ml	17 (15.9)	11 (10.3)

Neurourology and Urodynamics 27:48–51 (2008)

Surgical results in women with detrusor underactivity and stress urinary incontinence undergoing suburethral sling procedure—Predictive factors for successful outcome

- A total of **71 women** who were diagnosed as **having SUI combined with DU** and received retropubic suburethral sling procedure
- DU was defined when patients had to urinate using abdominal pressure with a low **(<20 cmH2O**) or absent detrusor contractility and low maximum flow rate (**Qmax <15 mL/s**)
- Successful: dry and could urinate spontaneously
- Failure: dry but needing clean intermittent catheterization or patients who were still wet.

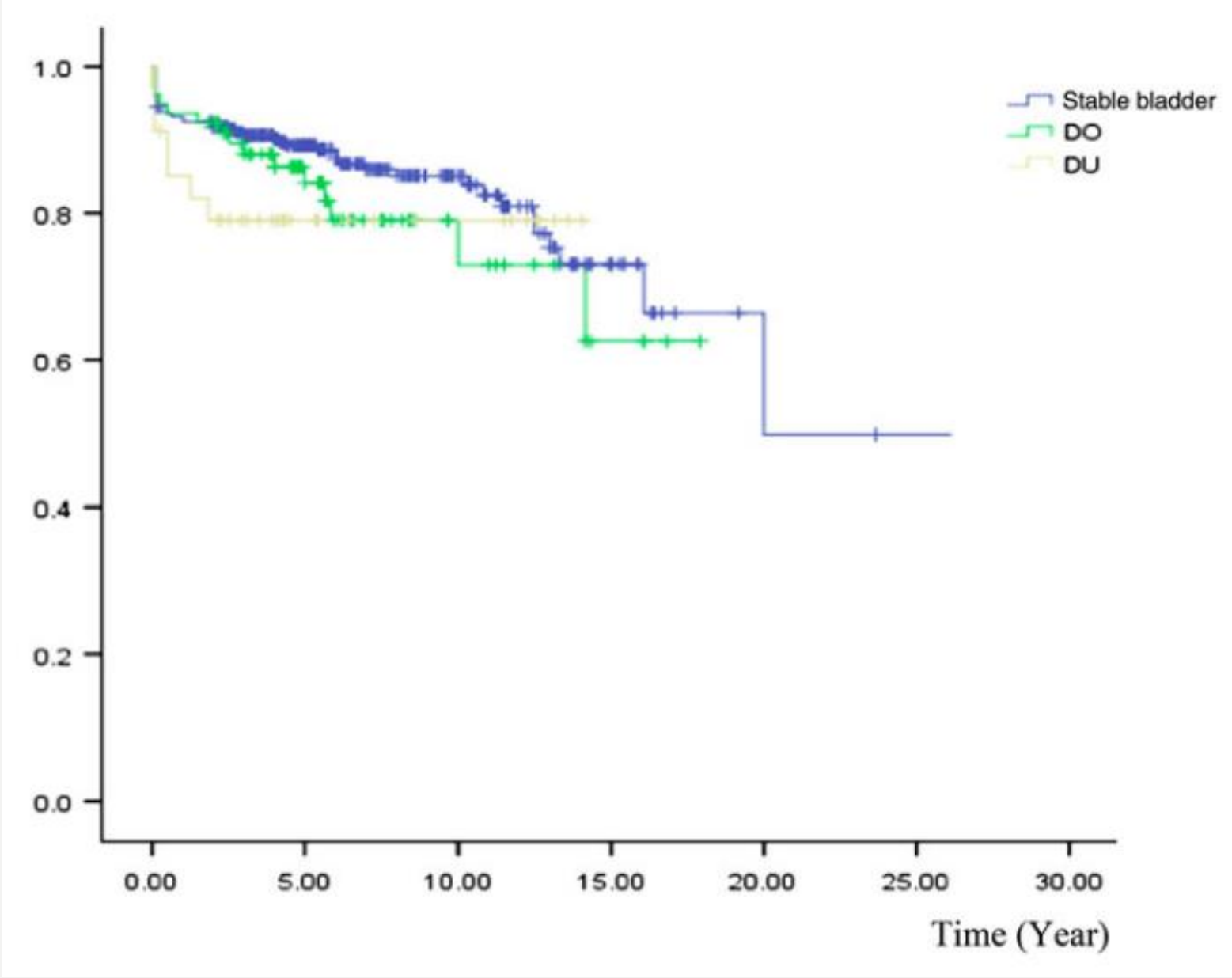
✓ successful outcome was noted in 39 (55%)
✓ failed outcome with CIC in 15 (21%),
✓ totally treatment failure in 17 (24%).

TABLE 3 Comparisons of UDI-6 and IIQ-7 scores between baseline and time points after suburethral sling procedure (N = 71)

Variables	Baseline	6 months	12 months	P^a
UDI-6	8.6 ± 3.1	4.8 ± 2.9	4.4 ± 3.1	<.001
IIQ-7	12.1 ± 5.8	4.4 ± 4.6	4.2 ± 4.3	<.001

Lower Urinary Tract Symptoms. 2019;1–7.

	Improvement				Clean intermittent catheterization			
	Univariate		Multivariable		Univariate		Multivariable	
Variables	Odds ratio (95% CI)	P^a	Odds ratio (95% CI)	$P^{b,c}$	Odds ratio (95% CI)	P^a	Odds ratio (95% CI)	$P^{b,d}$
Age, y	1.03 (0.99–1.08)	.13	-	-	0.98 (0.94–1.03)	.39	-	-
Parity	0.94 (0.70–1.26)	.67	-	-	1.34 (0.92–1.94)	.13	-	-
Spinal cord injury	0.19 (0.04–1.01)	.051	-	-	3.71 (0.86–16.1)	.08	-	-
Radical hysterectomy	1.00 (0.36–2.84)	.99	-	-	1.37 (0.40–4.66)	.62	-	-
Pelvic radiotherapy	0.36 (0.08–1.58)	.18	-	-	3.71 (0.86–16.1)	.08	-	-
UDI-6	0.88 (0.71–1.09)	.25	-	-	1.02 (0.79–1.31)	.90	-	-
IIQ-7	0.90 (0.81–1.00)	.06	0.87 (0.77–0.99)	.04	1.12 (0.98–1.29)	.10	-	-
Qmax, mL/s	1.09 (1.01–1.18)	.04	1.15 (1.01–1.31)	.04	0.84 (0.74–0.96)	.009	0.84 (0.74–0.96)	.009
PVR, mL	1.00 (1.00–1.00)	.53	-	-	1.00 (1.00–1.01)	.08	-	-
Voiding efficiency	1.98 (0.42–9.35)	.39	-	-	0.07 (0.01–0.58)	.01	-	-
Pabd, cmH_2O	1.00 (0.98–1.01)	.49	-	-	0.88 (0.80–0.97)	.01	-	-
Pdet, cmH_2O	1.03 (0.98–1.08)	.20	-	-	1.10 (0.99–1.02)	.22	-	-



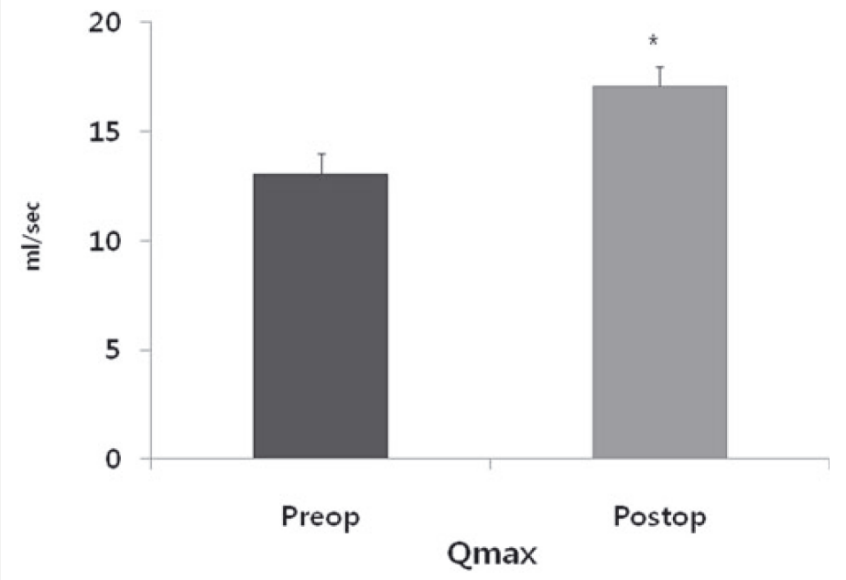
	P-value
	<0.0001
	<0.0001
3.8)	
	3 (4.8)
.9)	4 (14.8)
3.2)	25 (6.2)

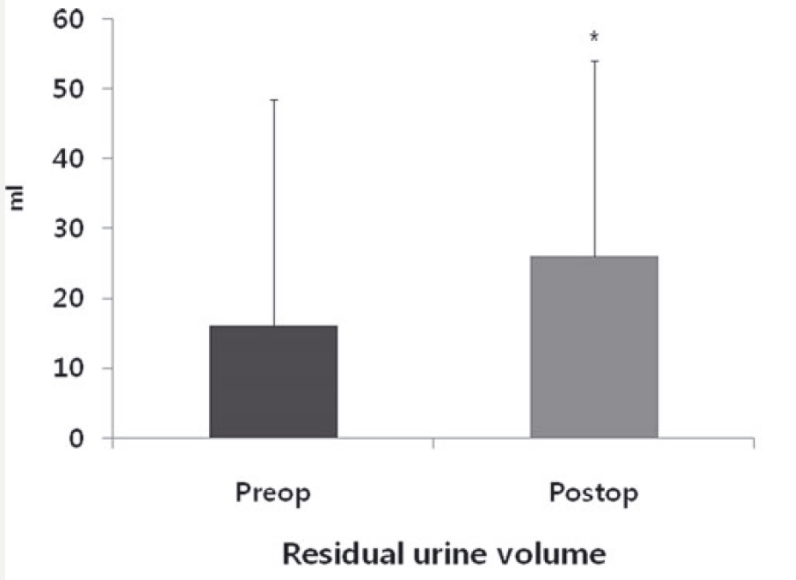
- About 5% urethrolysis
- Similar initial continence rate, but earlier recurrence

Lower Urinary Tract Symptoms. 2018;1–6.

Influence of Preoperative Detrusor Underactivity on the Continence Rate and Satisfaction after Midurethral Sling Patient with Stress Urinary Incontinence

- transobturator tape
- Qmax less than 15 mL/sec & PdetQmax less than 20 cmH2O
- 88% success and 7% dissatisfaction





LUTS (2010) 2, 95–99

Assessing the Readjustable Sling Procedure (Remeex System) for Female Stress Urinary Incontinence With Detrusor Underactivity

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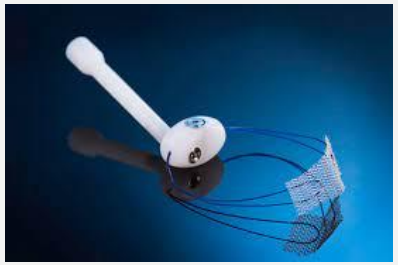

- 27 female DU & SUI treated with Remeex system
- DU: Qmax of ≤12 mL/sec with a voided volume of ≥100 mL
- mean follow-up period was 38.0 months
- **treatment success rate: 81.5%.**

Table 1. Demographic data of 27 patients who underwent a re-adjustable sling procedure (Remeex) for female stress urinary incontinence with detrusor underactivity

Variable	Value
Age (yr)	59.0 (51–70)
Body mass index (kg/m^2)	25.56 ± 3.12
No. of vaginal deliveries, median (range)	2 (1–9)
Mixed incontinence	2 (7.4)
Previous anti-incontinence surgery	
Tension-free suburethral sling operation	4 (14.8)
Bulking agent injection	5 (18.5)
Urodynamic study parameters	
ALPP (cm H_2O)	92.1 ± 36.8
PdetQmax (cm H_2O)	17.4 ± 13.6
MaxPdet (cm H_2O)	24.3 ± 16.1
Maximal flow rate (mL/sec)	12.6 ± 6.3
Postvoid residual (mL)	72.1 ± 88.8

Int Neurourol J 2017;21:116-120

Variable	Baseline	Postoperation	P-value
I-VAS	7.6 ± 2.3	3.1 ± 2.7	< 0.001
Sandvik ISI			0.001
None	0	6	
Slight	1	3	
Moderate	0	3	
Severe	9	5	
Very severe	8	1	
I-QOL			
Total I-QOL score	64.8 ± 90.2	146.8 ± 115.2	0.004
Avoidance and limiting behaviors	23.2 ± 32.8	51.2 ± 38.2	0.004
Psychosocial impacts	24.1 ± 29.9	51.3 ± 39.5	0.006
Social embarrassment	17.5 ± 29.3	44.1 ± 39.7	0.009
Maximal flow rate (mL/sec)	12.6 ± 6.3	8.9 ± 5.7	0.044
Postvoid residual (mL)	72.1 ± 88.8	56.8 ± 87.5	0.717

- 7 patients wanted the Remeex system to be removed due to persistent postoperative urinary retention

SUMMARY

- Complicated SUI ➔ need to be confirmed by urodynamic study
- SUI recurrence ➔ may lower successful and higher recurrence rate. Bulking agent should be considered for the recurrence SUI
- Post-pelvic radiation ➔ Less literature. Similar initial outcome, but higher recurrence. Sling erosion ➔ may offer autologous fascia
- POP ➔ Combination reduce SUI, but higher complication rate ➔ bladder perforation, UTI, hemorrhage
- DU with SUI ➔ Both transobturator, retropubic and adjustable system are effective.
- Surgical technique challenge: anatomic, tissue handling need to be concerned to avoid complications

THANKS