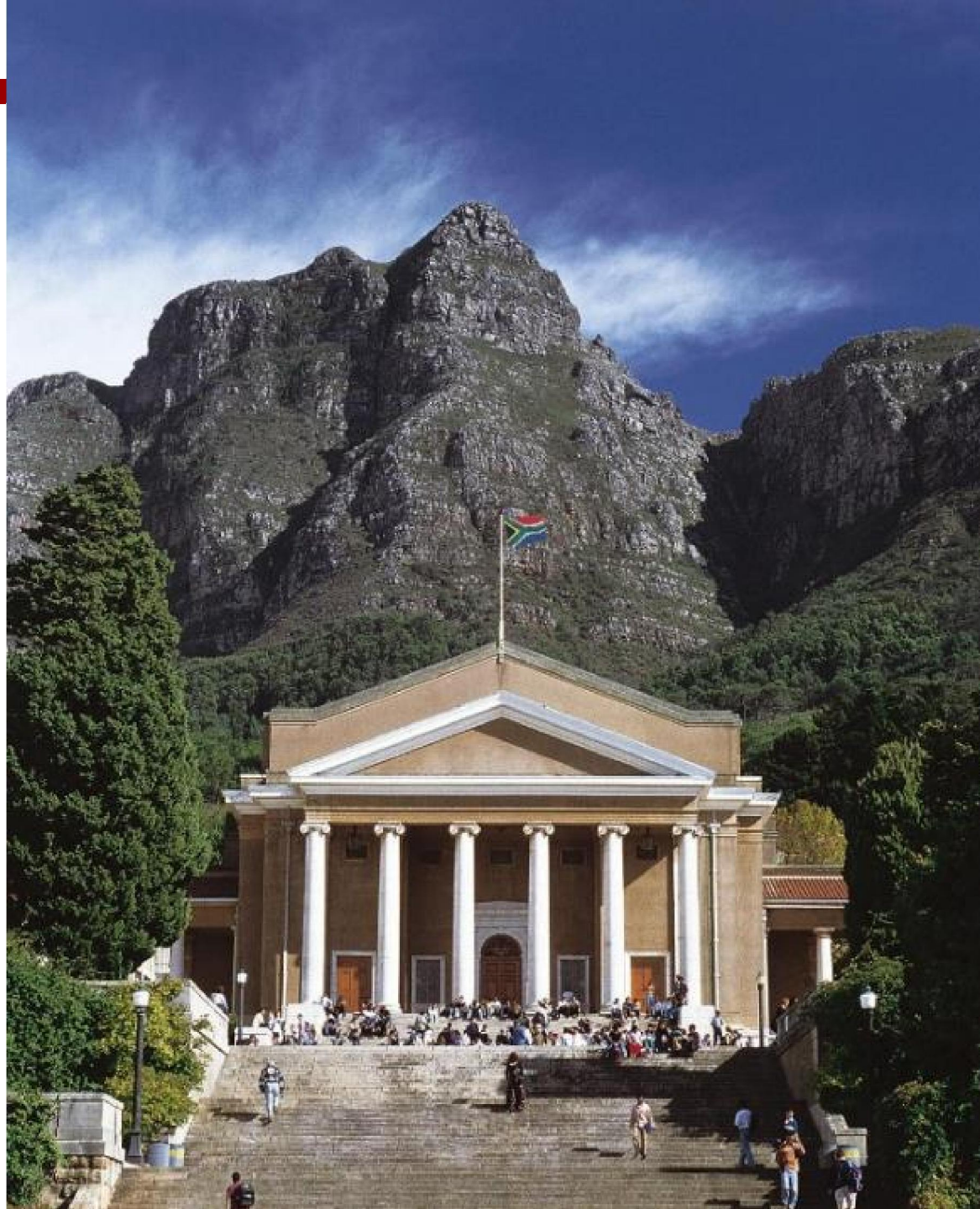




Managing urinary incontinence: what tests will help me?

Stephen Jeffery

University of Cape Town









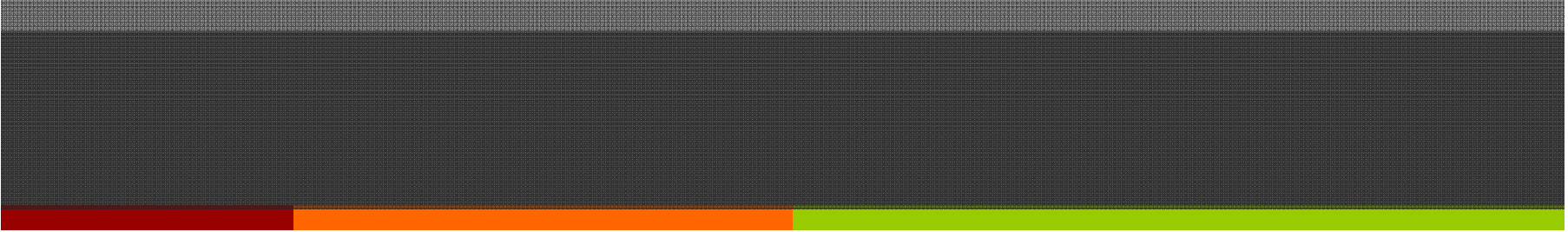






What does this woman want after her operation ?





A lifetime cure of her stress incontinence

The issue

- We are unable to guarantee 100% success rates for our operations for SUI

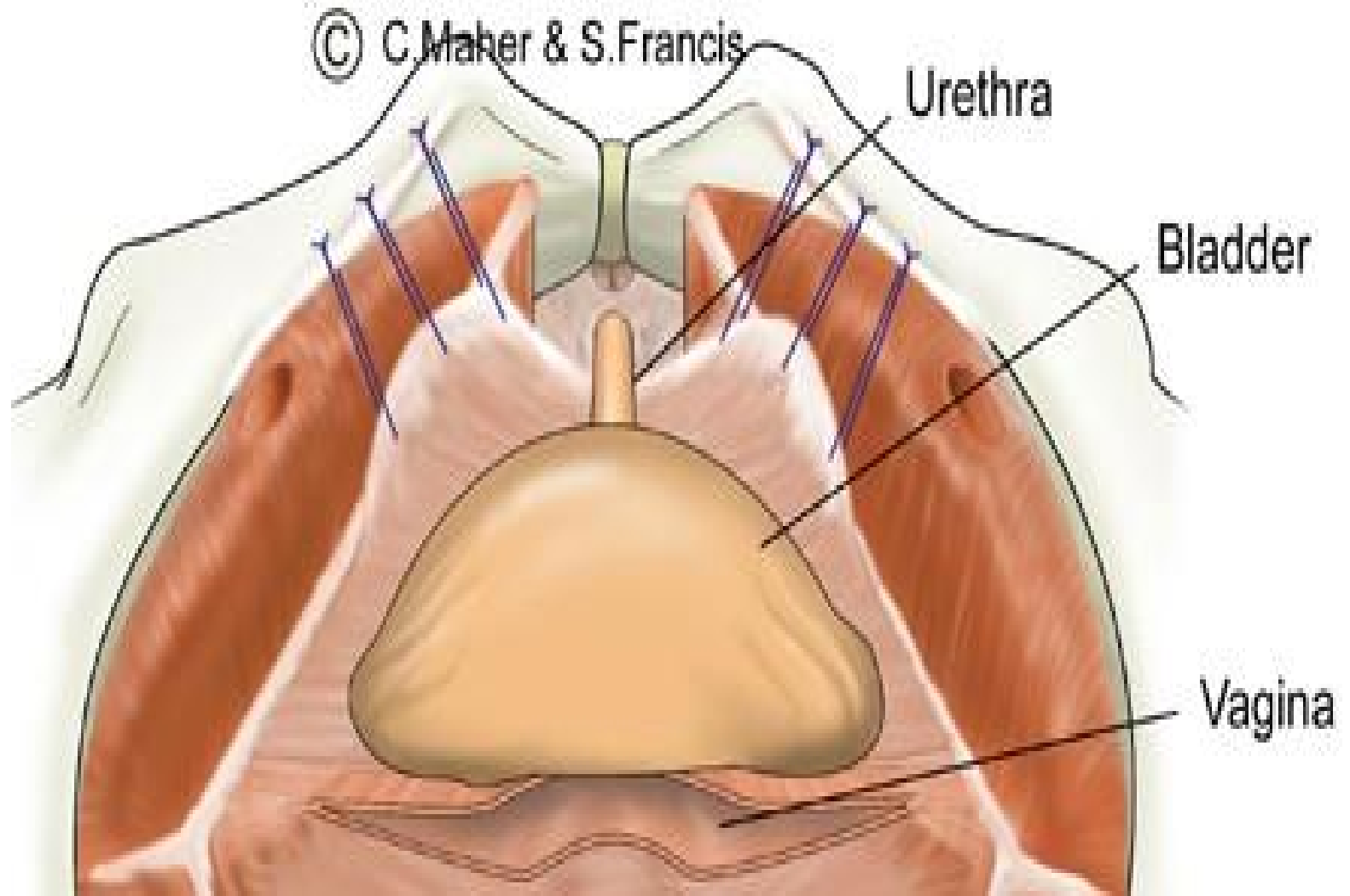
Do investigations help

- ① Deciding if we should do a sling
- ② Choosing our sling
- ③ Complication management
- ④ Recurrent stress incontinence
- ⑤ Sorting out THAT difficult patient

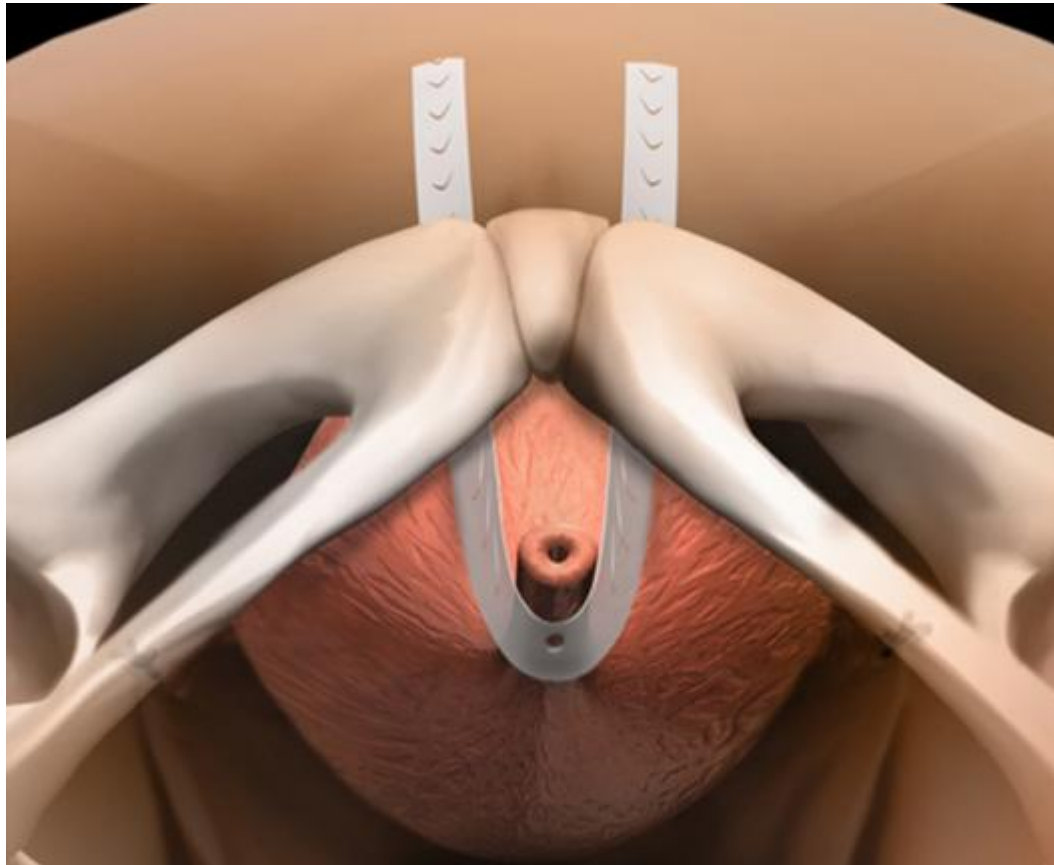
An example

- 49 yr old, P3
- Has history of severe stress incontinence
- No urgency, urgency incontinence or nocturia
- No voiding problems
- Very obvious stress leak on examination

Burch Colposuspension



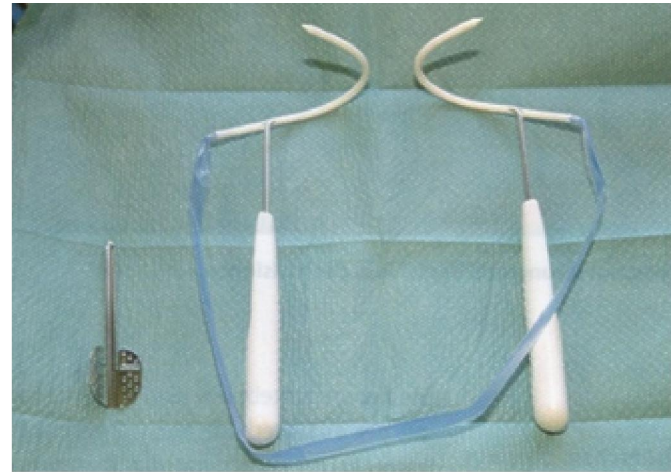
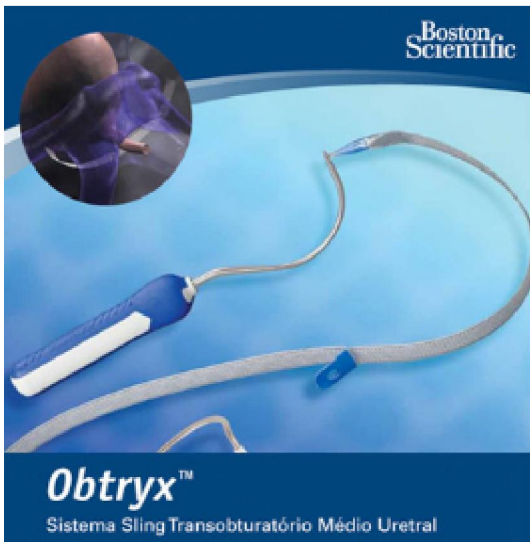
Retropubic Tape



Transobturator Tape



Outside -In



Inside -out

Is the Burch still an option?

Not really.



European Association of Urology



Platinum Priority – Incontinence

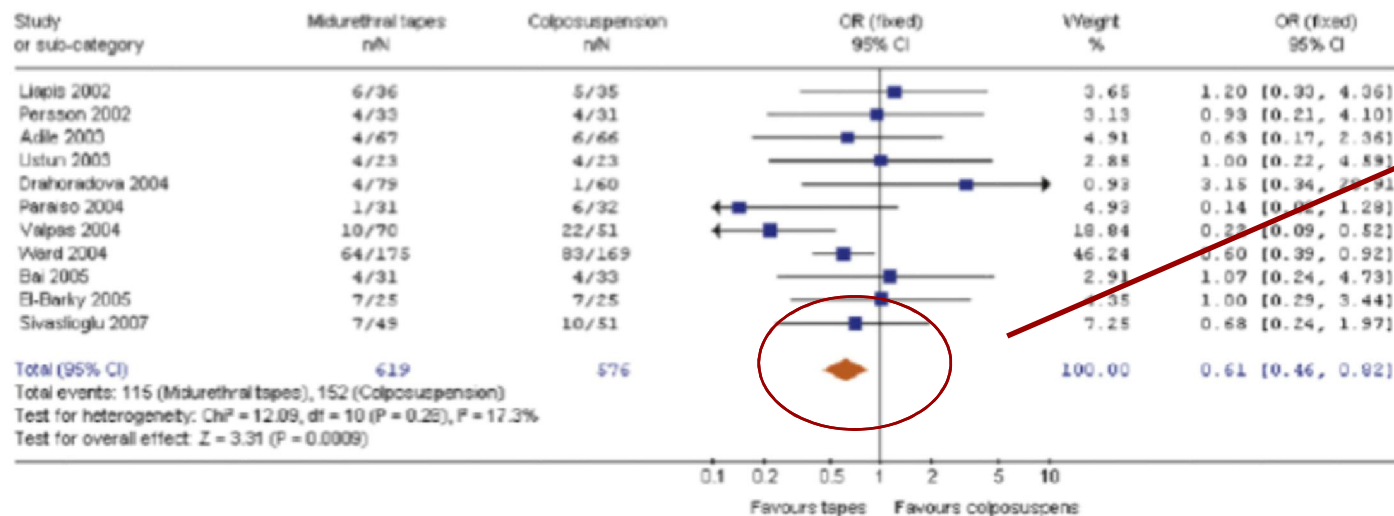
Editorial on pp. x-y of this issue

Updated Systematic Review and Meta-Analysis of the Comparative Data on Colposuspensions, Pubovaginal Slings, and Midurethral Tapes in the Surgical Treatment of Female Stress Urinary Incontinence

Giacomo Novara^{a,*}, Walter Artibani^b, Matthew D. Barber^c, Christopher R. Chapple^d, Elisabetta Costantini^e, Vincenzo Ficarra^a, Paul Hilton^f, Carl G. Nilsson^g, David Waltregny^h

Burch
Vs
Slings

Review: Mid-urethral tapes in SUI
Comparison: 01 Mid-urethral tapes Vs. Burch colposuspension
Outcome: 01 Overall cure rate



Slings
Better

available at www.sciencedirect.com

journal homepage: www.europeanurology.com



European Association of Urology



Platinum Priority – Incontinence

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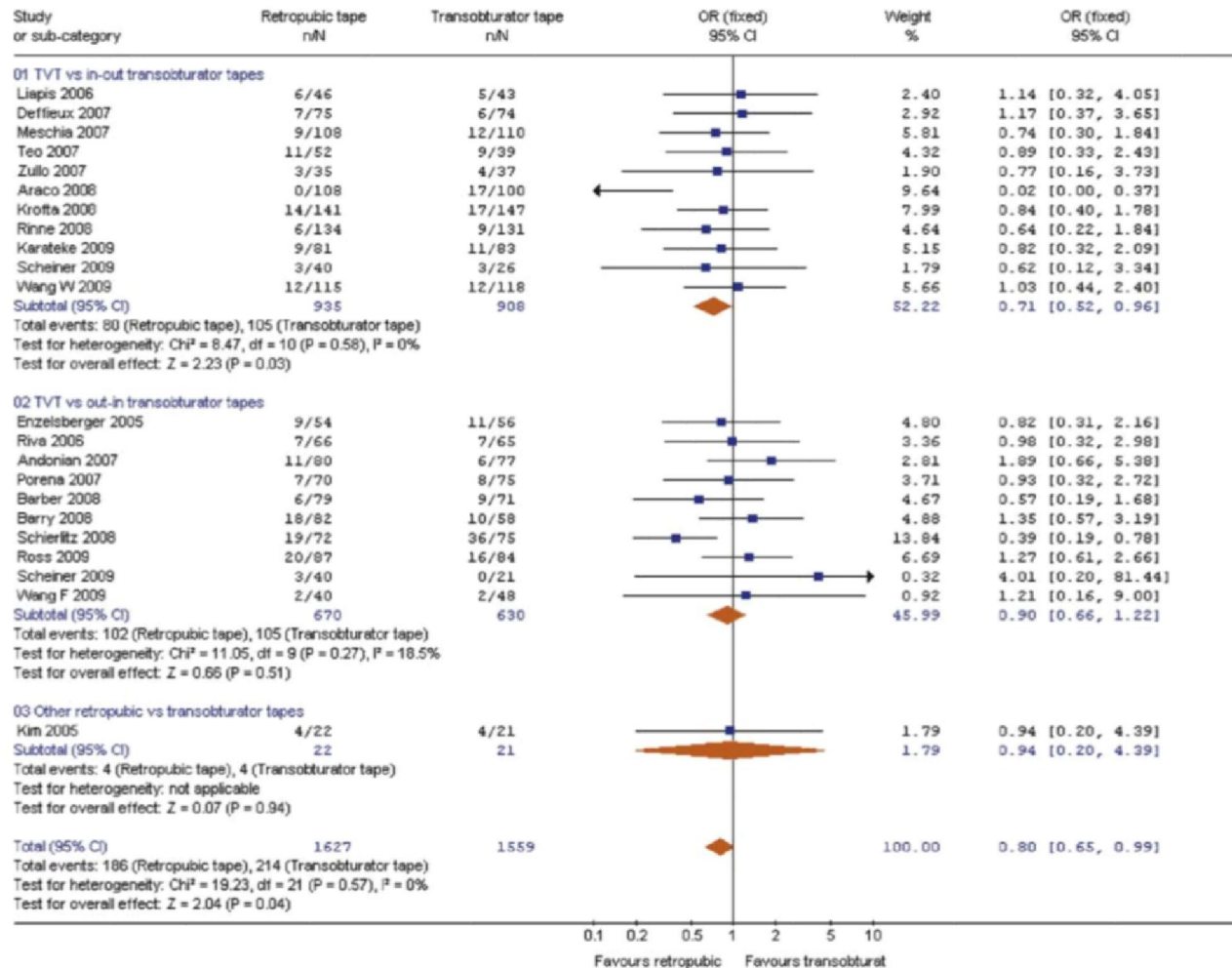
Giacomo Novara^{a,*}, Walter Artibani^b, Matthew D. Barber^c, Christopher R. Chapple^d,
Elisabetta Costantini^e, Vincenzo Ficarra^a, Paul Hilton^f, Carl G. Nilsson^g, David Waltregny^h



Objective Cure

Retropubic vs Transobturator

(b) Review: Mid-urethral tapes in SUI
Comparison: 06 Retropubic Vs. transobturator midurethral tapes
Outcome: 02 Objective cure rate

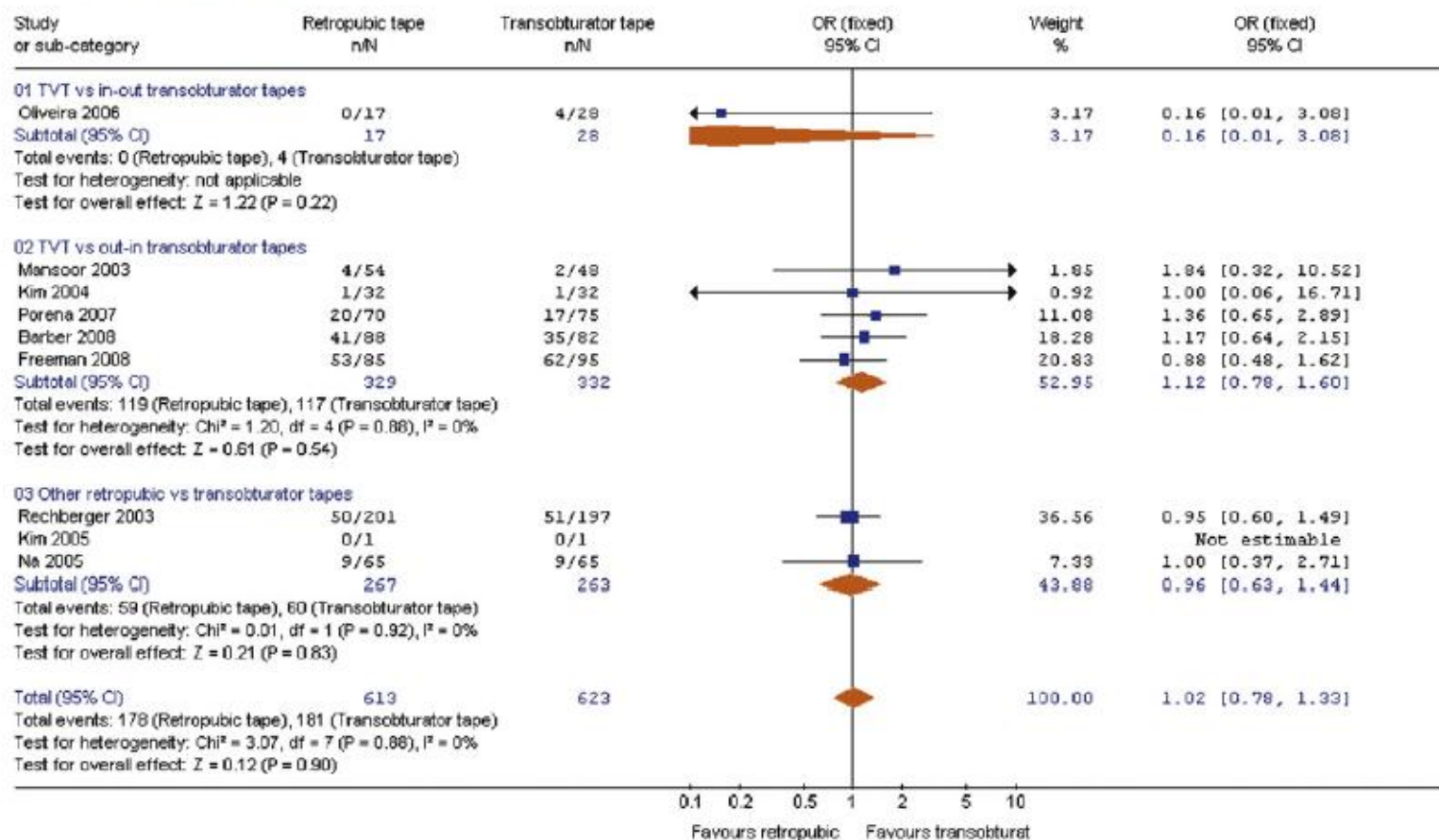




Overall Cure

Retropubic vs Transobturator

Review: Mid-urethral tapes in SUI
Comparison: 06 Retropubic Vs. transobturator midurethral tapes
Outcome: 01 Overall cure rate



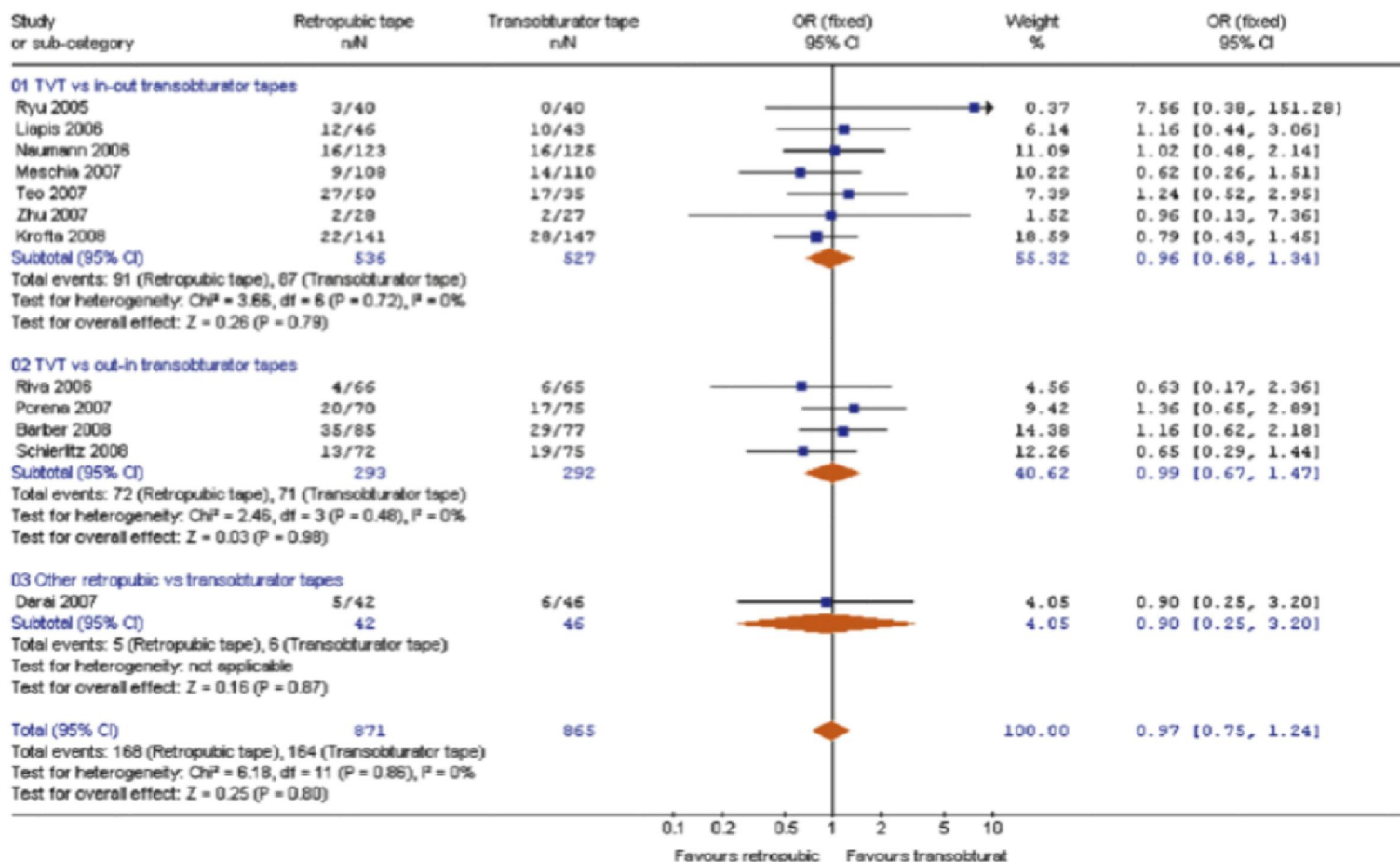


Subjective Cure

Retropubic vs Transobturator



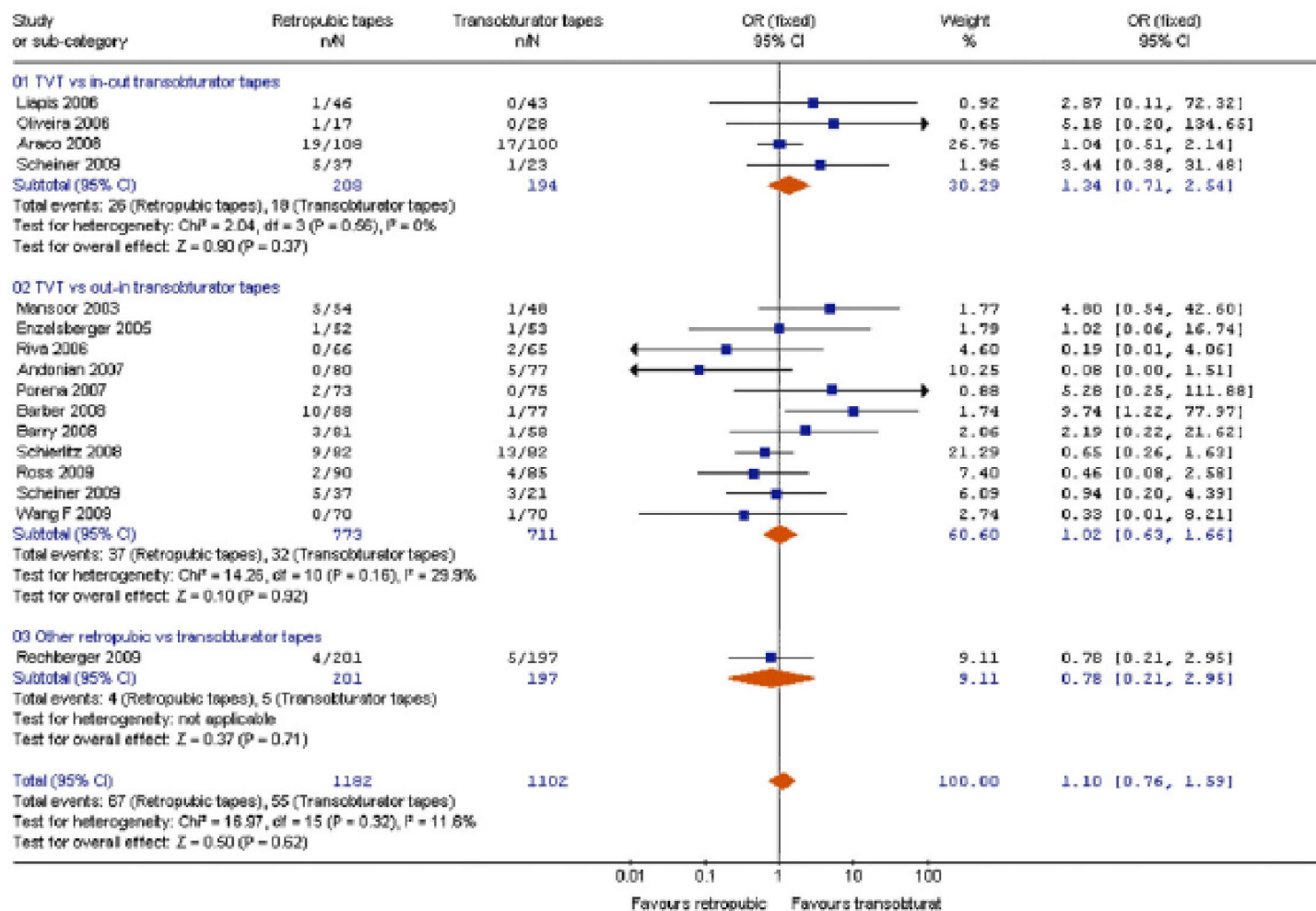
Review: Mid-urethral tapes in SUI
 Comparison: 06 Retropubic Vs. transobturator midurethral tapes
 Outcome: 03 Subjective cure rate





Re-operation Rate Retropubic vs Transobturator

(m) Review: Mid-urethral tapes in SUI
Comparison: 06 Retropubic Vs. transobturator midurethral tapes
Outcome: 11 Reoperation rate

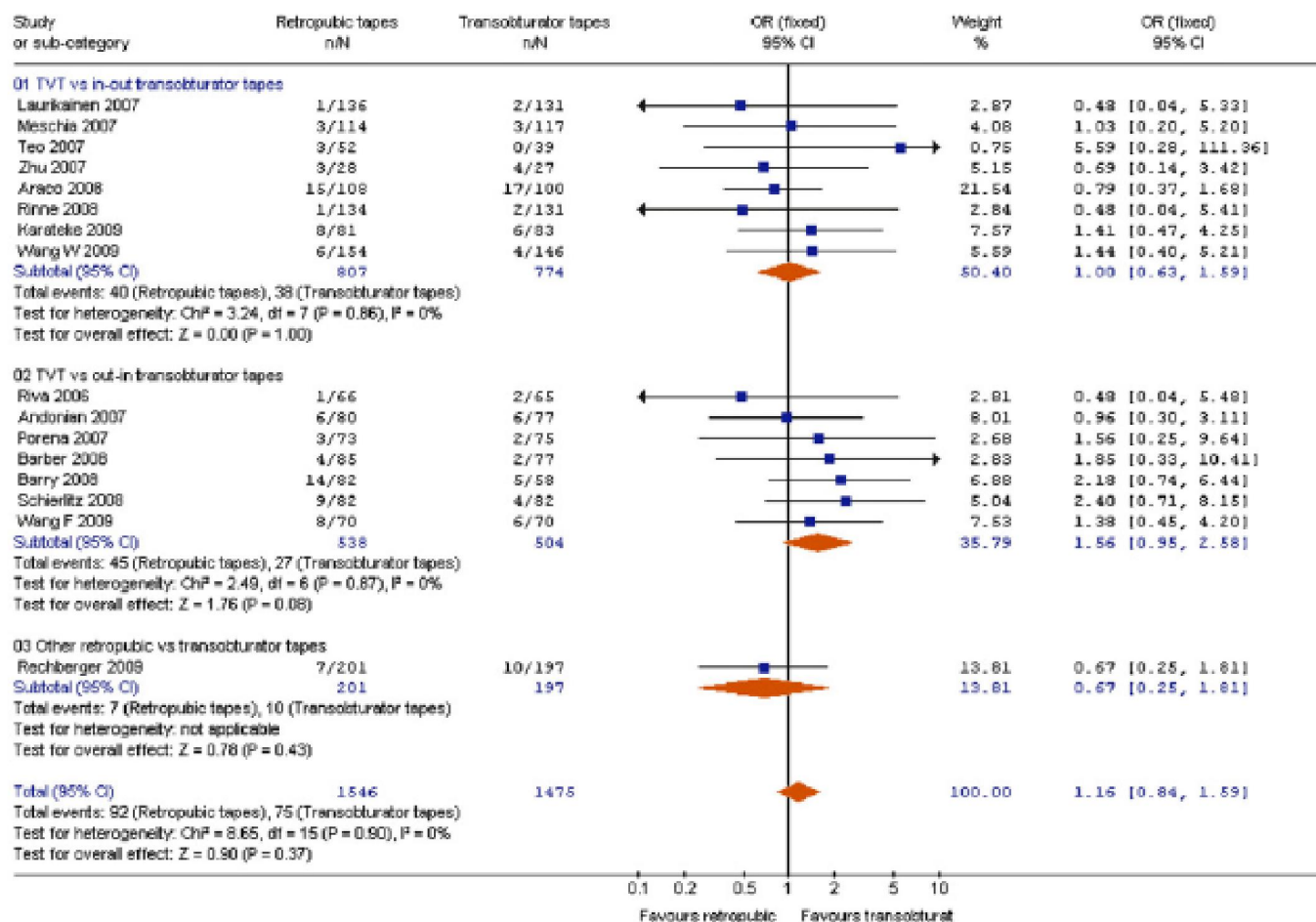




Self CIC

Retropubic vs Transobturator

(I) Review: Mid-urethral tapes in SUI
Comparison: 06 Retropubic Vs. transobturator midurethral tapes
Outcome: 10 Complication rate - CIC/recatheterization



Int Urogynecol J
DOI 10.1007/s00192-011-1406-3

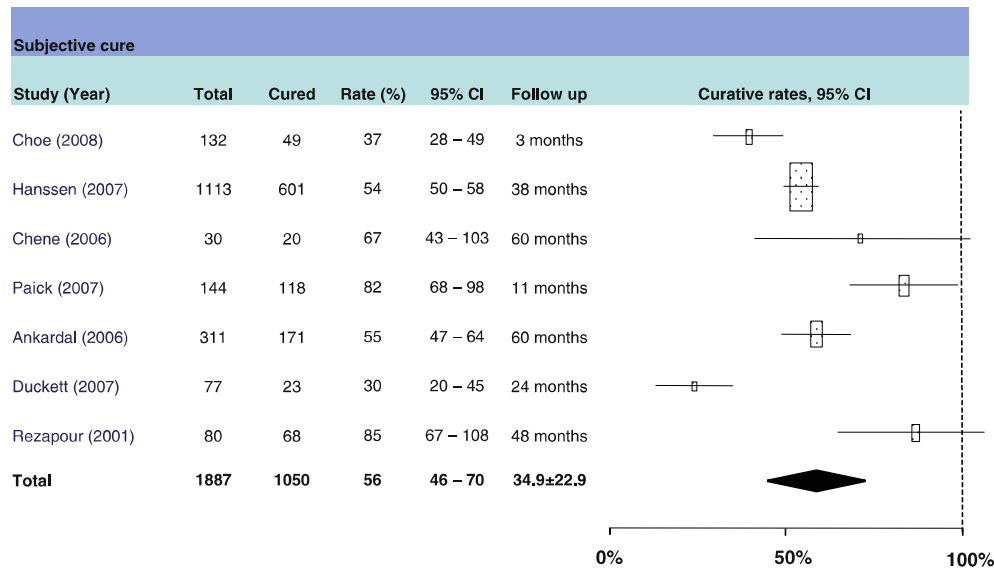
ORIGINAL ARTICLE

Effectiveness of midurethral slings in mixed urinary incontinence: a systematic review and meta-analysis

Preeti Jain & Kelly Jirschele & Sylvia M. Botros &
Pallavi M. Latthe

Received: 22 October 2010 / Accepted: 4 March 2011
© The International Urogynecological Association 2011

Overall Subjective Cure



Using the random effects model, the overall subjective cure from seven prospective nonrandomised studies that included patients with symptomatic±urodynamically proven MUI was found to be 56.4% (95% confidence interval, 45.7%–69.6%) at 34.9±22.9 months follow-up. Test for heterogeneity was statistically significant ($p=0.000$) (Fig. 3)

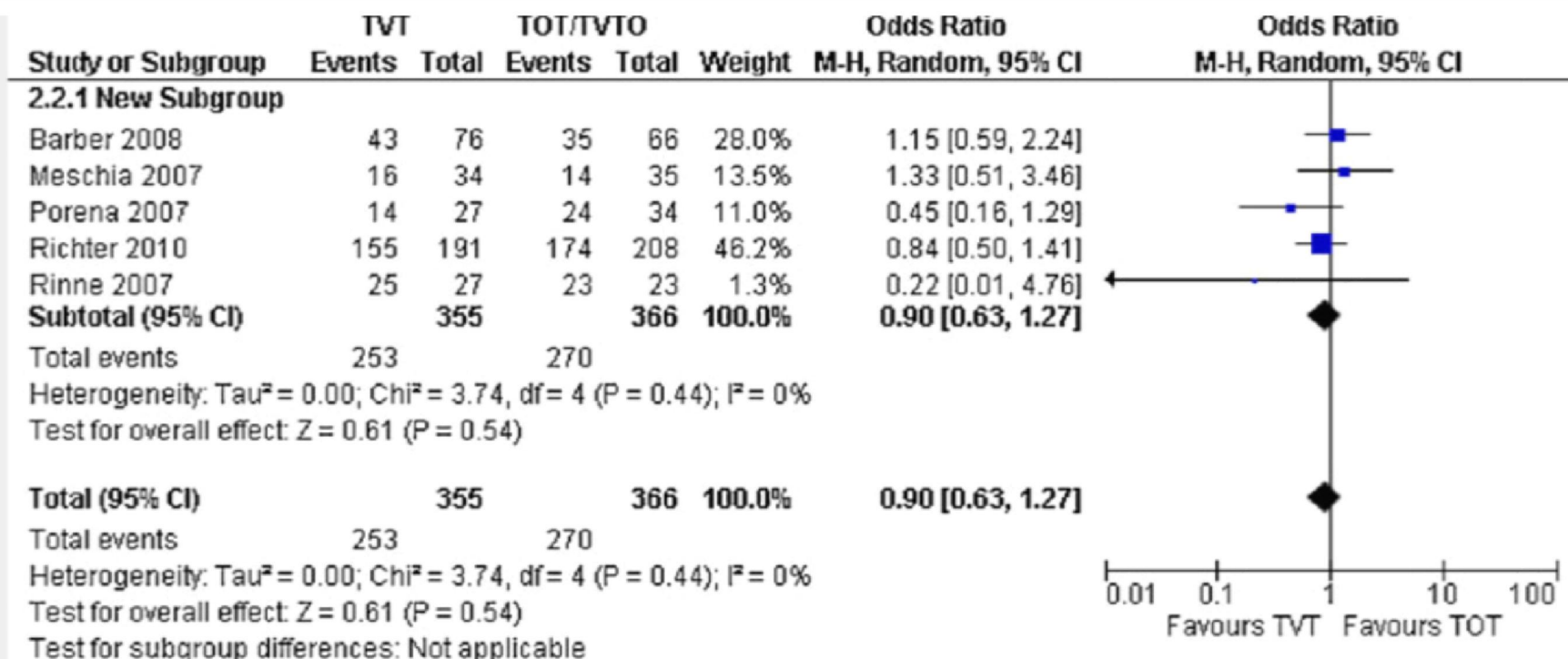


Fig. 4 Overall subjective cure in women with MUI symptoms with or without UDS confirmation (*RCTs*)

Managing complications



Voiding problems

First week post op

- If not passing any urine immediately post –op then loosen tape
- If high residuals (150 to 450 ml) – keep catheter for up to a week
- If still struggling then loosen tape

Voiding problems : chronic

- Seriously consider cutting tape.
- How do you decide?
- Consider
 - Urodynamics
 - Ultrasound

Recurrent stress incontinence

Differential

- Overflow incontinence – do a Post Mic Residual
- Severe Urge Incontinence – Do Urodynamics
- Fistula – Do MCUG or Cystoscopy

Consider Ultrasound

Another example

- 46 year old, P2
- Has stress incontinence with some significant urgency incontinence, stress worse
- Nocturia x 4
- Leaks on standing up
- Has bladder pain occasionally
- No stress incontinence demonstrated



Example 2: Options

- ① Start on anticholinergics
- ② Go straight ahead and put in a sling

Or

- ① Start on anticholinergics
- ② Investigate – but what and why?

Example 2: What the investigations will tell us

1. Urodynamics

- Give us an idea about voiding dysfunction
- Will demonstrate stress incontinence
- May show detrusor overactivity

Example 2: What the investigations will tell us

2. Perineal Ultrasound

- Quick look at residual
- Bladder neck mobility
- Bladder wall thickness
- Bladder neck funneling
- Diverticulum
- Demonstrate any impact that prolapse may be having on her bladder function

Example 2: What the investigations will tell us

3. Positive pressure urethrogram

Diverticulum

4. Bladder diary

May demonstrate excess nocturnal urine production

“Fluid abuse”

5. Cystoscopy

Cancer

What is the use of urodynamics?



An interesting statistic

80 % of Dutch gynaecologists
said they would operate on
women with Stress Incontinence
without doing UDS

(Van Leijsen)

Why would you not want to do urodynamics?

- Bother for the patient (time, pain, shame)
- Hassle for the surgeon
- Urinary tract infection
- Costs!
- Risk of wrong conclusions / decisions

Some good news



There is data to support not doing UDS



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ORIGINAL ARTICLE

A Randomized Trial of Urodynamic Testing before Stress-Incontinence Surgery

Nager et al NEJM 2012 - VALUE trial

non-inferiority RCT , 630 women (2x315)

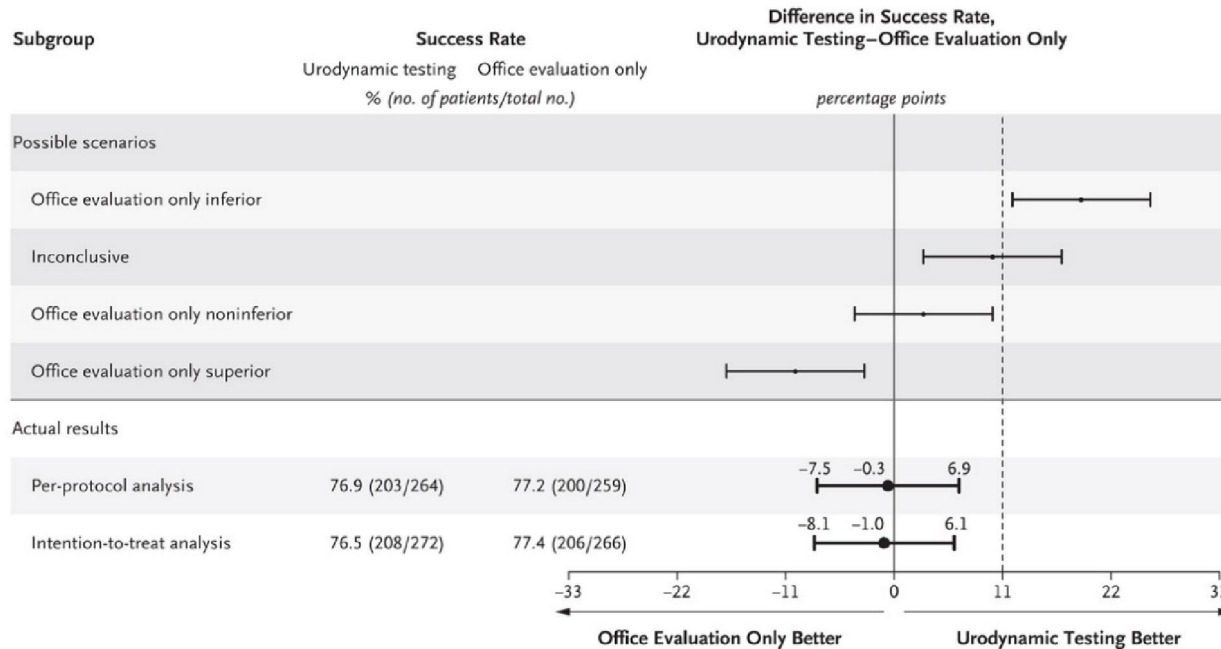
SUI or MUI with predominant SUI , + cough test
office assessment +/- urodynamics

Primary outcome: treatment success after 12 months (70% reduction of urogenital distress inventory (UDI) score and response of "much better" or "very much better" on the Patient Global Impression of Improvement)

Table 3. Clinical Diagnosis.*

Diagnosis	After Office Evaluation		P Value	After Urodynamic Testing (N = 294)†	P Value‡
	Urodynamic- Testing Group (N = 315)	Evaluation- Only Group (N = 315)			
Stress urinary incontinence — no. (%)	315 (100)	315 (100)	>0.99	292 (99.3)	NA
Overactive bladder with incontinence — no. (%)	131 (41.6)	108 (34.3)	0.06	74 (25.2)	<0.001
Overactive bladder without incontinence — no. (%)	99 (31.4)	94 (29.8)	0.67	61 (20.7)	0.002
Voiding dysfunction — no. (%)	7 (2.2)	9 (2.9)	0.61	35 (11.9)	<0.001
Suspected intrinsic sphincter deficiency — no./ total no. (%)§	61/314 (19.4)	54/315 (17.1)	0.46	37/294 (12.6)	0.003

Outcome	Urodynamic Testing (N = 272)	Office Evaluation Only (N = 266)	P Value
Primary			
70% reduction in Urogenital Distress Inventory score — no. (%)	210 (77.2)	210 (78.9)	0.63
“Very much better” or “much better” on Patient Global Impression of Improvement — no./total no. (%)†	248/270 (91.9)	238/262 (90.8)	0.68
Secondary			
Change in Urogenital Distress Inventory score	−100.2±50.1	−98.4±51.4	0.68
Change in Incontinence Severity Index score‡	−6.0±3.3	−5.7±3.4	0.40
Change in MESA score			
Stress incontinence	−61.5±22.0	−60.2±24.7	0.50
Urgency incontinence	−19.7±21.4	−22.2±22.4	0.19
Change in Incontinence Impact Questionnaire score	−35.9±23.2	−37.3±23.7	0.49
Change in SF-12 score§	5.0±10.8	7.3±12.0	0.02
Change in Patient Global Impression of Severity score¶	−1.8±0.9	−1.8±0.9	0.68
Score of moderate or severe on the Patient Global Impression of Severity at 12 mo — no./total no. (%)	19/271 (7.0)	15/266 (5.6)	0.51
Overall patient satisfaction score at 12 mo**	79.5±30.4	82.2±28.6	0.28
Positive provocative stress test at 12 mo — no./total no. (%)††	36/225 (16.0)	26/222 (11.7)	0.19



Conclusion:

For women with uncomplicated, demonstrable stress urinary incontinence (incl. MUI with predominant SUI), preoperative office evaluation alone was not inferior to evaluation with urodynamic testing for outcomes at 1 year

Value study

Inclusion criteria

- MESA questionnaire score was important: stress > urge
- Post Void Residual <150 ml
- Clinical assessment of urethral hypermobility
- Positive cough stress test

Urodynamics

So – not necessary in all patients

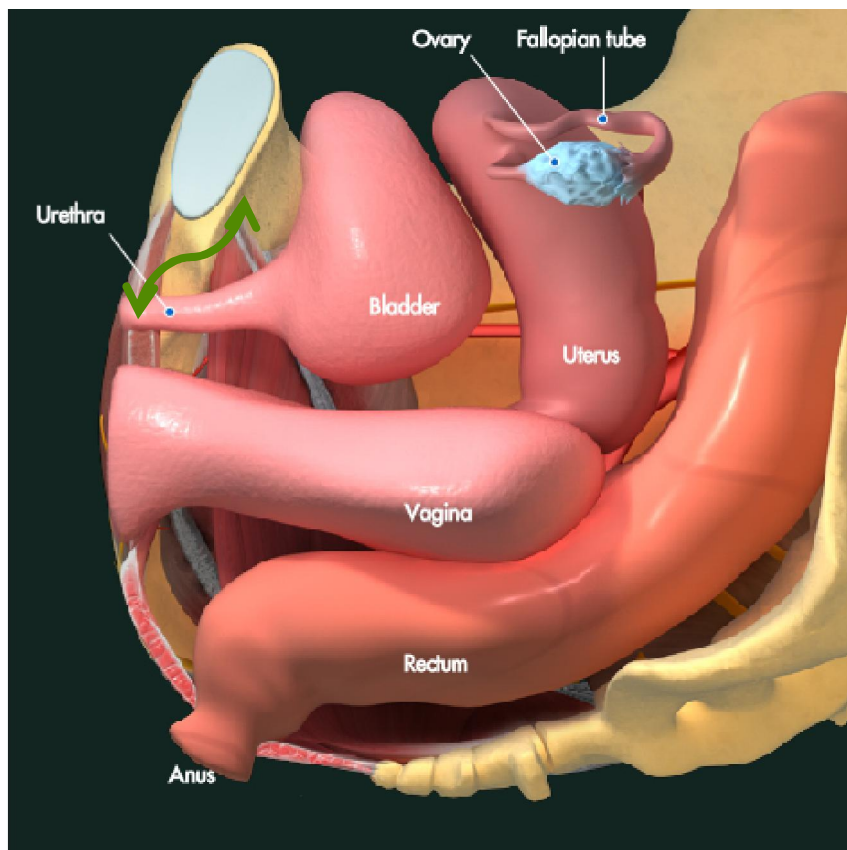
When are they necessary?

Use of UDS: 1. Prediction of Intrinsic Sphincter Deficiency

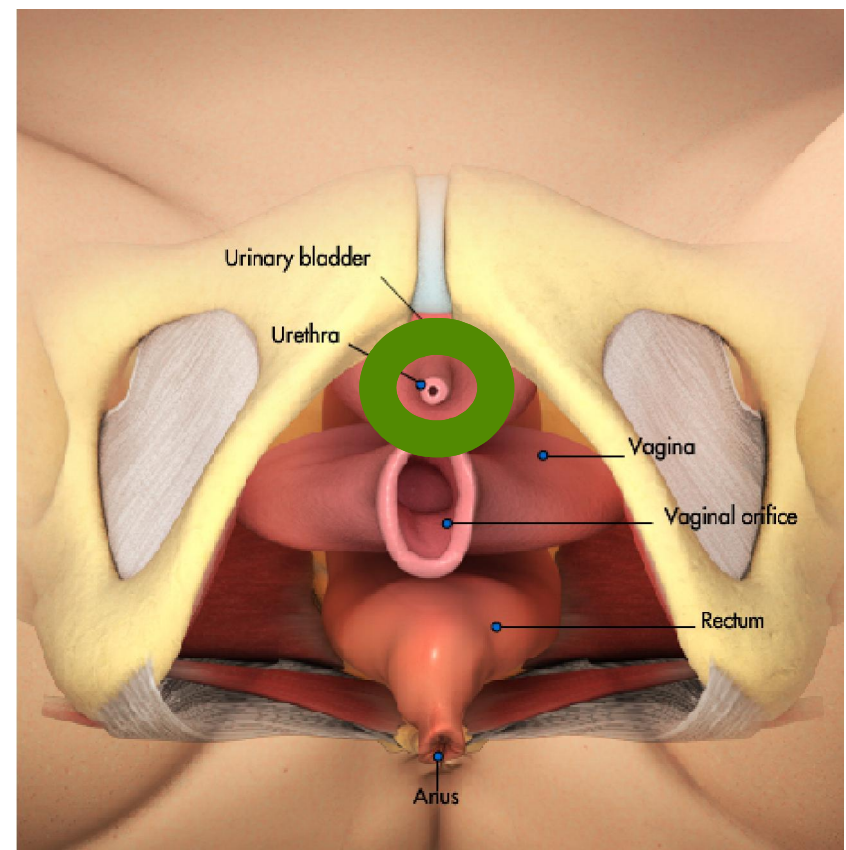


Aetiology of Stress Incontinence

Bladder Neck Hypermobility



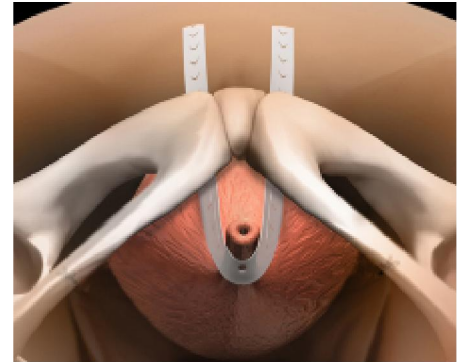
Intrinsic Sphincter Deficiency



RCT : Repeat surgery TOT vs TVT in women with ISD

➤ TVT 1:16

➤ TOT 1:6



Do we need to look for Intrinsic Sphincter Deficiency (ISD)? Schierlitz et al 2008

Intrinsic Sphincter Deficiency

How to diagnose

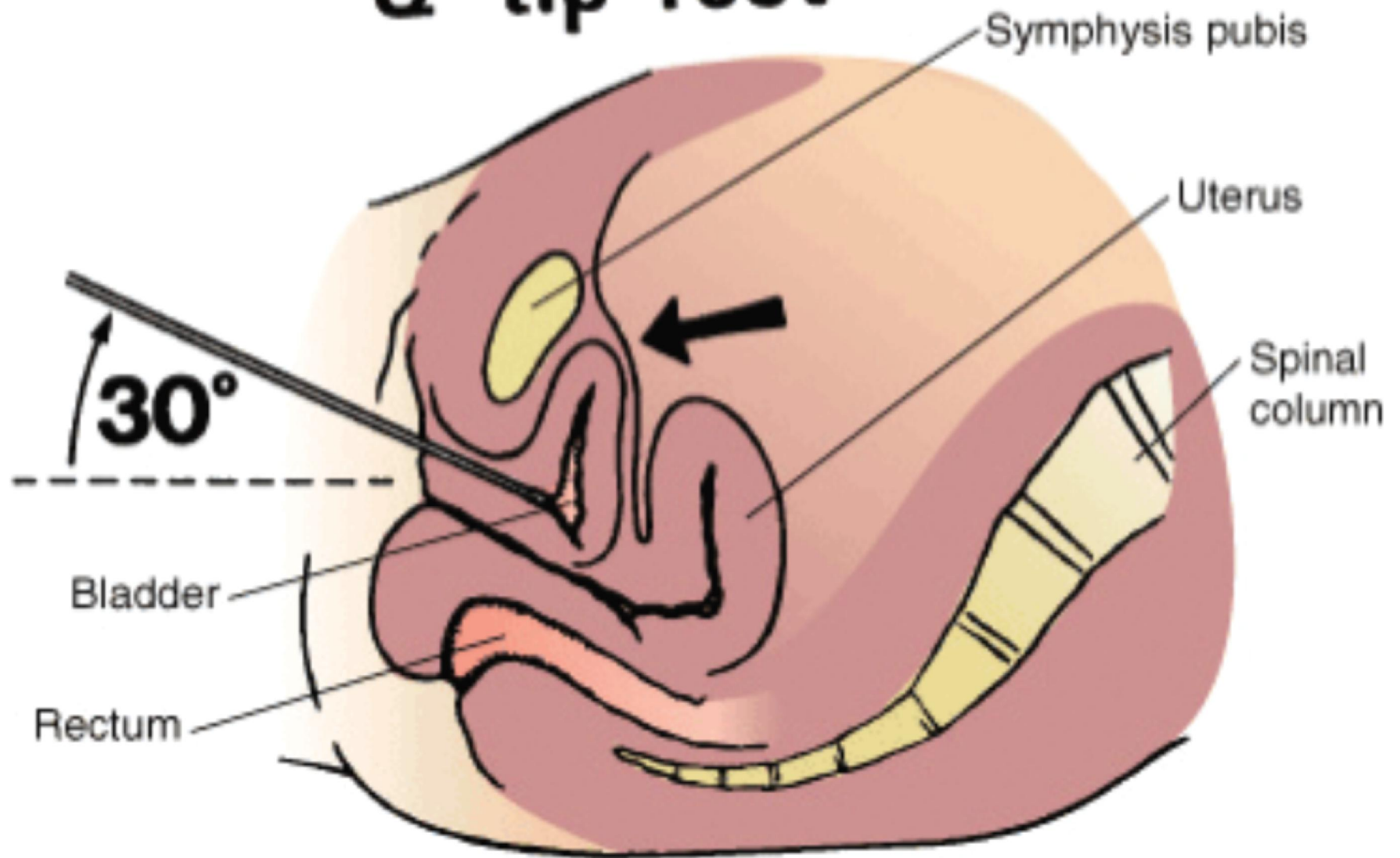
- Leak Point Pressure < 60cmH₂O
- Maximal Urethral Closure Pressure < 20cmH₂O

For ISD are there alternatives to UDS

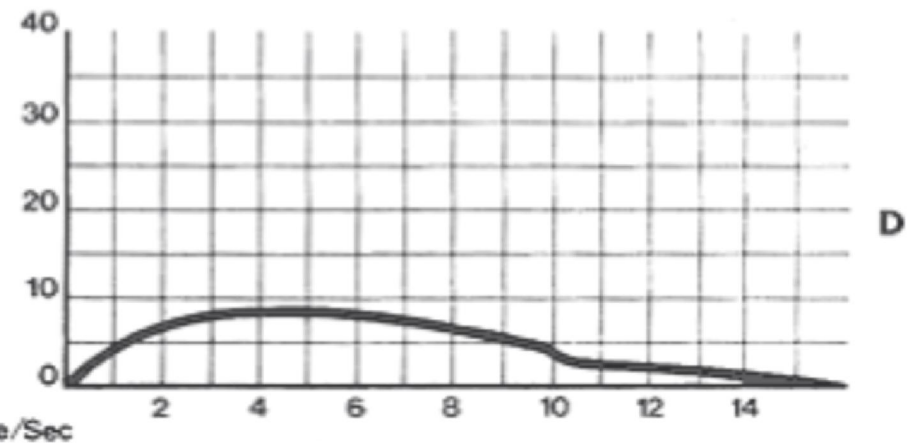
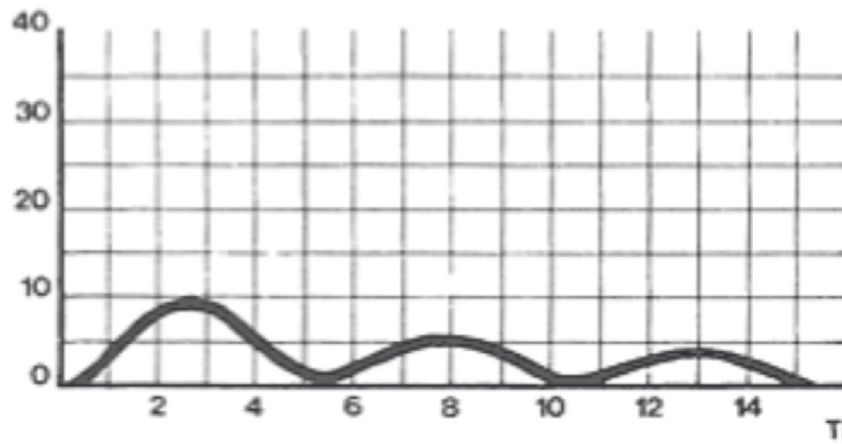
➤ Bladder neck ultrasound

➤ Q-tip test

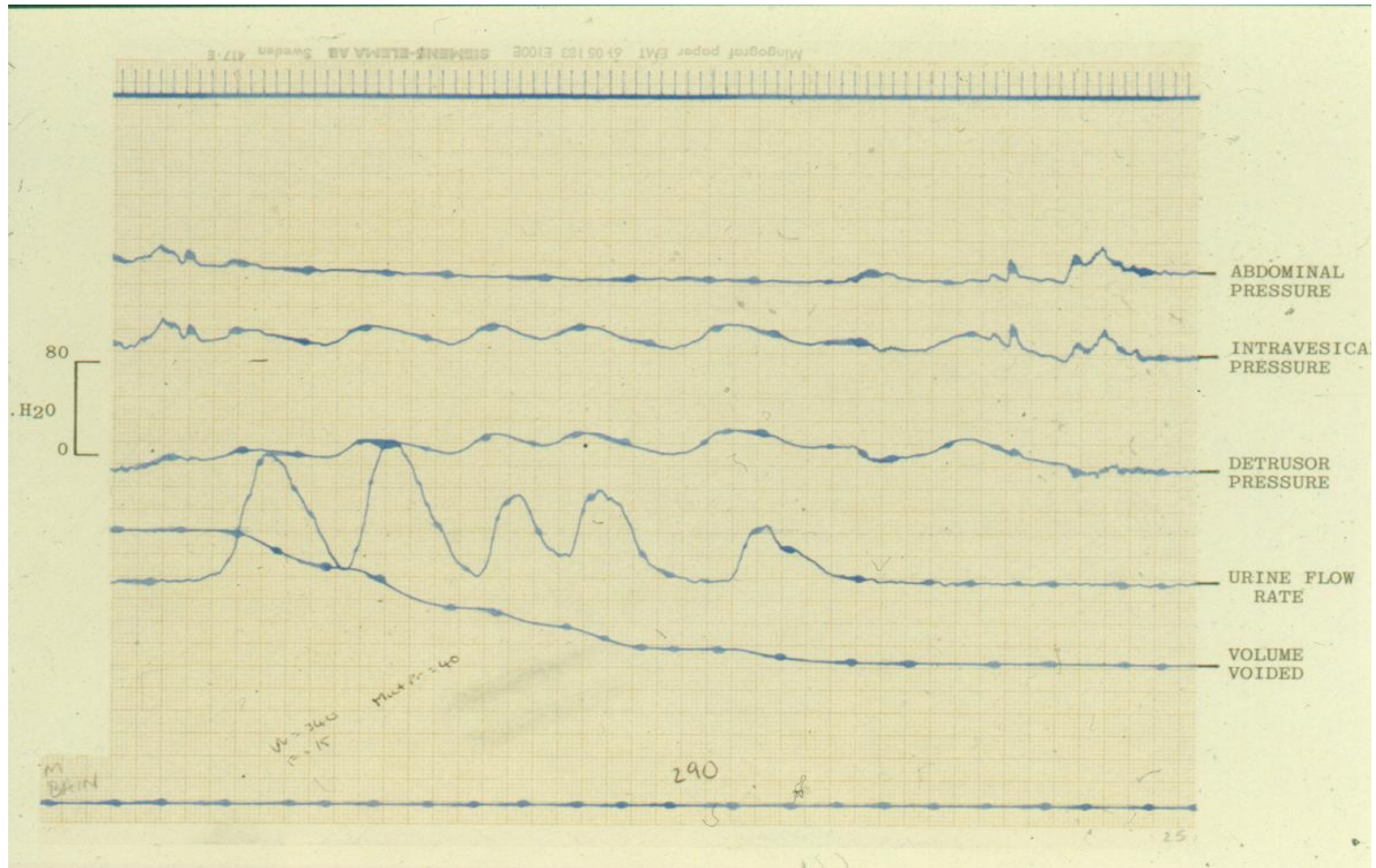
Q-tip Test



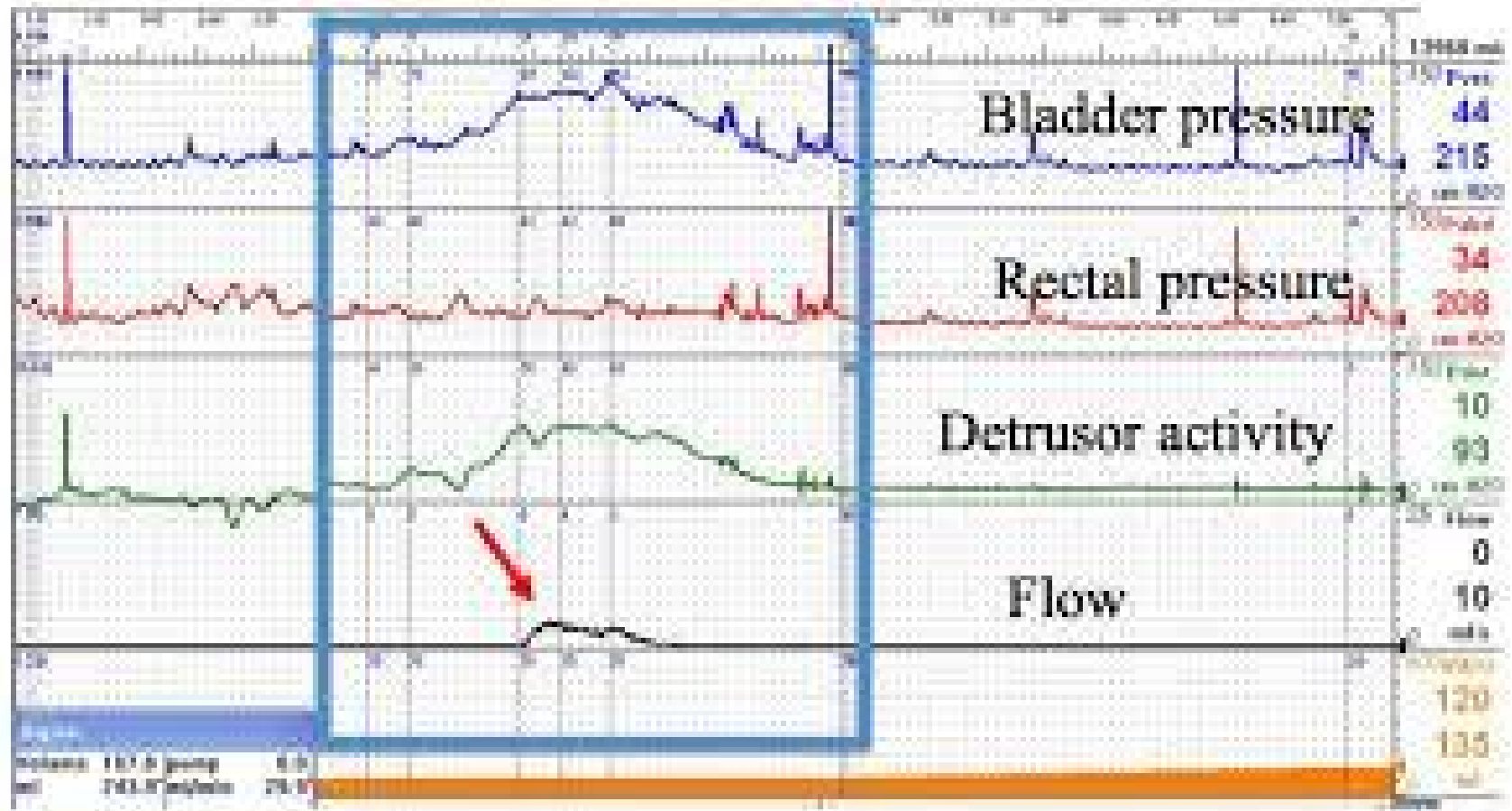
Use of UDS: 2. Prediction of Voiding Dysfunction



Use of UDS: 2. Prediction of Voiding Dysfunction



Use of UDS: 3. Diagnosing Detrusor Overactivity



My recommendation on UDS?

Indications for UDS

- Significant urgency and urgency incontinence symptoms
- Unable to demonstrate stress incontinence on examination
- Profound voiding dysfunction symptomatology
- Very rigid bladder neck and suspecting ISD and can't do retropubic sling
- Recurrent stress incontinence
- Unexplained Incontinence after prolapse operation

Time	Input	TIME	OUTPUT
DATE 26/9/2013	J. J. JACOBS		
08.25	water 200ml	09.50	urine 108ml
09.18	water 200ml	13.15	" 80ml
11.15	water 200ml	17.47	" 115ml
11.35	coffee 200ml	18.50	" 82ml
13.15	water 200ml	19.35	" 100ml
14.40	water 200ml	00.00	" 390ml
16.00	coffee 200ml	02.25	" 450ml
18.00	water 200ml	04.30	" 340ml
19.20	water 100ml	05.55	" 490ml
21.25	water 80ml	07.50	" 300ml
00.05	water 40ml		
04.30	water 40ml		
TOTAL:	1868		2455

DATE 27/9/2013			
Time	INPUT	TIME	OUTPUT
08.45	water 200ml	07.00	urine 145ml
09.15	water 200ml	10.30	" 80ml
11.15	Tea 200ml	14.45	" 60ml
14.30	water 200ml	16.00	" 110ml
14.45	water 200ml	19.45	" 123ml
16.20	coffee 200ml	21.30	" 60ml
17.35	coffee 200ml	Midnight 12.25	" 370ml
19.25	water 200ml	03.25	" 517ml
21.15	water 80ml	04.50	" 540ml
Midnight 12.25	water 40ml	06.45	" 450ml
04.50	water 40ml	08.20	" 340ml
08.35	water 200ml	09.00	" 76ml
TOTAL	1960ml		2871ml

Don't forget the bladder diary

Don't forget the
bladder diary

<u>TIME</u>	<u>OUTPUT</u>
09.00	urine 145 ml
10.30	" 80 ml
14.45	" 60 ml
16.00	" 110 ml
19.45	" 123 ml
21.30	" 60 ml
	" 370 ml
midnight 12.25	" 517 ml
03.25	" 540 ml
04.50	" 450 ml
06.45	" 360 ml
08.20	" 76 ml
08.00	"

What about ultrasound?

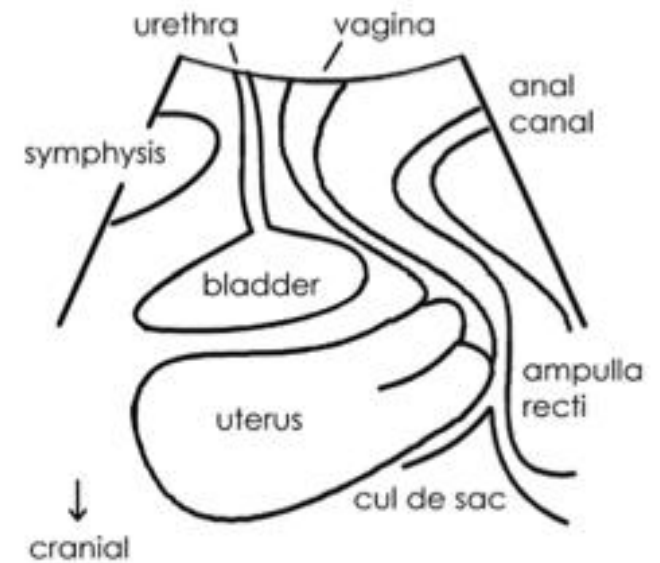
Perineal Ultrasound

Transducer placement for translabial/perineal ultrasound

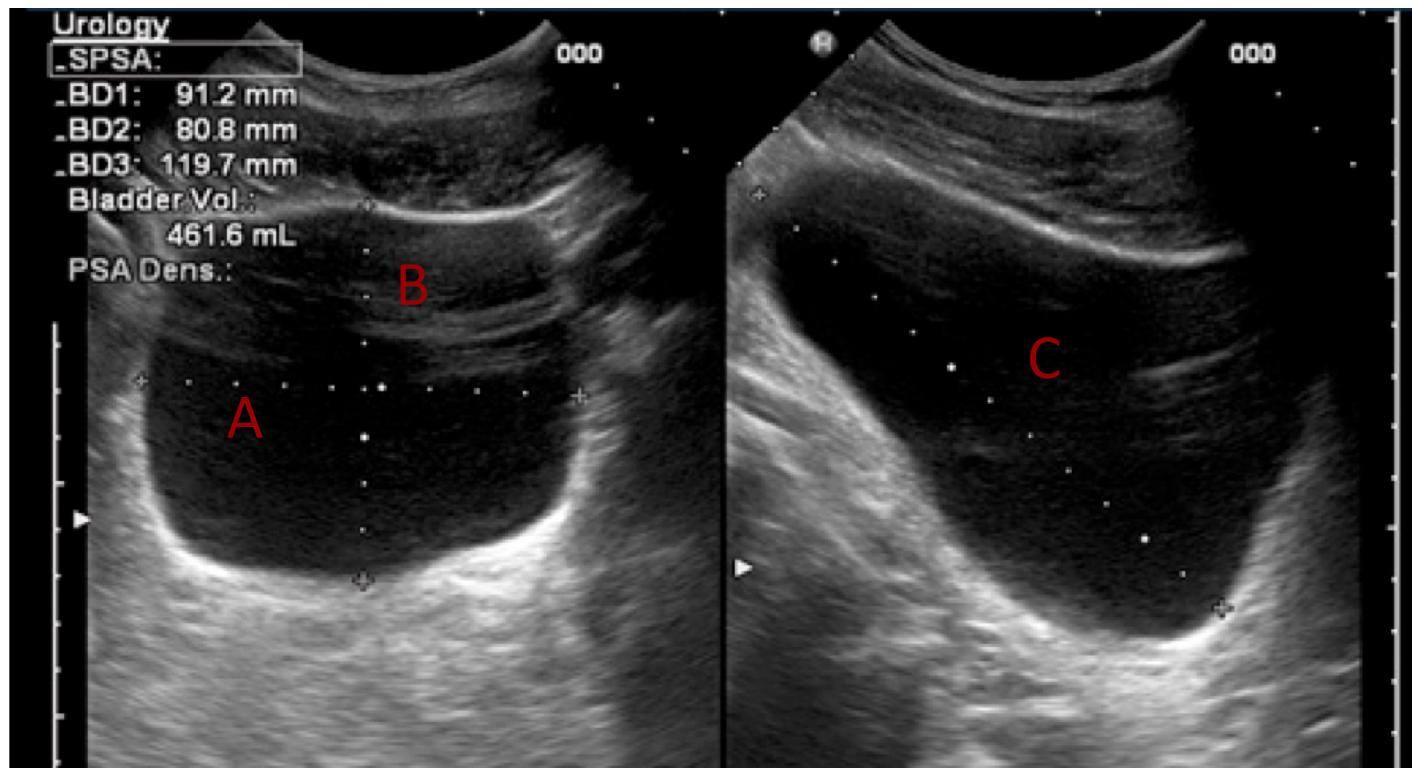
A



B

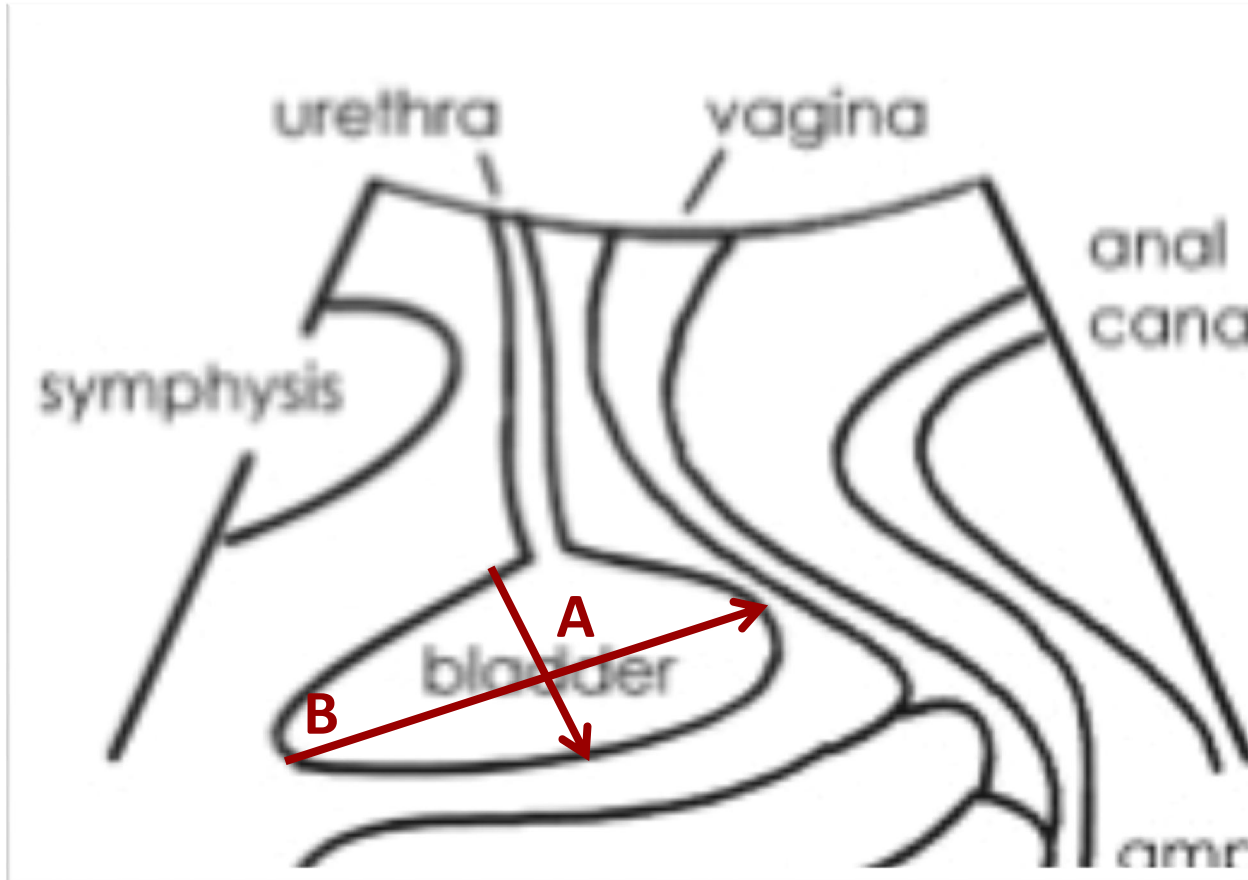


1. Residual



$A \text{ (cm)} \times B \text{ (cm)} \times C \text{ (cm)} \times 0.6 = \text{volume in ml}$

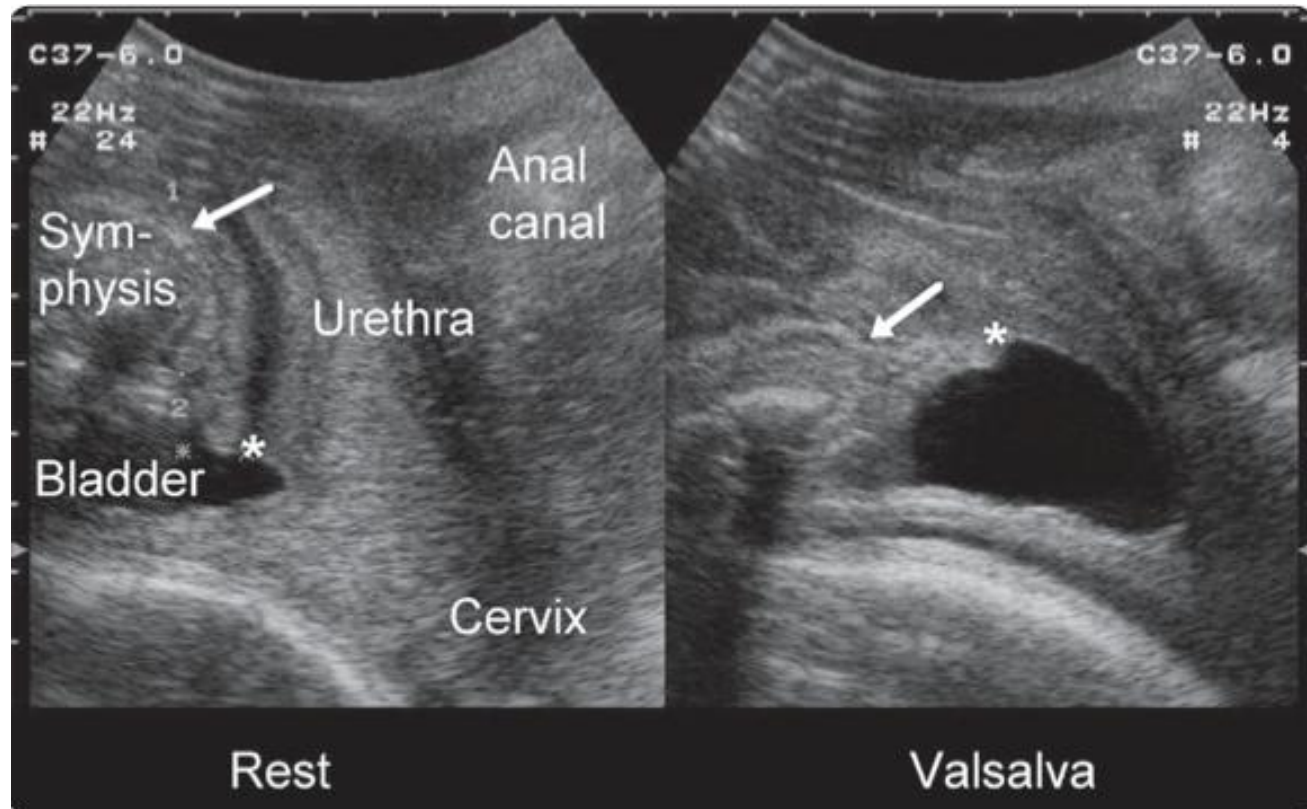
1. Residual



$A(\text{cm}) \times B(\text{cm}) \times 5.6 = \text{volume in ml}$

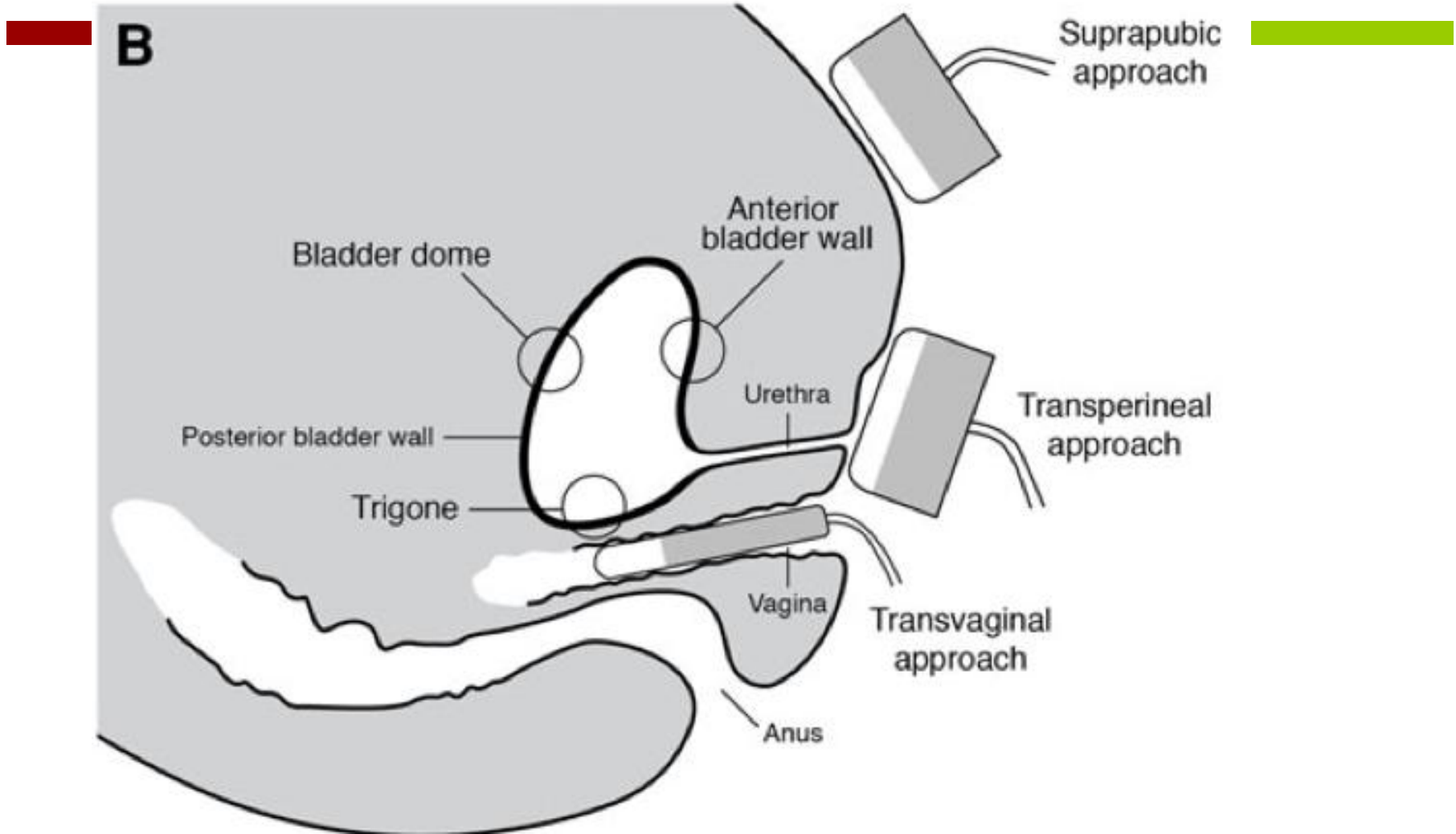
2. Bladder neck mobility

Bladder neck descent of $> 2.5\text{cm}$ is considered to be hypermobility



3. Bladder wall thickness

- Bladder wall thickness more than 5mm suggests Detrusor Overactivity



Bladder wall thickness =
$$\frac{\text{Trigone} + \text{Anterior wall} + \text{Bladder dome}}{3}$$

C





Figure 9 Measurement of bladder wall thickness in a patient with symptoms of an overactive bladder and detrusor instability on urodynamic testing in the parasagittal view.

Does Bladder Wall Thickness Predict OAB?

➤ Lekskulchai and Dietz

➤ N=686

➤ Detrusor wall thickness > 5.0mm

➤ Sensitivity 37%

➤ Specificity 79%

4. Funneling





5. Demonstration of stress incontinence

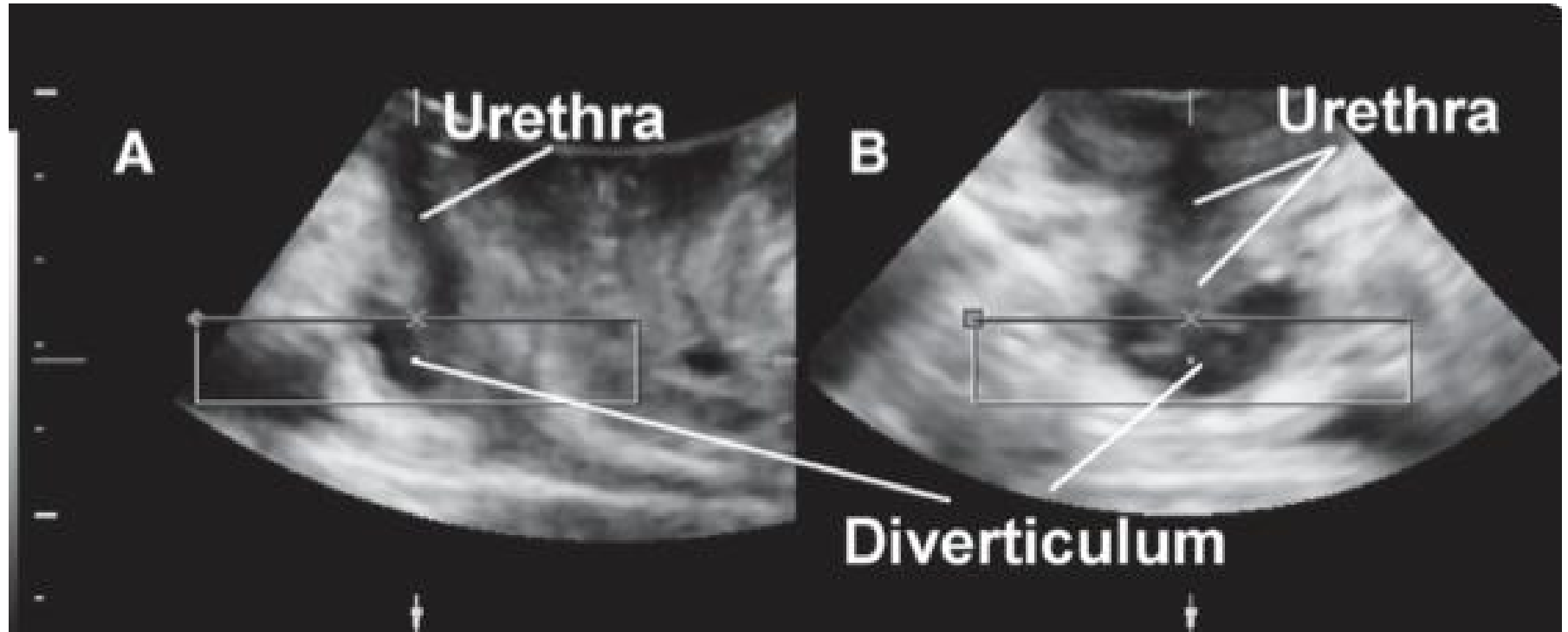


Map 3
DynRg 40dB
Persist High
Fr Rate Med
2D Opt:Res
Col 70% Map 1
WF Low
PRF 2500 Hz
Flow Opt:Med V



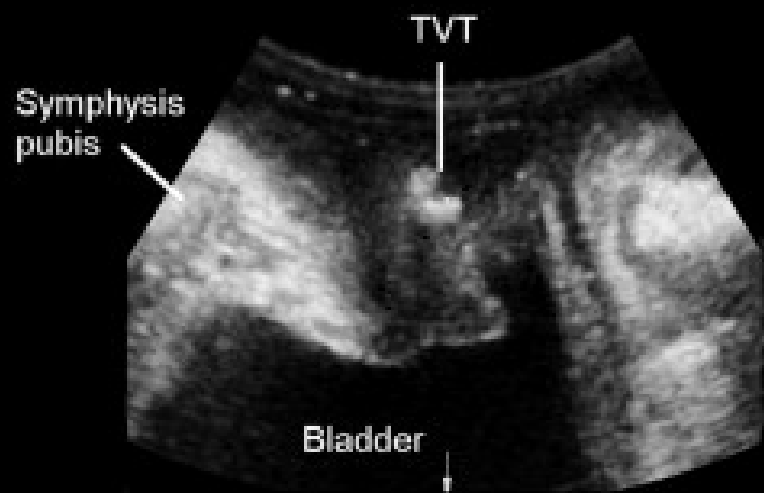
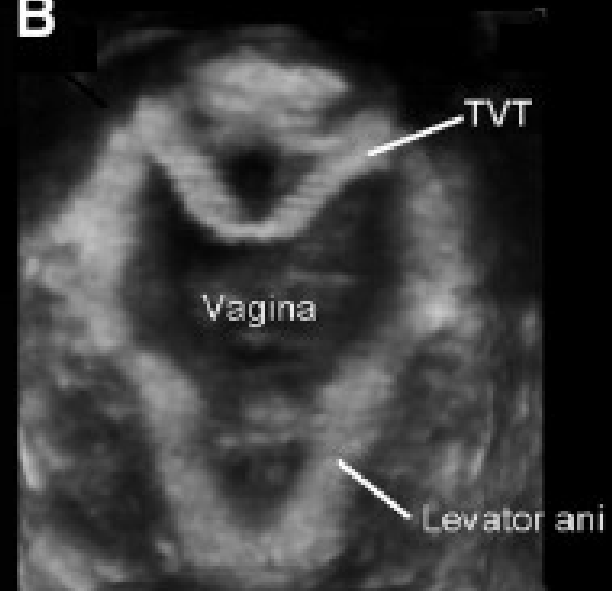
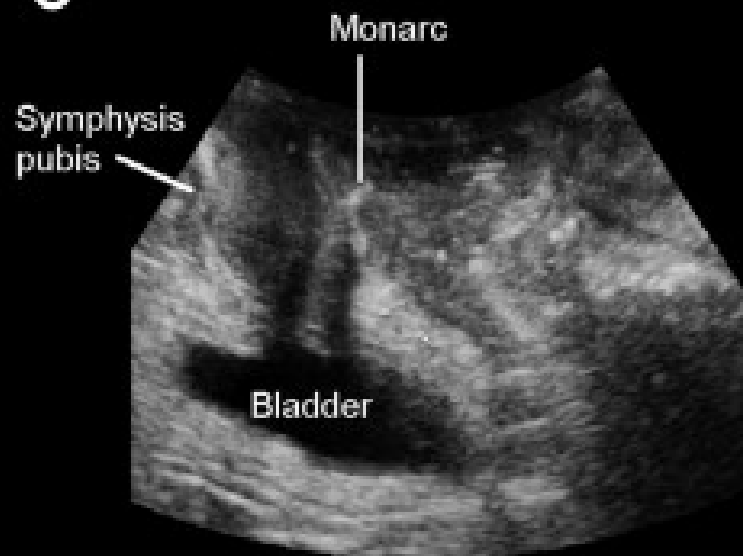
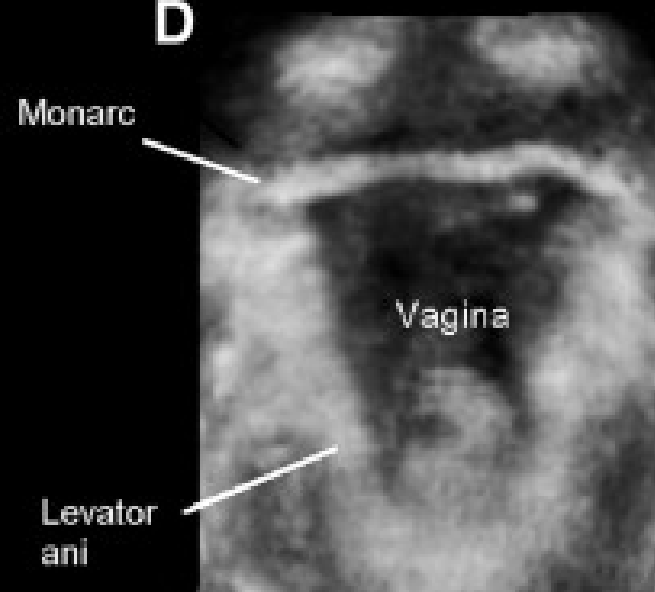
6. Exclude other pathology





7. Evaluate sling complication



A**B****C****D**

P100
6C3
4.2
27fps
DR65
GBB

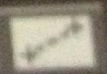
T1

0

5

Dist A 17.8mm

CINE REVIEW ▶



8. Evaluate voiding dysfunction



TOSHIBA

GROOTTE SCHUUR HOSP. UROLOGY.

TESTES

03/04/20

14:46

P1

6

8

19

DR

GL

T1

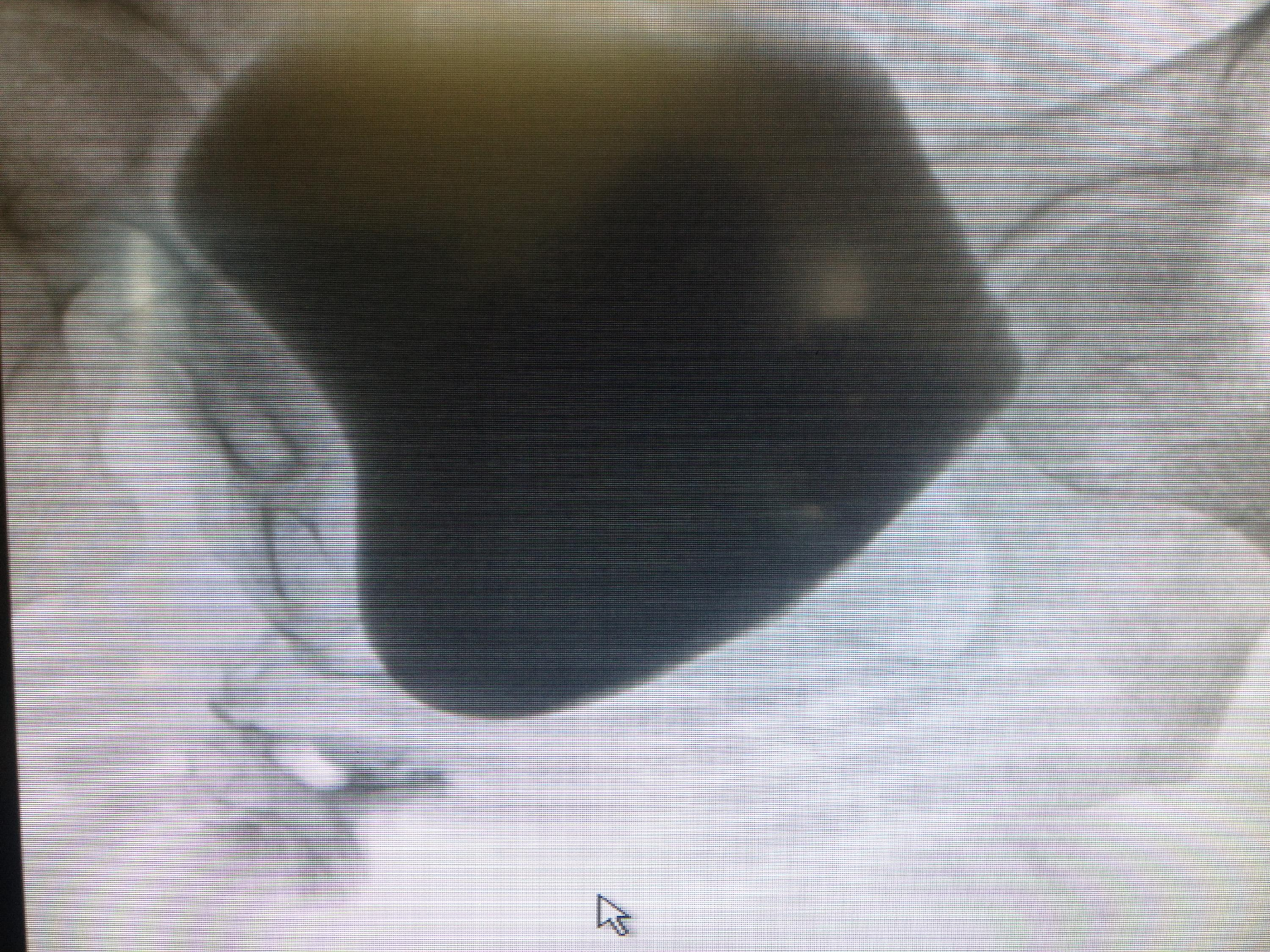
0

5



Other radiological tests: Cystogram





Case 1: Problem

- 52 year old
- Presented with obvious stress incontinence
- TOT (Outside –in)
- One week later calls to say she can't pee
- Seen in rooms - post –mic residual 600ml

Case 1 : Solution

- Taken to theatre
- Incision opened
- Tape pulled down
- Now able to pee

Case 2: Problem

- 45 year old
- Para 3
- TOT in Dec 2012
- Worked well for 2 months
- Now severe Stress Incontinence
- On exam – positive cough stress test

Case 2: Solution

➤ Booked for Retropubic tape