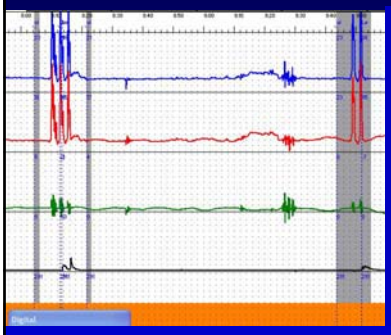
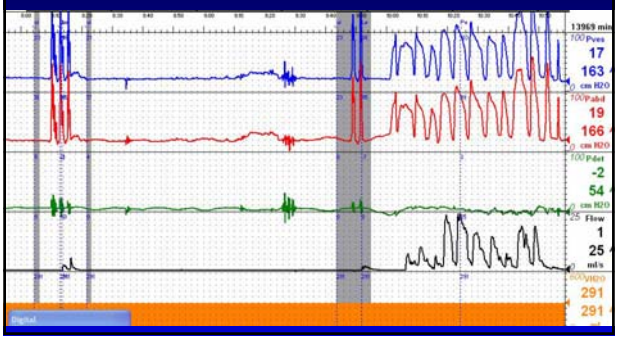
# Challenges after surgery in women; *retention & recurrence*

Marcus Drake

*Bristol Urological Institute*



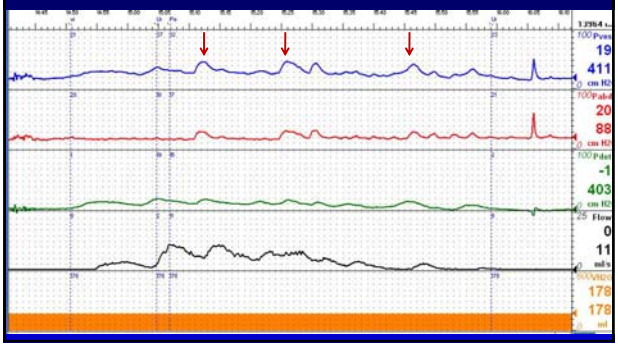
## Voiding dysfunction

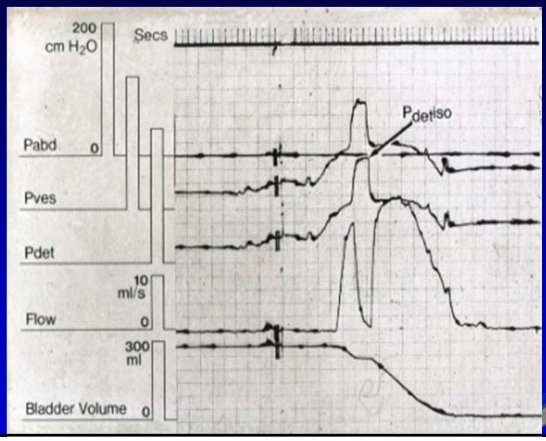


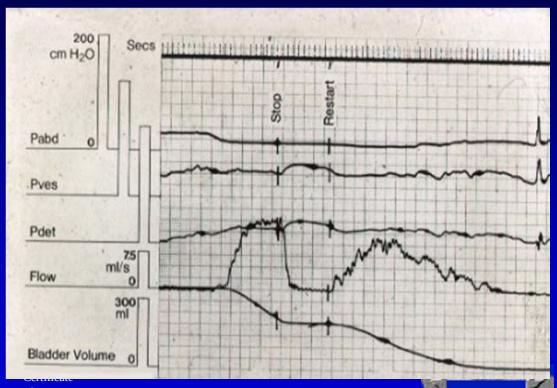

## Voiding dysfunction

- Poor flow at good volume
- PVR
- Straining
- Stop test/ Foley test

## Straining augmentation



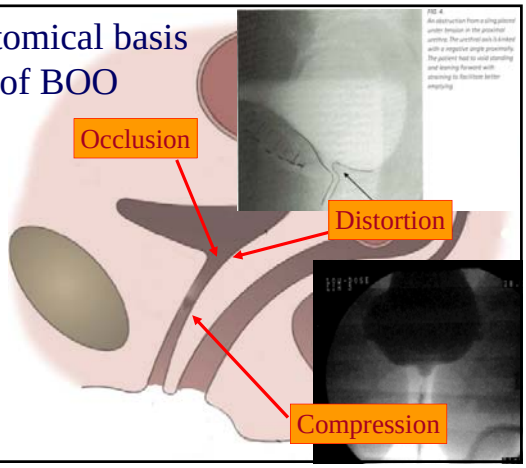


of UDS

## Bladder outlet obstruction

- Men;
  - BOO is common, diagnostic criteria are agreed, epidemiology of acute retention is known
- Women
  - BOO is rare and diverse, diagnosis not agreed, epidemiology not known
  - Varied voiding dynamics
  - Treatment outcome uncertain

## Anatomical basis of BOO




## Causes of female BOO

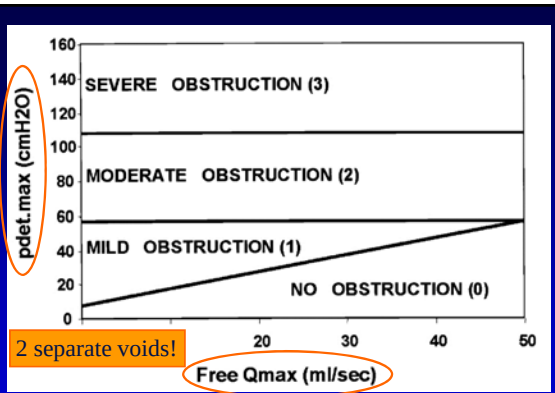
- ANATOMICAL
- Gynae; POP, fibroids
- Post surgical
- Urethral stenosis/ diverticulum/ cyst
- Ureterocoele
- Foreign body
- FUNCTIONAL
- Bladder neck obstruction
- Pseudodyssynergia
- Neurological
- Fowler's syndrome

## Blaivas & Groutz nomogram

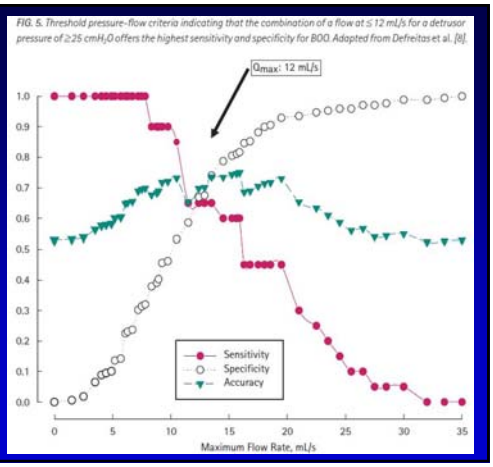
- Blaivas and Groutz, N&U 2000
- 50 women of 600 consecutive UDS studies defined as obstructed on clinical grounds

**TABLE II. Etiologies of Bladder Outlet Obstruction Among the Obstructed Women**

| Etiology | Bladder outlet obstruction No. | % |
|---|---|---|
| Previous anti-incontinence surgery | 10 | 20 |
| Severe genital prolapse | 8 | 16 |
| Severe prolapse and previous surgery | 2 | 4 |
| Urethral stricture or narrowing | 9 | 18 |
| Primary bladder neck obstruction | 3 | 6 |
| Urethral diverticulum | 3 | 6 |
| Learned voiding dysfunction | 2 | 4 |
| Detrusor-external sphincter dyssynergia | 2 | 4 |
| Idiopathic | 11 | 22 |
| Total | 50 | 100 |



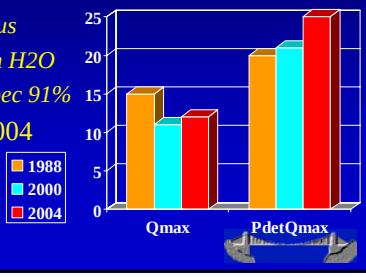

May underestimate BOO severity if poor contractility




Defreitas et al. Urology 2004

## Chassange criteria

- Chassange et al. (Urology 1998). Compared anatomical BOO vs women with SUI
  - *Qmax <15 ml/s plus PdetQmax >20 cm H2O gives sens 74%, spec 91%*
- Revised 2000/ 2004
  - prevalence 20%




## Comparison of diagnostic criteria

- 91 evaluable patients
  - Obstruction suspected clinically in 25 women, analysed using the various criteria
- BOO diagnosed by at least 1 method in 40
  - 9 obstructed on all criteria, 9 on only 1 criterion
  - Blaivas/ Groutz nomogram diagnosed most, 2004 criteria underestimated BOO
  - Best concordance between 1998 & VUDS

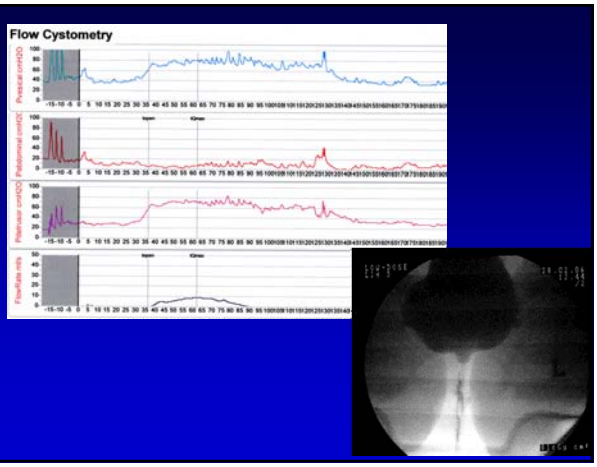
*Akikwala et al. J Urol 2006*

## After midurethral sling...

- Many have partial retention early post op
  - Anaesthesia, analgesia, discomfort, oedema, haematoma
  - Altered voiding dynamics
- Must be reviewed early to check resolution; most improve and do well
- Complete retention needs close management

## Assessment

- History
  - Complete or partial retention, change over time
  - Urodynamic risk factors
  - Surgical risk factors; technical, haematoma
  - Persistent incontinence
- Physical examination is crucial
- Urodynamic tests;
  - flows and PVR, ?voiding cystometry



## Case 1; 26 yrs, Needleless sling

- SUI; no clear risk factors
- Uncomplicated sling
- High PVR, persistent SUI, dyspareunia
- History and exam at 6 weeks

## Whether and when to cut the tape

Too late risks permanent voiding dysfunction

•Ongoing mesh fibrosis
•Detrusor decompensation

*Leng et al. J Urol 2004 172: 1379*

- 32/375 patients after TVT
- 88% ISC less than one month
- Median time to normal void 9 days
- 4 had the tape sectioned at 61 days- SUI recurred in 3

Hong et al. J Urol 2003; 170: 852

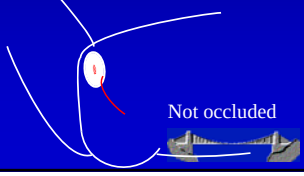
## Tape sectioning

Obstructive symptoms are likely to improve, irritative symptoms may remain unchanged and almost half will develop recurrence of SUI

*(Segal et al. Int Urogyne J 2006; 17: 372)*

## Case 2; 50 year old, TVT

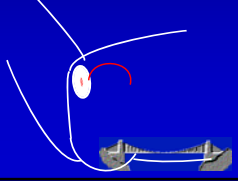
- USI; no clear risk factors
- Uncomplicated TVT
- Complete AUR
- History and exam at 2 weeks
- CVA hemiplegia and AUR 10 years ago
- SPC placed
- Normal voiding with small PVR at 6 weeks




## Case 3; 59 yr old autologous sling

- Previous Stamey
- USI with v low MUCP
- Difficult sling placement
- History/ exam 3 weeks
- SP distortion

Abdominal & perineal sector occlusion



## Surgery

- Surgical management of the abdominal sector
  - Suprapubic sling excision
  - Downwards luminal traction on the urethra
- Perineal sling incision
- Outcome; voiding

- Is it possible to predict those who may not have a good outcome from tape sectioning?
- Consider the site of occlusion;
  - majority appear to be due to direct urethral compression (i.e. perineal sector of the sling)
  - some are due to distortion of bladder neck
  - remember the abdominal sector of the sling
- Bimanual examination to establish sector

## Causes of female BOO

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- Bladder neck obstruction
- Pseudodyssynergia
- Neurological
- Fowler's syndrome

**Abnormal electromyographic activity of the urethral sphincter, voiding dysfunction, and polycystic ovaries: A new syndrome?**

Clare J Fowler, Timothy J Christmas, Christopher R Chapple, Helen Fitzmaurice Parkhouse, Roger S Kirby, Howard S Jacobs

BMJ VOLUME 297 3 DECEMBER 1988

**Abstract**

**A potential association between abnormal electromyographic activity—that is, decelerating bursts and complex repetitive discharges—of the urethral sphincter and difficulty in voiding was examined in 57 women with urinary retention. Abnormal electromyographic activity was found in 33. Ultrasonography of the ovaries in 22 of the 33 women showed that 14 had polycystic ovaries. Of the other eight women, two had had oophorectomies, one had shrunken ovaries and ovarian failure, and one had previously undergone oophorectomy and the other ovary could not be seen; in one neither ovary could be seen, and three had ovaries of normal appearance, although two of these women were taking the contraceptive pill. Thirteen of the group had endocrine symptoms and signs characteristic of the polycystic ovary syndrome. Videocystometrography in 17 of the women who were examined by ultrasonography showed low flow rates and high residual volumes of urine after micturition in 12 women who could void, the other five having chronic urinary retention.**

**A speculative hypothesis for the observed association of impaired voiding, abnormal electromyographic activity of the urinary sphincter, and polycystic ovaries is advanced, based on the relative progesterone deficiency that characterises the polycystic ovary syndrome. Progesterone stabilises membranes, and its depletion might permit ephaptic transmission of impulses between muscle fibres in the muscle of the urethral sphincter, giving rise to the abnormal electromyographic activity. This may impair relaxation of the sphincter, resulting in low flow rates of urine, incomplete emptying of the bladder, and, finally, urinary retention.**

than normal ovaries (mean volume 5·8 ml (4·6 to 7·3)), with a highly echogenic and dense central stroma and numerous (> 10) peripherally located cysts of 4-6 mm in diameter.[7] When associated with hirsutism, greasy skin, obesity, menstrual irregularity, and infertility the polycystic ovary syndrome may be the diagnosis.[8] This condition is associated with increased concentrations of circulating androgens and luteinising hormone (with normal concentrations of follicle stimulating hormone) and, in 80% of cases, hyperprolactinaemia and occurs in 25% of women with amenorrhoea and 90% of those with hirsutism.[9]

**Patients and methods**

Fifty seven women with difficulties in voiding were referred to the department of clinical neurophysiology at the Middlesex Hospital during 1982-8 for electromyography of the urethral sphincter. The indication was retention of urine or dysfunction of voiding. The referring doctors were aware of our interest in the electromyographic abnormality, and patients were clearly selected.

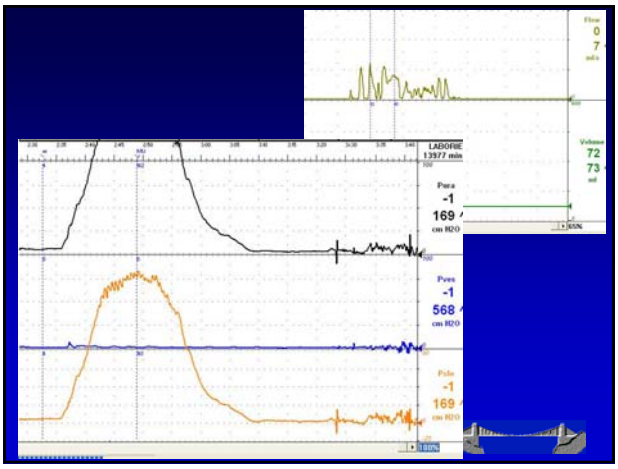
Each patient underwent electromyography of the urethral sphincter with a concentric needle electrode,[10] and abnormal electromyographic activity (that is, decelerating bursts and complex repetitive discharges) was found in 33. Pelvic ultrasonography was carried out in 22 of the 33 women (the other 11, who had been early subjects and as secondary referrals from long distances could not be readily recalled, were not available). Ultrasonography was performed by one of two experienced radiographers with a 3 MHz long focused transducer attached to an Aloka 720 high resolution sector scanner. A history of pelvic operations or menstrual irregularity and the presence of hirsutism or acne were recorded.

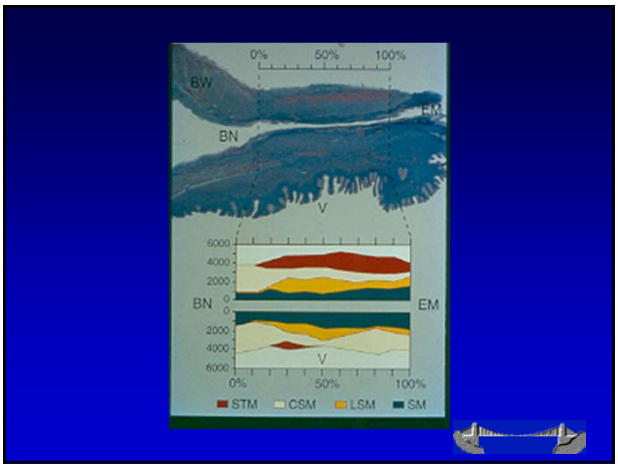
## Fowler's syndrome

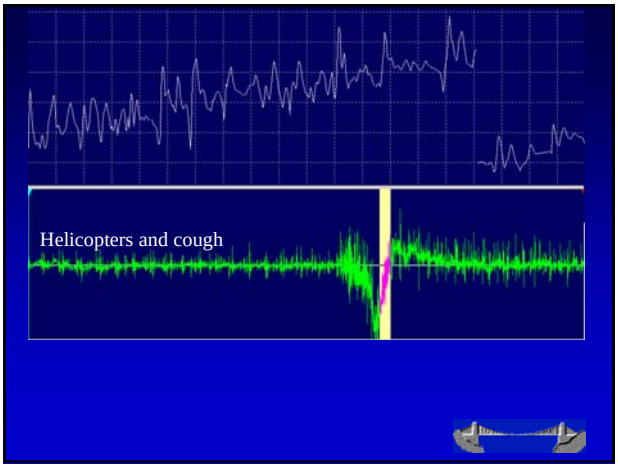
- Young women
  - post menarche
  - Poycystic ovary 40%
- High volume painless retention
- Apparently unconnected precipitating event
- All investigations normal, including MRI
- Not taking drugs, particularly opiate

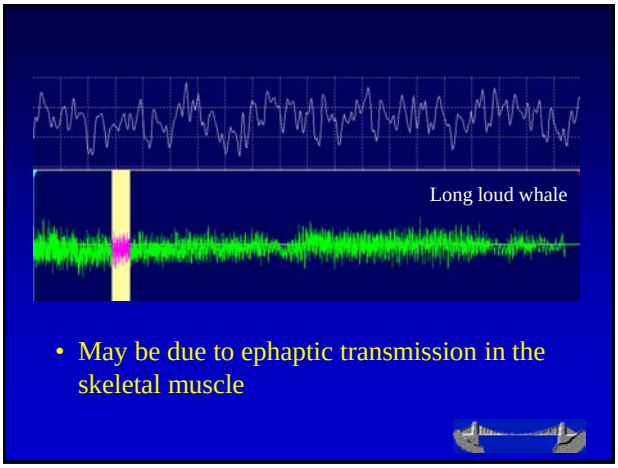
## Diagnosis

- History
  - Painless retention >1L on at least 1 occasion
  - Problems with ISC- especially on withdrawal
- Raised maximum urethral closure pressure/ sphincter volume *(Wiseman et al. J Urol 2002)*
- Characteristic sphincter (not PF) EMG






- May be due to ephaptic transmission in the skeletal muscle

## Treatment of Fowler's syndrome

- Stop all opioid analgesic drugs
- No established drug treatment
  - Alpha-1 antagonists and viagra poor outcome
  - PDE4 inhibitor theoretical potential
- Self catheterisation very poorly tolerated; Mitrofanoff procedure
- Sacral nerve stimulation

## SNS in Fowler's syndrome

- FDA/ NICE supported
- Some patients show marked improvement
- Physiological mechanisms unclear
- Cost
- Patient selection

## Long term outcome of SNS

- 5 year data from 17 centres; 31 patients
- ISC fell from 5.3 (+/- 2.8) to 1.9 (+/- 2.8)
  - Reduced mean catheterised volume
- At 5 years clinical success rate 58% (at least 50% reduction in symptoms)
  - 78% of people responding at 1 year were still responding at 5 years

Van Kerrebroeck et al. J Urol 2007; 178: 2029

## EMG-negative Fowler's syndrome

- "Non-Fowler Fowler's syndrome"
- Baclofen
- Supportive measures and follow up
- Mitrofanoff procedure

## Conclusions

- Retention; AUR vs PVR
  - Contractility; straining to augment, poor voiding dynamic
  - Female outlet obstruction is a varied group
- Anatomical and functional causes
- Post surgical retention; examination findings can guide suitable intervention
- Fowler's syndrome

## Risk factors

INDIVIDUAL

- High PVR
- DUA
- Pelvic organ prolapse

TECHNICAL

- Reduction of POP
- Cough testing
- Premature tape deployment

TAPE UNDER TENSION

Could the National Institute for Health and Clinical Excellence guidelines on urodynamics in urinary incontinence put some women at risk of a bad outcome from stress incontinence surgery?

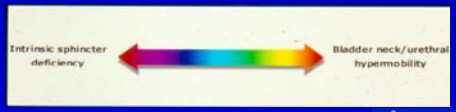
BJUI

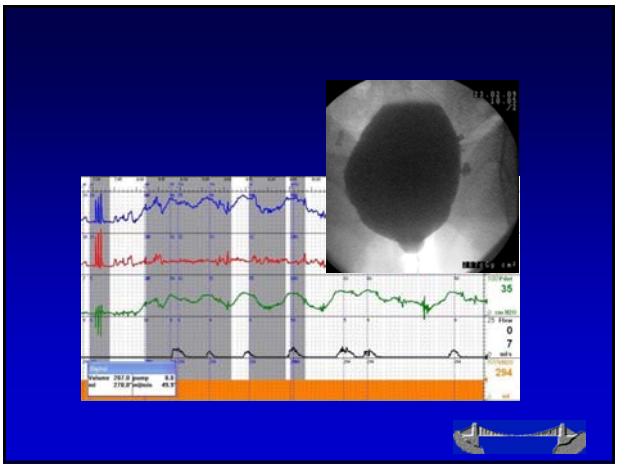
Wael Agur, Fadi Housami, Marcus Drake and Paul Abrams

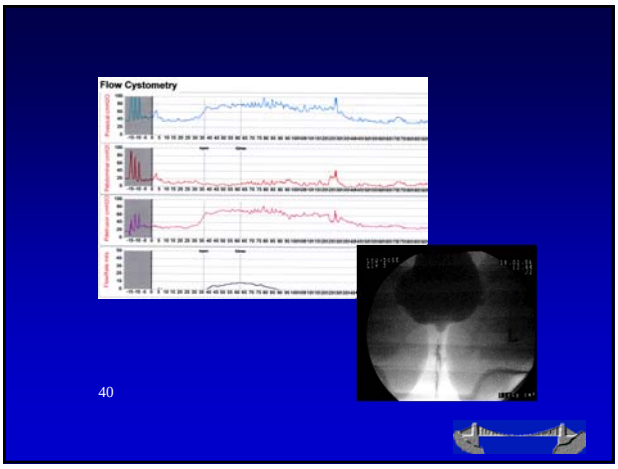
## Failure of SUI surgery

Poor outcome is related to :

- poor intrinsic urethral function
- detrusor overactivity during filling
- poor detrusor contractility during voiding
- surgery in a women without significant USI





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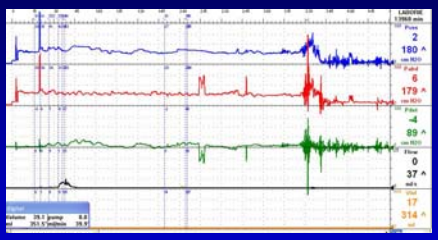
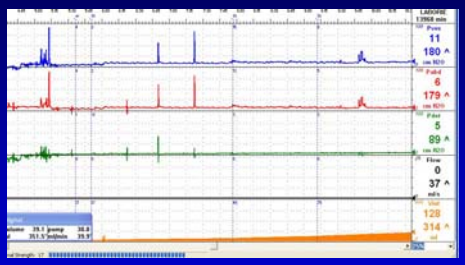
Recurrent female SUI, seated position filling phase



Does she have USI?

Recurrent female SUI, supine position filling phase



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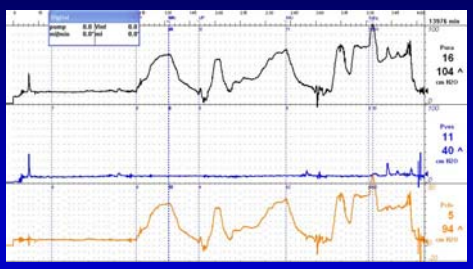
## Normal UPP



**AB 40 yr old lady**

- Uncomplicated TVT one yr ago for urodynamic stress incontinence
  - no detrusor overactivity at that time
  - was wearing 3 thick pads/day
- Now
  - has urgency, frequency and nocturia
  - leaks without warning
  - wearing 1 thick pad/day
  - bothered by symptoms
  - tried bladder training and pelvic floor muscle training with no benefit

**Basic assessment**

- Examination
  - Normal vagina
  - Good pelvic squeeze
  - Grade I cystocele
  - Leaks on coughing
  - Normal neurological examination
- Normal body mass index
- Urinalysis
  - Normal

**Simple urodynamics**

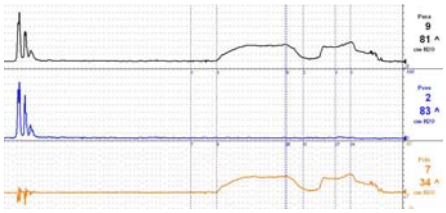
Frequency/volume chart
- Daytime frequency: 7
- Nocturia: 1
- 2-3 times incontinence/day
- Maximum bladder capacity: 350mls
- Average bladder capacity: 250mls
- 1 pad/day
- Fluid input 1.7L/d

Free uroflowmetry
- Qmax: 20ml/s (bell-shaped curve)
- Voided volume: 250mls
- Post-void residual: 15mls

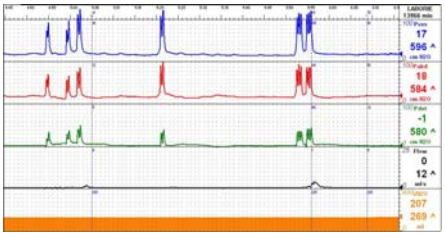
**How was she managed?**

- Cystoscopy was normal and excluded bladder pathology and tape erosion
- Had two months of antimuscarinic at maximum dose with not much help

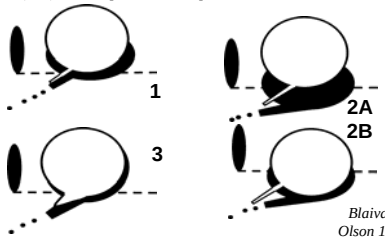
**Urethral Pressure Profile**



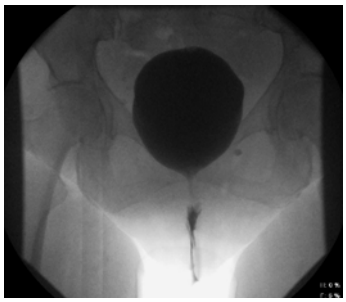
**Filling Cystometry**



***Classification of SUI***; position of bladder base, and whether BN is open at rest. *Type 1* Normal position, BN closed at rest. Leakage, descent < 2cm below IMPS. *Type 2* Normal position, BN closed, rotational descent (cystocoele) *2b* = abnormally low position at rest *Type 3* (ISD) Normal position, BN open at rest




*Blaivas & Olson 1988*



**Results**

- Low Maximum Urethral Closure Pressure
- Urodynamic stress incontinence with reduced Valsalva Leak Point Pressure during filling cystometry. Grade III on VUDS.
- Diagnosis
  - Urodynamic stress incontinence
  - Stable bladder
  - No voiding problem

**Dilemma?**

- Treat urodynamic stress incontinence with another surgical procedure
- What about patient's symptom of urgency which is one of her bothersome problems
- Is this an indication for ambulatory urodynamics (AUDS)?

**Results of AUDS**

- Detrusor overactivity
- Detrusor overactivity incontinence
- Urodynamic stress incontinence

**Conclusion**

- Complex problem
- Start with simple and basic investigations
- Will probably require complex investigations to assess fully
- Tailor treatment according to investigation results and patient symptoms

University of BRISTOL

PURSUIT

*Proper Understanding of Recurrent Stress Urinary Incontinence Treatment in women (PURSUIT)*

Design: Two-arm RCT randomising women with recurrent SUI between urethral bulking injections ("Endoscopic arm") or a surgical operation, such as a colposuspension or autologous urethral sling

Setting: 20 specialist urogynaecology or functional urology units in UK hospitals

*M Drake*, A Lane, S MacNeill, S Noble, S Paramasivan, N Cotterill, A White, S Jha, H Hashim, P Toozs-Hobson, T Greenwell, N Thiruchelvam, W Agur.
**NIHR HTA 17/95/03, 2018, £1.5M**.

Bristol Randomised Trials Collaboration

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