

Multichannel Urodynamics

NIỆU ĐỘNG HỌC

Goals of Urodynamics

MỤC ĐÍCH CỦA NIỆU ĐỘNG HỌC

prolonged loss of urine without or following provocation suggests other causes.

Bị ra nước tiểu nhiều sau khi hoặc không có bị kích thích thường là do những nguyên nhân khác.

- inability to demonstrate leakage with cough stress test - không thấy BN bị ra nước tiểu khi ho trong lúc khám lâm sàng

Goals of Urodynamics

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- Confirm diagnosis- evaluate symptoms
xác nhận chuẩn đoán – lượng định triệu chứng
 - loss of small amounts of urine simultaneously with cough in the absence of urge suggests SUI.
TKTC khi bị áp lực: bị rỉ một ít nước tiểu khi ho mặc dù không cảm thấy mắc tiểu

ACOG practice bulletin 63: urodynamics

Y sĩ đoàn sản phụ khoa Hoa Kỳ thông cáo 63 – niệu động học

- Cystometric testing is not required for the routine of basic evaluations of UI, especially if medical and/or behavioral treatments are used
Không cần phải làm niệu động học trong lượng định lâm sàng căn bản cho TKTC, nhất là khi BN sẽ được điều trị nội khoa hay luyện tập bằng quang
- Testing is often recommended when surgical management is considered
Niệu động học thường được khuyên làm trước khi BN được điều trị phẫu thuật

ACOG practice bulletin 63: urodynamics

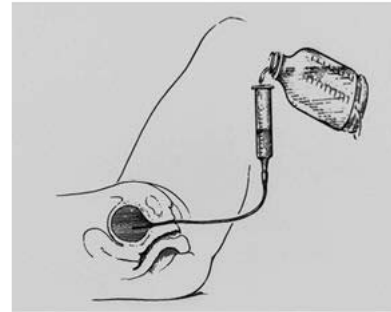
Y sĩ đoàn sản phụ khoa Hoa Kỳ thông cáo 63 – niệu động học

- Simple cystometry is appropriate for detecting abnormalities of
 - detrusor compliance and contractility
 - measuring post-void residual
 - determining bladder capacity

Nên dùng Niệu động học đơn giản để tìm những trường hợp bất thường về:

- tính co giãn của cơ bàng quang
- dung lượng còn lại trong BQ sau khi tiểu
- dung tích tối đa của BQ

Simple Cystometry



- The bladder was emptied
- The barrel held about 10-15 cm above the pubic symphysis
- Filling bladder with sterile water in 60-cc increments

Clinical data from the simple CMG

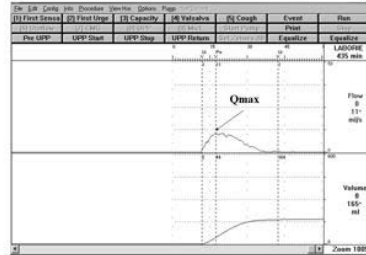
- **Voiding**
 - timed, measured void
 - PVR, volume with catheter or ultrasound
- **Sensation**
 - first sensation to bladder filling
 - bladder capacity/compliance
- **Incontinence**
 - provocation during filling to involuntary detrusor contractions
 - Full bladder cough stress test

Urodynamic study components

- **Uroflow with post-void residual**
 - screens for voiding dysfunction.
 - may identify evidence of poor emptying
- **Cystometrogram**
 - Assesses bladder sensation, capacity, compliance and contractility
 - Assesses outflow resistance with leak point pressures (LPP)
 - urethral pressure profile
- **Pressure flow**
 - assesses emptying with documentation of detrusor contraction, abdominal straining, opening pressure, flow rate and obstruction

Uroflowmetry

- Non-invasive, representing native voiding function
- Easy to perform
- Assesses general status of micturation
- Alone is not sufficient to differentiate outlet obstruction from a hypotonic bladder



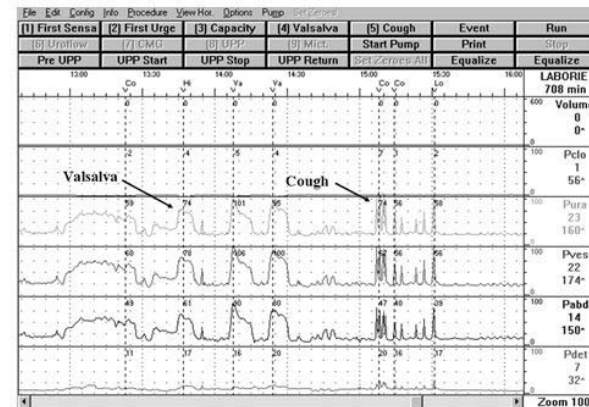
Uroflowmetry

- Sit and void as usual in a private setting.
- The ideal volume for uroflowmetry: >150cc
- Measured parameters:
 - flow rate (mL/sec)
 - voided volume (cc)
 - maximum flow rate (Qmax)
 - voiding time including interruption
 - flow time: the time over which measurable flow actually occurs (sec)
 - average flow time
 - time to maximum flow
 - postvoid residual volume.

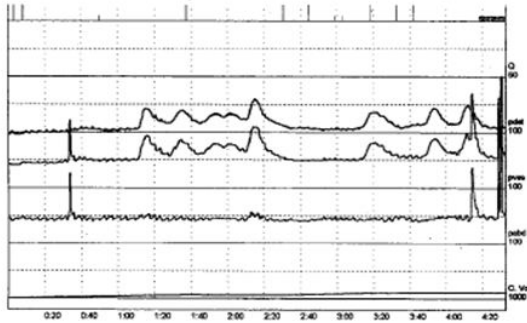
Cystometrogram (CMG)

- Filling phase:
 - bladder sensation, accommodation and capacity
- Testing phase:
 - provocative maneuvers such as cough or valsalva in a variety of positions
 - attempting to identify leak point pressures (LPP) or evidence of detrusor overactivity
 - measurement of urethral pressure profile (UPP)
- Emptying phase:
 - voluntary emptying with measurements of both abdominal and vesicular pressure, flow measurements and EMG

Cystometrogram (CMG)

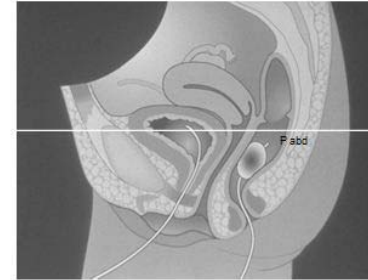


Urodynamics: detrusor Overactivity

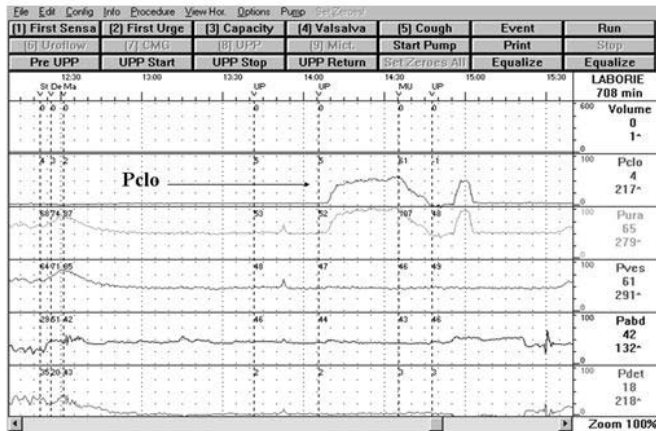


Urethral Pressure Profiles (UPP)

- Represents the intraluminal pressure along the length of the urethra in graphic form.
- Uses:
 - diagnosis of intrinsic sphincter deficiency (MUCP < 20 cmH₂O)
 - ? Aid in predicting cure rates
 - urethral instability
 - urethral diverticulum
 - post-surgery assessment of cure

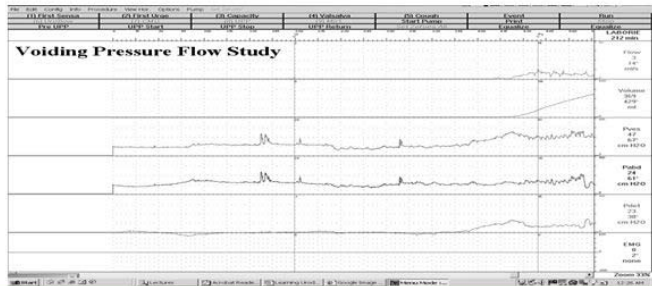
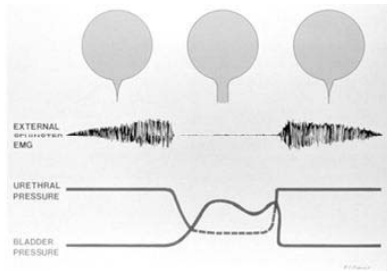


Urethral pressure profile

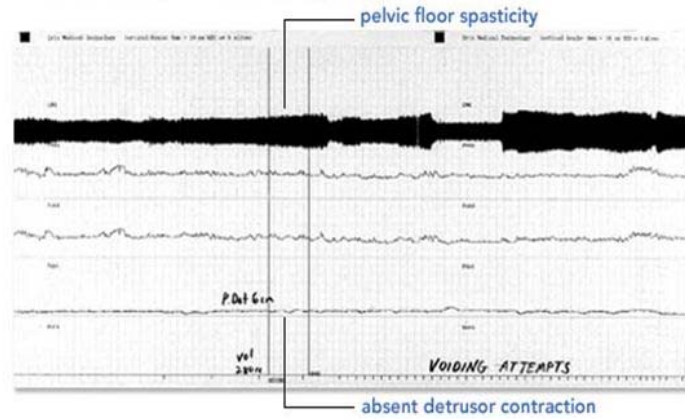


Pressure flow study

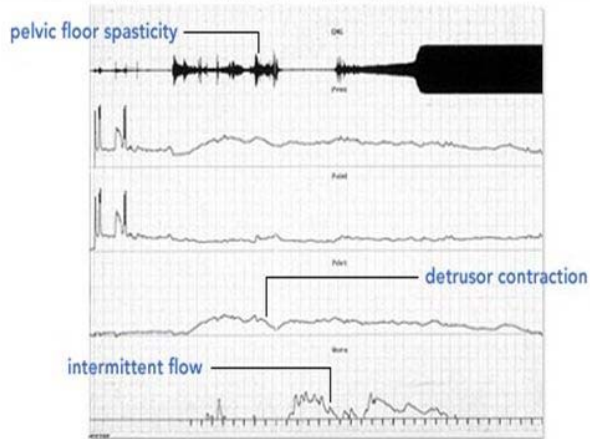
- To evaluate abnormalities in contractility and/or outlet resistance (obstructions)
- Normal voiding:
 - voluntary relaxation of the urethral sphincter
 - followed by a detrusor contraction
 - opening of the bladder neck
 - initiation of urine flow.



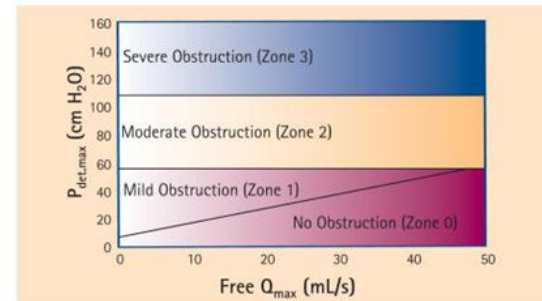
"Atonic bladder" - retention patient



"Interstitial cystitis" - urgency-frequency patient



The Blavas-Groutz monogram for female voiding obstruction



Pdet-max: maximum detrusor pressure during voiding
 Qmax: maximum flow rate

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Urodynamics (cont'd.)

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 - measuring post-void residual volumes
 - determining bladder capacity