



The role of urodynamics in the evaluation of lower urinary tract symptoms in male patients with abnormal compliance

Ankur Mittal, Gurpremjit Singh, Vikas K. Panwar, Arup K. Mandal, Shiv C. Navriya
Abstract 549



All India Institute of Medical Sciences, Rishikesh.

Introduction

- The values of normal compliance in men are not clearly defined yet.
- ICS defines low compliance in women as bladder compliance < 10 ml/cm H2O in neurogenic patients and < 30ml/cm H2O in non-neurogenic patients.
- Normal compliance in women is defined as > 30ml/cm H2O in neurogenic patients and > 40ml/cm H2O in non-neurogenic patients.
- The abnormal compliance has been poorly studied in patient presenting with LUTS except in neurogenic patients.

Aim and objectives of the study

- Aim: To study the role of urodynamics in male patients with poor compliance.
- Objectives:
 - To determine the urodynamic diagnosis in patients with poor compliance in both neurogenic and non-neurogenic patients.
 - To determine the urodynamic factors associated with low compliance.

Methods and Materials

- This is a retrospective cohort study.
- Men undergoing urodynamics for evaluation of lower urinary tract symptoms (LUTS) from January 2021 to March 2022 are included.
- Preoperative evaluation included history, physical examination including focussed neurological examination, uroflowmetry (UFM), post void residual urine (PVR) and International Prostate Symptom Score (IPSS).
- The criteria of compliance less than 10 ml/cm H2O in neurogenic patients and less than 30ml/cm H2O in non-neurogenic patients was used in this study.
- All urodynamic studies were analysed and reviewed in multidisciplinary team meeting to ensure accuracy of diagnosis.

Results

- The study included 110 male patients.
- The mean duration of symptoms was 24 +/- 25 months.
- The filling rate in urodynamic study was kept at 10-20ml/min to reduce any artifacts in bladder compliance due to filling of bladder.

Baseline characteristics:

	Neurogenic	Non-neurogenic	P-value
Number	15	95	-
Age	31.3+/-14.4 years	43.8 +/- 18.9 years	0.040
Duration of symptoms	26.8 +/- 31.1 months	24.3 +/- 25.6 months	0.733
Constipation	7	14	0.004
Previous intake of alpha blockers	0	6	0.551
Comorbidities	2	21	0.452
Creatinine (mg/dL)	0.84 +/- 0.11	0.95 +/- 0.79	0.613
IPSS	26.5 +/- 4.5	21.4 +/- 4.4	0.005
QOL	4.43 +/- 0.78	4.03 +/- 0.81	0.219
Qmax (ml/s)	5.69 +/- 3.57	8.13 +/- 5.94	0.207
PVR (ml)	197 +/- 127	134 +/- 133	0.148

Results

Neurogenic patients:

- Mean compliance: 27.6+/-17.3 ml/cm H2O
- Low compliance: 3 patients (20%)
- Post urodynamic diagnosis in all 3:
 - Detrusor underactivity
 - Detrusor overactivity with Detrusor underactivity.

Non-neurogenic patients:

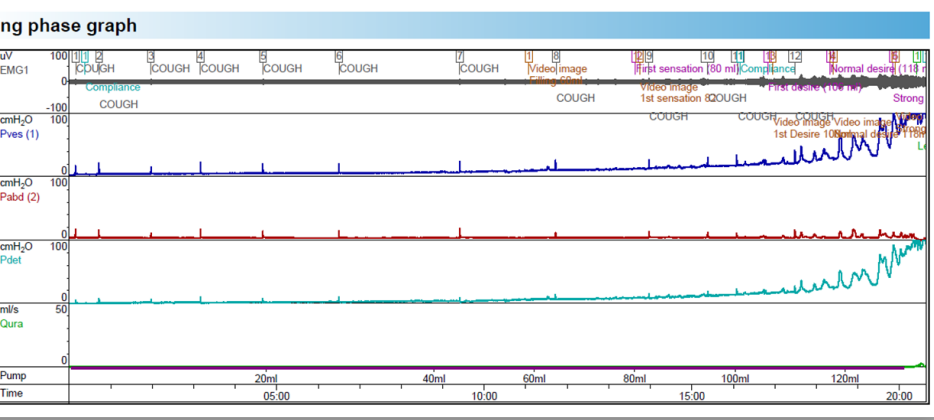
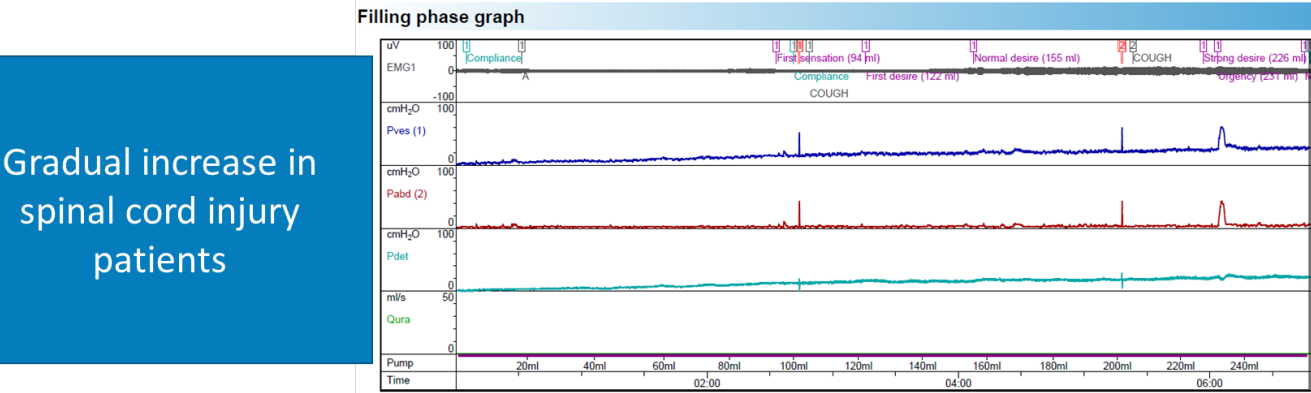
- Mean compliance: 36.7 +/- 30.14 ml/ cm H2O
- Low compliance: 51 patients (46%)
- Mean compliance in patients with low compliance: 16.4 +/- 7 ml/cm H2O
- The various diagnosis were:

1.	Benign prostatic enlargement
2.	Detrusor overactivity
3.	Detrusor underactivity with benign prostatic enlargement
4.	Dysfunctional voiding
5.	Detrusor overactivity with detrusor underactivity
6.	Dysfunctional voiding with detrusor underactivity

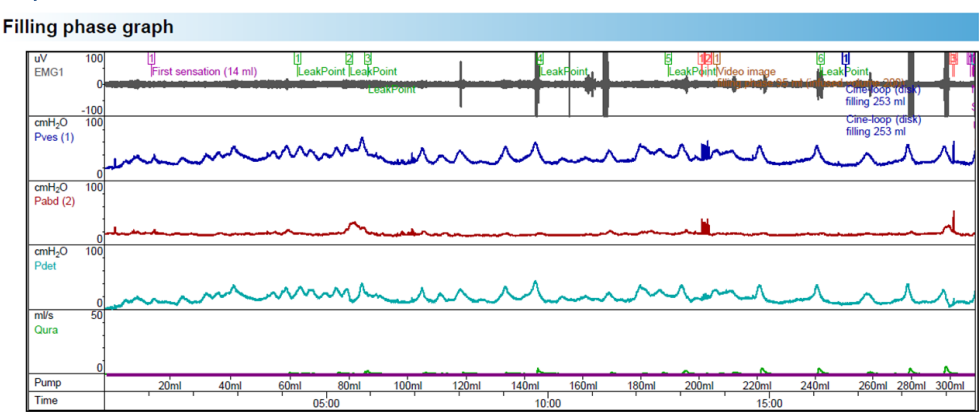
Discussion

The three compliance patterns seen were:

- Gradual increase seen in patients with spinal cord injury
- Terminal increase of compliance seen in patient having previous history of pelvic surgery
- Abrupt increase and plateau which was associated in patients with detrusor overactivity.



Terminal increase in a patient with previous history of Abdomino-perineal resection for carcinoma rectum



Abrupt increase and plateau pattern

- The low compliance is due to changes in passive properties of detrusor muscle due to structural changes via fibrosis.
- Other mechanism is due to increased deposition of elastin and collagen leading to hypertrophy of smooth muscle fibres.

Conclusions

- Lower urinary tract symptoms caused by low bladder compliance are challenging to treat
- Medical professionals should be knowledgeable about the various differentials.
- Low bladder compliance is frequently overlooked, and physicians should always have a high index of suspicion for this diagnosis.
- The symptoms persists after typical therapy.
- Treatment is frequently challenging and should be personalized for each patient.

References

Cho S-Y, Yi J-S, Oh S-J. The clinical significance of poor bladder compliance. Neurourol Urodyn. 2009;28(8):1010–4.