

DO URODYNAMICS PREDICT URINARY RETENTION AFTER SLING PLACEMENT IN THE COMPLEX PATIENT? THE VALUE OF REPRODUCING SYMPTOMS ON URODYNAMICS

Hypothesis / aims of study

The risk of urinary retention (UR) after sling in women with detrusor underactivity (DU)/Valsalva voiding is not well established. While it seems intuitive that increasing outlet closure forces in those with poor contractility would be a risk factor for urinary retention (UR), there is only scant evidence supporting this notion. Symptoms of DU are often manifest as hesitancy and straining during the voiding phase and pressure-flow urodynamics (UDS) may overestimate this condition due to a number of factors which are commonplace during UDS including psychogenic inhibition and pain from urethral catheterization. This study examined UR after sling in patients with or without DU or Valsalva voiding whose UDS accurately reproduced voiding symptoms to determine if the reproduction of voiding symptoms on UDS in those with DU is predictive of UR after sling.

Study design, materials and methods

Following IRB approval, we performed a review of patients undergoing sling looking specifically at the occurrence of short and long term urinary retention. Preoperative UDS data was obtained from a prospectively acquired UDS database in which patients are directly queried at the time of the UDS study whether the filling, storage and voiding phases of the study reproduced their usual symptoms. Urinary retention was defined as failed void trial requiring prolonged suprapubic catheter drainage or initiation of intermittent catheterization and was assessed at 1 week, 1 month and 3 months.

Results

Of the 96 women who had a sling procedure, 77 (80%) had preoperative UDS at our institution. Of those who had UDS, 27 (43%) had de-novo UR at some point post-operatively: 5 (19%) at 1 week, 7 (26%) at 1 month, and 15 (55%) at 3 months or longer. Twenty-six (96.3%) patients who had UR had APVS versus MUS sling. Prior vaginal surgery, prior mesh sling and preoperative dyspareunia were all associated with an increased risk of postoperative UR [Table 1].

As compared to those without DU, patients with DU were more likely to have UR (81% vs 56%, $p=0.025$). Additionally, patients who had post-operative UR were found to have a decreased maximum flow rate (12.2 ml/sec versus 16.8 ml/sec, $p=0.045$) and an elevated post-void residual (125 ml versus 52 ml, $p=0.02$) on pre-operative UDS compared to those who did not go into retention. Sixty-three (82%) patients had UDS which reproduced their voiding symptoms, 23 (37%) of whom had UR. There was no difference in risk of UR in patients with DU/Valsalva voiding whose UDS reproduced voiding symptoms compared to those with DU/Valsalva voiding whose UDS did not reproduce symptoms (OR 0.98, CI 0.23-4.18, $P 0.98$) [Table 2]. While a positive symptom score of incomplete emptying did not increase the risk of urinary retention, patients did report improvement in stress urinary incontinence and overall quality of life regardless of whether or not they had post-operative UR.

Interpretation of results

Patients with DU and Valsalva voiding have an increased risk of UR after sling placement. A decreased flow rate and an elevated post-void residual on UDS are predictive of post-sling UR. Reproduction of symptoms on UDS and symptom score do not correlate with the risk of UR after sling placement. Limitations to this study include the fact that many patients were excluded or opted against sling placement based on pre-operative counselling regarding the risk of urinary retention after UDS demonstrated DU or Valsalva voiding and as such, this study may underrepresent the risk of post-operative UR in the presence of DU or Valsalva voiding.

Concluding message

This study found that patients with DU/Valsalva voiding had an increased risk of UR, but did not find reproduction of symptoms on UDS to correlate with risk of UR in either those with DU/Valsalva voiding nor with normal bladder contractility.

Patient Demographics	Post-op Retention		No Post-op Retention		P-value
Number of patients	27		50		-
Mean age in years	53.6		55.4		0.95
Mean duration symptoms in mos	51.6		43		0.44
Mean parity in mos	2.6		2.4		0.49
Mean BMI	29.4		27.3		0.43
Mean # pre-operative pads	3.6		3.5		0.88
Mean pad weight in g	199.5		154.4		0.46
	N	%	N	%	
Prior vaginal surgery	25	92.6	37	74.0	0.05*
Prior mesh sling	22	81.5	29	78.4	0.04*
Prior mesh erosion or extrusion	10	43.5	13	43.4	0.99
Pre-op anticholinergic use	11	40.7	22	44.0	0.78
Pre-op dyspareunia	21	77.8	19	38.0	0.001*
Pre-op urge incontinence	19	70.4	32	64.0	0.57

Table 1: Patient Demographics

	Urinary Retention	No Retention	P value
Patients (N)	27	50	--
UDS reproduces voiding symptoms (N)	23	40	0.57
DU or Valsalva (N)	22	28	0.025*
DO (N)	5	12	0.58
LPP (avg)	92.8 cm H2O	90 cm H2O	
Pdet @ Qmax (avg)	22.9 cm H2O	18.7 cm H2O	0.32
Qmax (avg)	12.2 ml/sec	16.8 ml/sec	0.045*
Pre-study PVR	69.9 ml	36.4 ml	0.09
Post-study PVR	125.2 ml	51.6 ml	0.02*

Table 2: Urodynamic Parameters

Disclosures

Funding: No Disclosures **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Institutional Review Board **Helsinki:** Yes **Informed Consent:** No