Management of Post Prostatectomy Incontinence

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Outline

- Definition/Etiology/Incidence
- Diagnostic Work-up
  - History
  - Urodynamics
- Management

What is incontinence?

"The objective demonstration of involuntary loss of urine consequent to bladder and/or sphincter dysfunction."*

** International Continence Society*

Definition

- Incontinence severity
  - Number of pads per day
  - Pad weight (24 hour v. 1 hour)
  - Questionnaire
    - UDI6, IIQ7, PCI, EPIC, Other “Indices”

Potential Pre – Therapy Risk Factors

- Bladder dysfunction
  - Pre-existing outflow obstruction
  - Inherent age-related changes
  - Nighttime incontinence
- ? Change in compliance after surgery
  - Denervation of bladder or bladder neck

Potential Pre – Therapy Risk Factors

- Various factors attributed
  - Age
  - BMI
  - Urethral Length
  - Operative factors (NVB resection, prostate volume, etc.)

- Better accepted
  - Prior radiation
  - Experience of surgeon

Post-Prostatectomy Incontinence Incidence

- Reported continence rates range from 51% to 97%
- Variability in continence due to
  - Differences in definition
  - Differences in source (patient versus physician)
  - Differences in recording methods

#Karakiewicz, et al, Erectile and Urinary Dysfunction after Radical Prostatectomy for Prostate Cancer in Quebec: A population-based study of 2415 men, Eur Urol 46:188, 2004

Kaul, et al, Functional outcomes and oncological efficacy of Vattikuti Institute prostatectomy with Veil of Aphrodite nerve-sparing: an analysis of 154 consecutive patients, BJUI 97:467, 2006

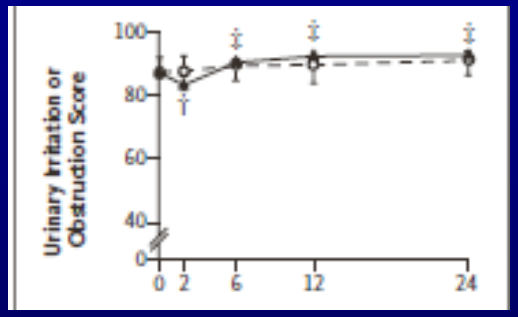
Krupski, et al, Variation in continence and potency by definition, J Urol 170:1291, 2003

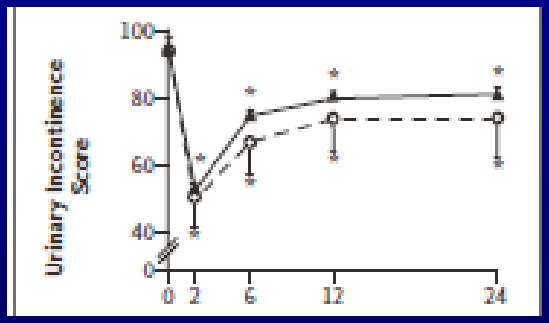
Litwin, et al, Differences in urologist and patient assessments of health related quality of life in men with prostate cancer: results of the CaPSURE database, J Urol 159: 1988, 1998

PPI Definition

- Walsh, et al. 1991
  - 593 pts, 6% incontinence at 10 years (1 or fewer pads)
- Catalona, et al. 1993
  - 435 pts, 6% incontinence at 18 mo, (not needing pads, or 1-2 drops)
- Eastham, et al. 1996
  - 91% continence (no pads, or 1 pad and dry with moderate exercise)

Quality of Life and Satisfaction with Outcome among Prostate-Cancer Survivors





Urinary function															
Irritation or obstruction†															
Dysuria	1	7	1	1	<1	1	12	5	1	1	1	24	11	11	5
Hematuria	<1	1	<1	<1	0	1	<1	2	1	1	<1	1	<1	1	1
Weak stream	12	12	6	3	4	13	23	11	12	10	7	40	26	18	11
Frequency	17	24	14	11	10	16	34	19	13	14	11	45	31	20	20
Incontinence															
Leaking >1 time per day	4	52	23	16	14	6	15	9	8	7	5	13	9	6	10
Frequent dribbling	2	20	6	4	5	2	6	2	3	2	<1	8	5	3	3
Any pad use	1	67	34	24	20	1	4	6	3	5	2	9	9	6	8
Leaking problem†	2	30	9	8	8	2	6	6	4	5	1	6	7	4	6
Overall urinary problem†	11	29	10	7	7	11	30	12	11	11	8	39	25	18	16

Sanda, et al. NEJM 2008; 358:1250-61

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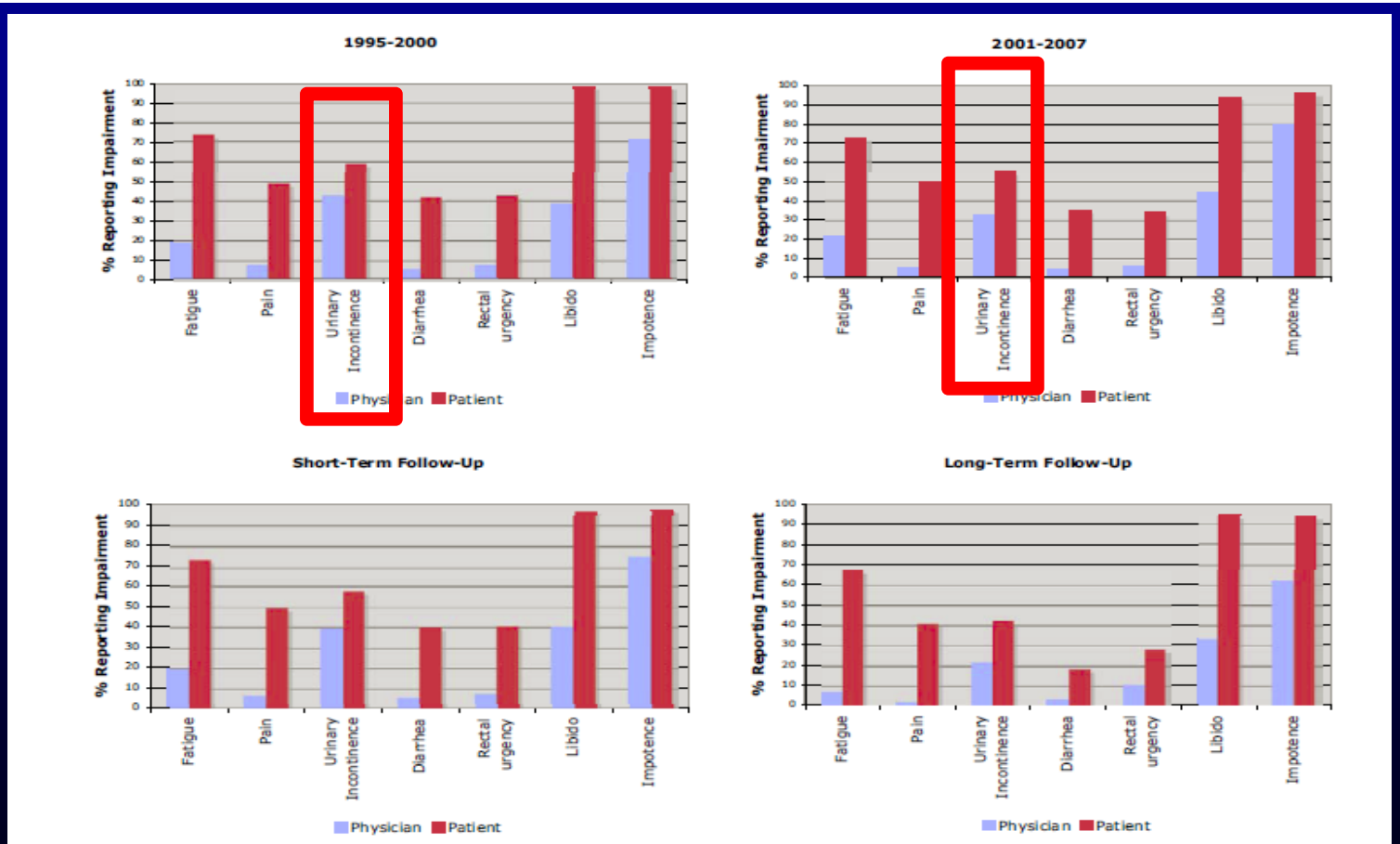
Differing Perceptions of Quality of Life in Patients With Prostate Cancer and Their Doctors

Geoffrey A. Sonn,*,† Natalia Sadetsky,† Joseph C. Presti‡ and Mark S. Litwin†

From the Department of Urology, Stanford University, Stanford (GAS, JCP), Department of Urology, University of California, San Francisco, San Francisco (NS), and Departments of Urology and Health Sciences, University of California, Los Angeles, Los Angeles (MSL), California



Percentage of physicians and patients reporting impairment in selected HRQOL domains

Post-Prostatectomy Incontinence

- Incidence
- Diagnostic Work-up
  - History and Physical
  - Urodynamics
- Management

Differential Diagnosis

- Symptoms of sphincter related incontinence
  - Urinary leakage with activity
  - Little or no leakage at night
- Urodynamics
  - Detrusor overactivity incontinence
  - Sphincteric incontinence
  - May help guide further therapy
  - Prognostic information

Role of Urodynamics

- Objectively demonstrate incontinence
- Rule out overactivity
- Rule out bladder outlet obstruction
- Rule out any other lower urinary tract pathology

Role of Urodynamics

- Measure bladder contractility
- Manage patient expectations
- Baseline in case of worsening symptoms

COMPREHENSIVE URODYNAMICS EVALUATION OF 146 MEN WITH INCONTINENCE AFTER RADICAL PROSTATECTOMY

STEPHANIE J. KIELB AND J. QUENTIN CLEMENS

UROLOGY 66 (2), 2005

TABLE I. *Patient demographics*

Patients (n)	146
Age (yr)	
Mean	69.0
Range	49–85
Interval from radical prostatectomy to urodynamics	
Mean	4.1 yr
Range	4 mo to 19 yr
Adjuvant radiotherapy (n)	24
Pads per day (n)	
0–1	6
2–5	45
6–12	20
Clamp, condom catheter	29
Unknown	46

TABLE II. *Urodynamic findings*

Urodynamic Finding	Patients (%)
SUI	139 (95)
SUI alone	95
SUI + DI	19
SUI + BOO	10
SUI + DC	8
SUI + DC + DI	2
SUI + BOO + DC	2
SUI + BOO + DI	2
SUI + BOO + DC + DI	1
No SUI	7 (5)
BOO + DI	2
BOO (overflow)	2
DI alone	1
DI + DC	1
Normal	1
Detrusor hypocontractility	49 (33)
Abdominal straining with voiding	35 (23)
Presence of BOO	19 (13)
Presence of DI	28 (19)
Presence of DC	14 (10)

KEY: SUI = stress urinary incontinence; DI = detrusor instability; BOO = bladder outlet obstruction; DC = diminished compliance.

- Stress urinary incontinence in 95% of patients

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THE PATHOPHYSIOLOGY OF POST-RADICAL PROSTATECTOMY INCONTINENCE: A CLINICAL AND VIDEO URODYNAMIC STUDY

ASNAT GROUTZ, JERRY G. BLAIVAS,* DAVID C. CHAIKIN, JEFFREY P. WEISS† AND MICHAEL VERHAAREN

From the Weill Medical College, Cornell University, New York, New York

THE JOURNAL OF URO Vol. 163, 1767–1770, June 2000

TABLE 1. *Urodynamic diagnoses*

	No. Pts. (%)				
	Intrinsic Sphincter Deficiency	Detrusor Instability	Bladder Outlet Obstruction	Impaired Detrusor Contractility	Normal
Main diagnosis	73 (88)	6 (7.2)	1 (1.2)	1 (1.2)	2 (2.4)
Sole diagnosis	27 (32.5)	3 (3.6)	1 (1.2)	1 (1.2)	2 (2.4)
Secondary diagnoses:					
Detrusor instability	10 (12)				
Bladder outlet obstruction	14 (16.9)	2 (2.4)			
Detrusor instability + bladder outlet obstruction	6 (7.2)				
Impaired detrusor contractility	22 (26.5)	1 (1.2)			
Detrusor instability + impaired detrusor contractility	6 (7.2)				

- 88% with intrinsic sphincter deficiency
- 34% with detrusor instability
- 36% with impaired detrusor contractility
- 28% with bladder outlet obstruction

Post-Prostatectomy Incontinence

- Incidence
- Diagnostic Work-up
  - History and Physical
  - Urodynamics
- Management

Management of Post Prostatectomy Incontinence

- Observation/Pelvic Floor Exercises
  - Best option early
- Medications
- External appliances
  - Clamps
  - Catheters
- Bulking agents
- Slings
- Artificial Urinary Sphincter

Pharmacotherapy

- No FDA approved medication for SUI
  - Tricyclic antidepressants
    - Dry mouth, constipation, hypotension, falls
  - Alpha-agonist
    - Elevated BP, arrhythmias
  - Duloxetine
    - Small case series
    - Not blinded studies

Serra et at Urology 2011

Table 3. Decrease in daily pad use stratified by initial pad use daily

Initial Pads Used Daily	Patients (n)	Decrease		
		Median	Minimum	Maximum
0-1	30	0.5	−1	1
2	21	1	0	2
>2	17	0	0	4

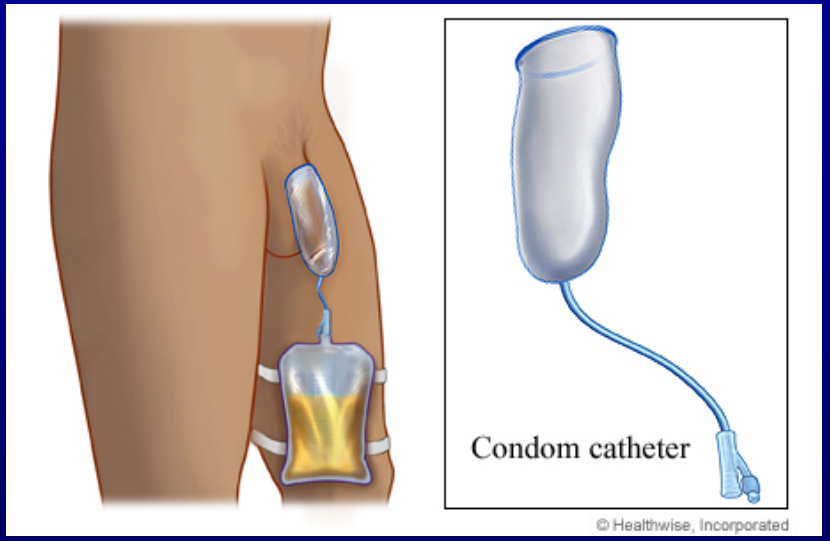
Kruskal-Wallis test (P = .141).

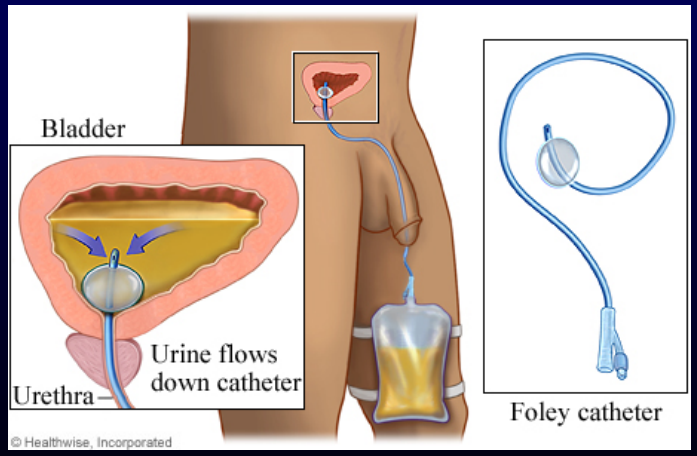
Clamps

- Clamps
  - Cunningham clamp, C3-clamp
  - Advantages
    - Non-medical, non-surgical
    - Easy to use
    - Works well
  - Disadvantages
    - Bulky
    - Pressure necrosis

Catheters

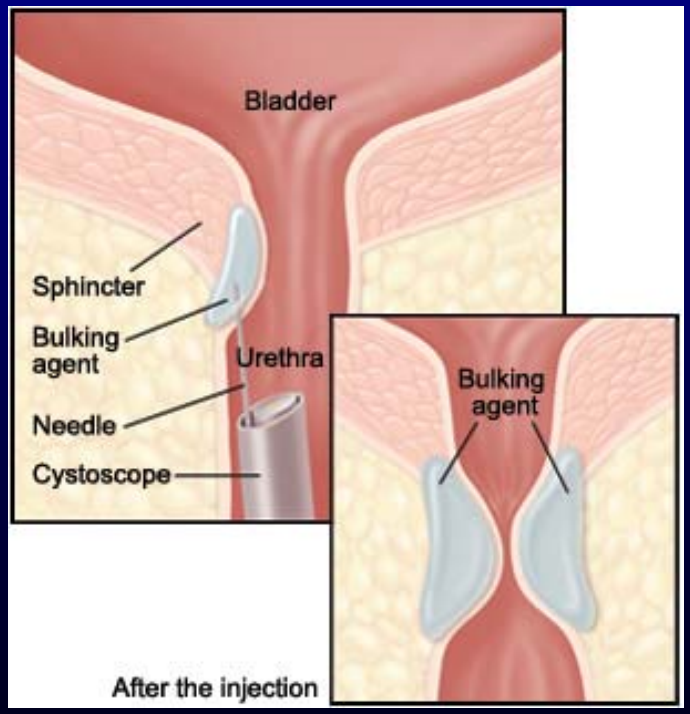
- Catheters
  - External vs. internal
  - Advantages: works
  - Disadvantages
    - Attached to a bag
    - Increased risk of infection

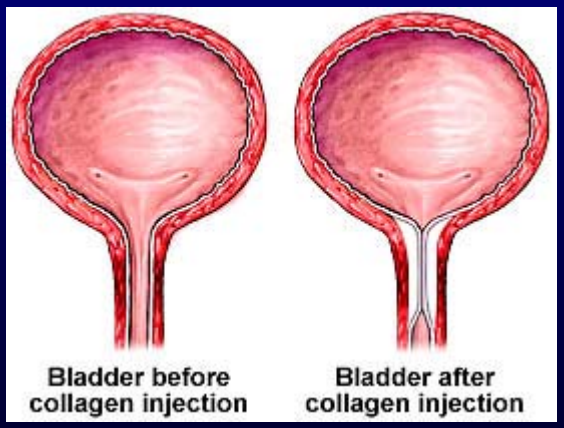




Periurethral Bulking

- Injection of filling agent into tissues to coapt the urethra



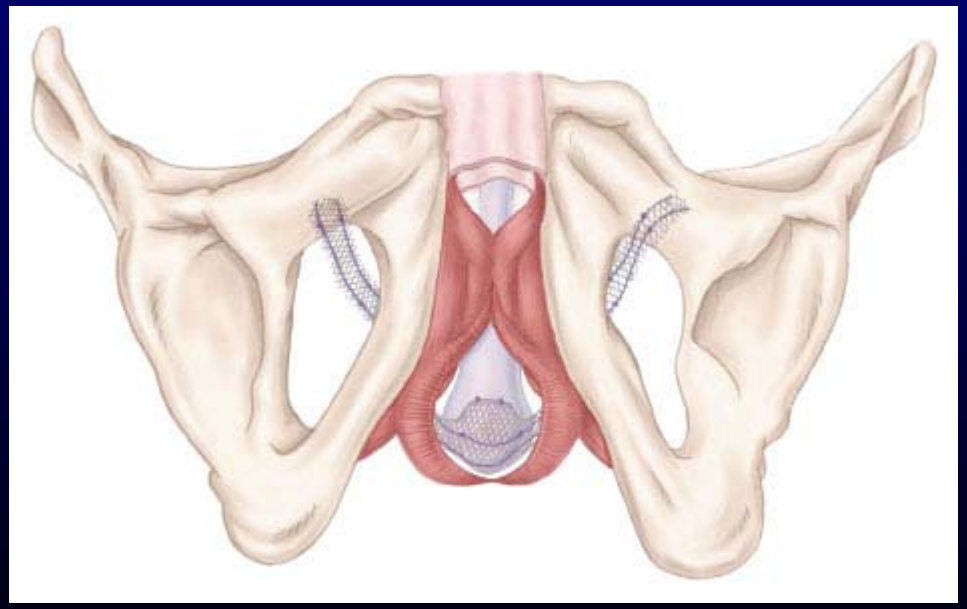


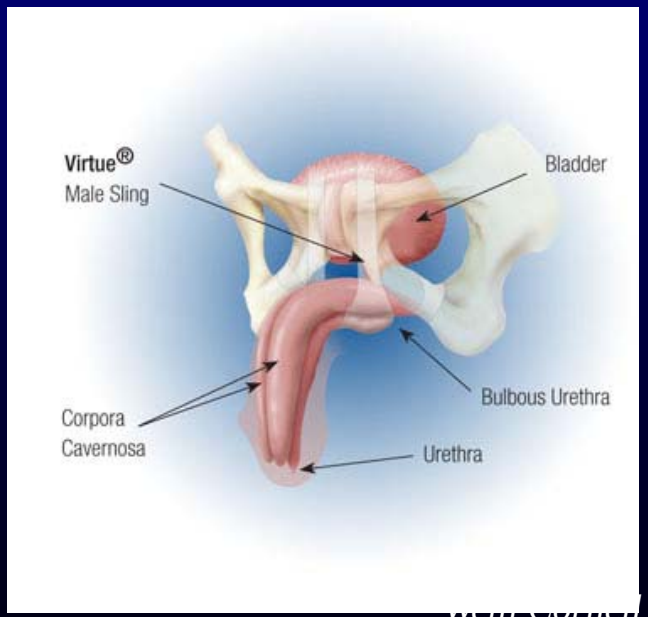
Bulking Agents

- Collagen (off market), Tegress (taken off market), autologous fat, Durasphere, Coaptite
- Success rates for collagen 20 – 38.7% after prostatectomy
- High cost if 3 or more collagen injections given

Male Sling

- FDA approved 1998
- Based on Kaufman procedure
  - Increase outlet resistance





THE MALE SLING FOR STRESS URINARY INCONTINENCE: 24-MONTH FOLLOWUP WITH QUESTIONNAIRE BASED ASSESSMENT

NATHAN F. E. ULLRICH AND CRAIG V. COMITER*

From the University of Arizona Health Sciences Center and the Southern Arizona Veterans Affairs Health Care System, Tucson, Arizona

THE JOURNAL OF UROLOGY® Vol. 172, 207–209, July 2004

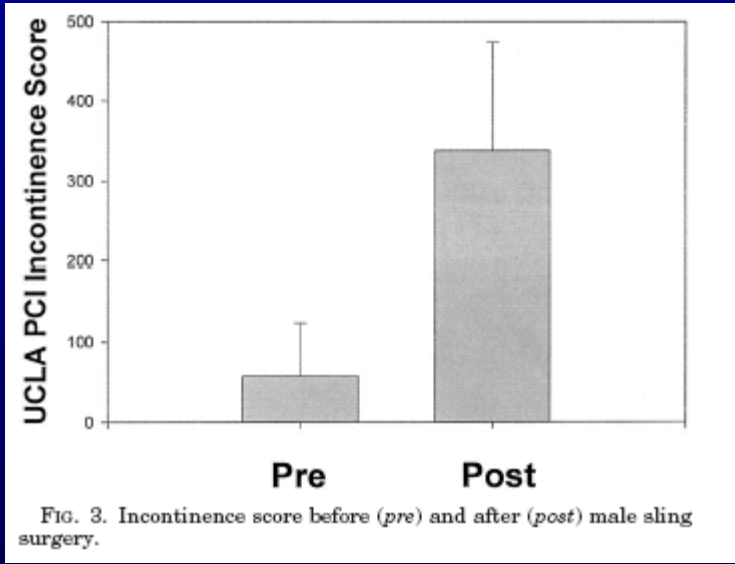


FIG. 3. Incontinence score before (*pre*) and after (*post*) male sling surgery.

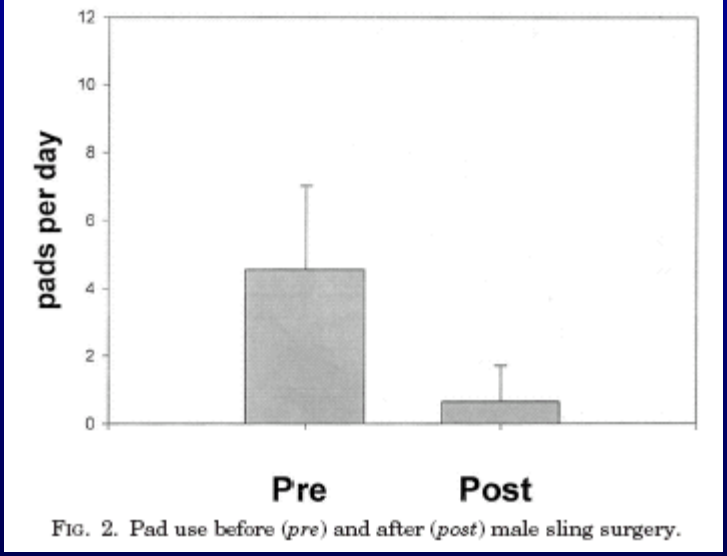


FIG. 2. Pad use before (*pre*) and after (*post*) male sling surgery.

- At a median 25 month follow-up,
  - 67% pad free
  - 92% improved

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The Male Perineal Sling: Assessment and Prediction of Outcome

Melissa C. Fischer, Chad Huckabay and Victor W. Nitti*,†

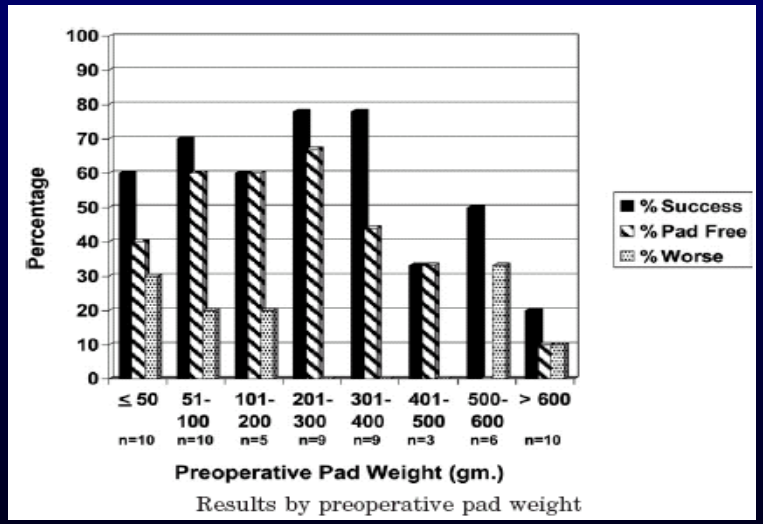
From the Department of Urology, New York University School of Medicine, New York, New York

THE JOURNAL OF UROLOGY® Vol. 177, 1414-1418, April 2007

- Of 62 men, 58% improved by Patient Global Impression of Improvement
  - 15 month mean follow-up
  - Preoperative pad weight only predictor (~430g) of outcome

TABLE 4. *Complications and reoperations*

Complication	No. Pts	No. Reoperation
De novo urge/urinary incontinence	1	—
Revision for persistent SUI	—	3
Urinary retention	2	2
Obstructive symptoms	1	1
Paresthesia/pain greater than 3 mos	5	—
Erosion/infection	1	1
Infection	3	2
Totals (%)	13 (21)	9 (14.5)



Results by preoperative pad weight

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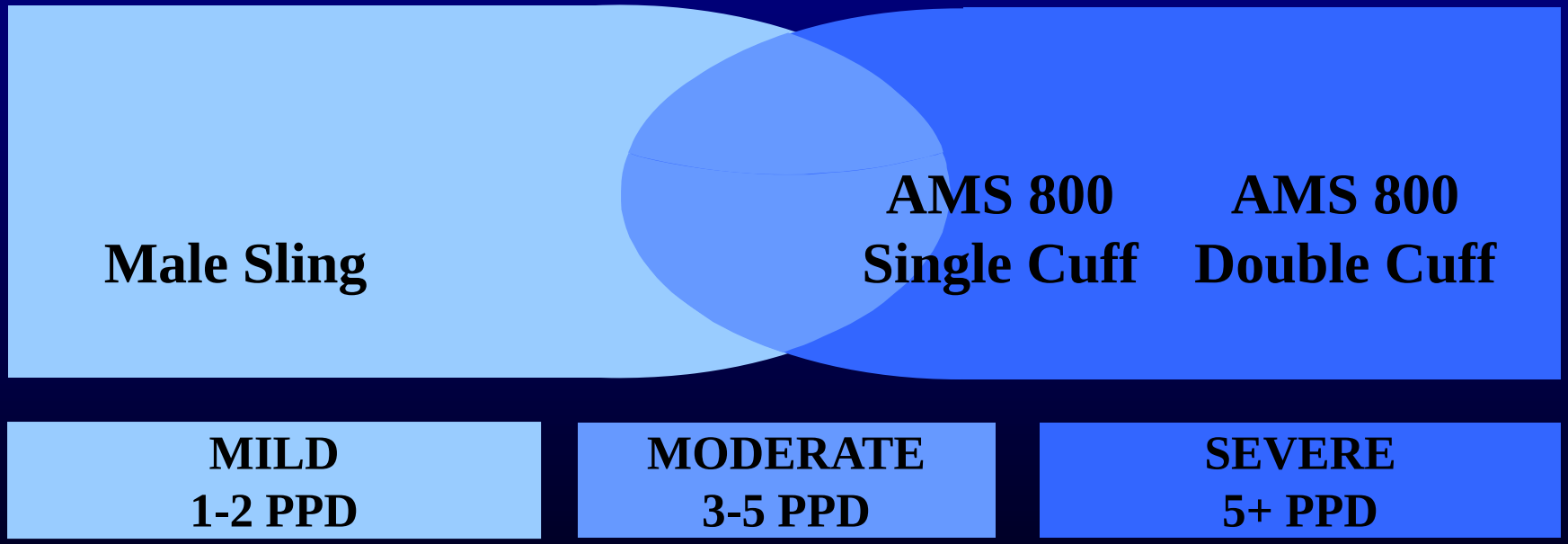
Key Clinical Data Summary

Article	Who/Where	Objective	Methods	Results	Conclusions
The Male Sling for Stress Urinary Incontinence: 24-Month follow-up with Questionnaire Based Assessment	N. Ullrich C. Comiter J of Urology 7/04	Prospective study for male SUI patients with 12 month follow up	36 patients Mean age = 67 UCLA PCI questionnaire	67% Dry (24) PCI score went from 33 to 330 No erosion, infection or long-term retention	67% Pad Free 92% Improved Comparable to AUS. Low morbidity, no significant complications
New Perineal Bone-Anchored Male Sling: Lessons Learned	R. Onur A. Singla Urology 7/04	18 month follow up study for SUI male sling patients	46 patients Mean age = 67	76% Success (35) 41% Dry (19) 35% Improved (16)	Device best for mild to moderate SUI patients. Composite graph best results
The Male Perineal Sling: Comparison of Sling Materials	E. Castle R. Ferrigni J of Urology 8/04	Comparison of sling materials at 12 month follow up	36 patients Porcine and synthetic InteMesh compared	87% Dry (14)	Superior outcomes with synthetic InteMesh vs. Porcine

Artificial Urinary Sphincter

The AMS 800 is the gold standard, time-tested surgical solution for control of moderate to severe stress urinary incontinence.



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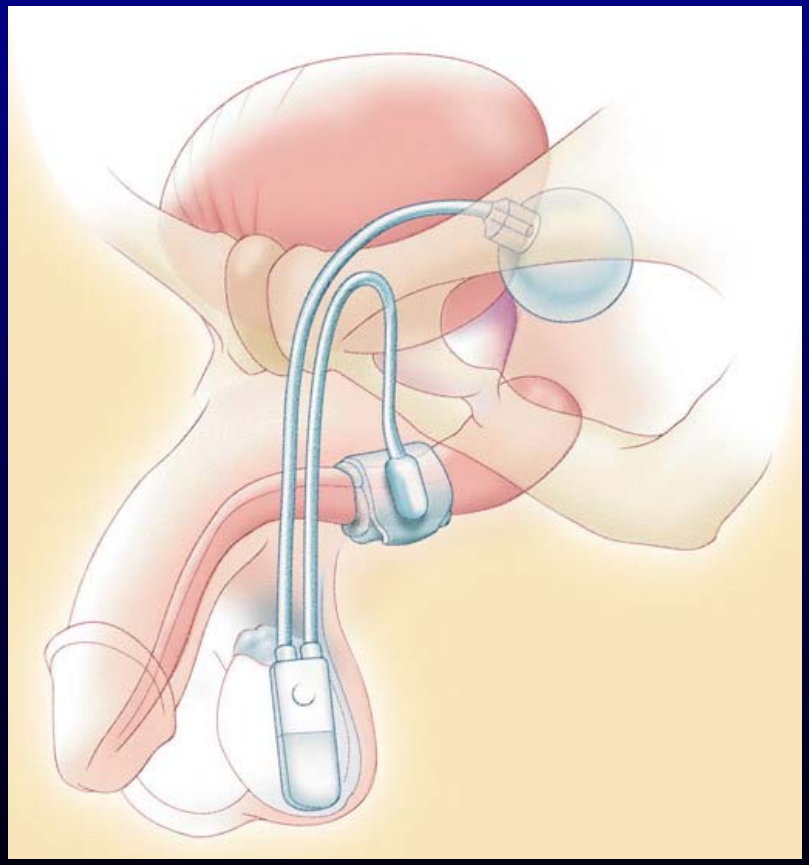
PPD figures according to Singla, New Perineal Bone-Anchored Male Sling: Lessons Learned, Urology, 64:58-61 July, 2004.

Artificial Urinary Sphincter

- Hydraulic device used to coapt urethra



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13 Years of Experience With Artificial Urinary Sphincter Implantation at Baylor College of Medicine

H. Henry Lai, Elias I. Hsu, Bin S. Teh, E. Brian Butler and Timothy B. Boone*,†

From the Scott Department of Urology (HHL, EIH, TBB) and Department of Radiology (BST), Baylor College of Medicine and Department of Radiotherapy, Methodist Hospital (BST, EBB, TBB), Houston, Texas

THE JOURNAL OF UROLOGY® Vol. 177, 1021-1025, March 2007

TABLE 1. *Patient demographics*

No. pts	218
Mean ± SE age (range)	67.3 ± 0.7 (18.9–85.3)
No. men/women	215/3
No. bulbar urethral/bladder neck cuff	216/2
No. cm cuff size (%):	
4.0	48 (22)
4.5	145 (71)
5.0	11 (5)
6.0	1 (bladder neck cuff)
7.0	1 (bladder neck cuff)
No. pressure regulating balloon (cm H_2O):	
61–70	215
51–60	3 (radiotherapy in 2)
Preop pad use (No. pads/day):	
Mean ± SE	5.3 ± 0.2
No. 1 (%)	6 (3)
No. 2–3 (%)	40 (18)
No. 4–5 (%)	37 (17)
No. greater than 5 (%)	135 (62)
Postop pad use (No. pads/day):	
Mean ± SE	1.1 ± 0.1
No. 0 (%)	77 (35)
No. 1 (%)	74 (34)
No. 2–3 (%)	20 (9)
No. greater than 3 (%)	47 (22)

TABLE 4. *Complications and management outcomes*

Complications + Management	No. Pts
Cellulitis/wound abscess:	4
Successful antibiotics + local drainage	3
Underlying device infection, AUS removed	1
AUS infection without erosion:	8
Immediate removal of all components	4
Failed salvage (removed remaining components)	3
Successful cuff and pump salvage	1
Total infection (%)	12 (5.5)
Leakage at pump neck	4
Leakage at pressure regulating balloon	2
Leakage at tubing/connector	2
Pump failure	2
Leakage at cuff	1
Total mechanical failure (%)	13 (6.0)
Downsizing existing cuff:	7
Recurrent atrophy at 75 mos	1
Leakage at reservoir tubing	1
Success	5
Placing tandem cuffs:	9
Cuff erosion at 1 + 27 mos	2
Leakage at tubing, infection, removed at 4 mos	1
Success	6
Downsizing and placing tandems	3
Total urethral atrophy (%)	19 (9.6)
Removal of all or part of components	8
Intractable urge incontinence (greater than 3 pads/day)	7
Intractable bladder neck contracture	5
Loss of hand dexterity (stroke)	1
Refused surgical revision	1
Total nonfunctioning AUS (%)	22 (10)

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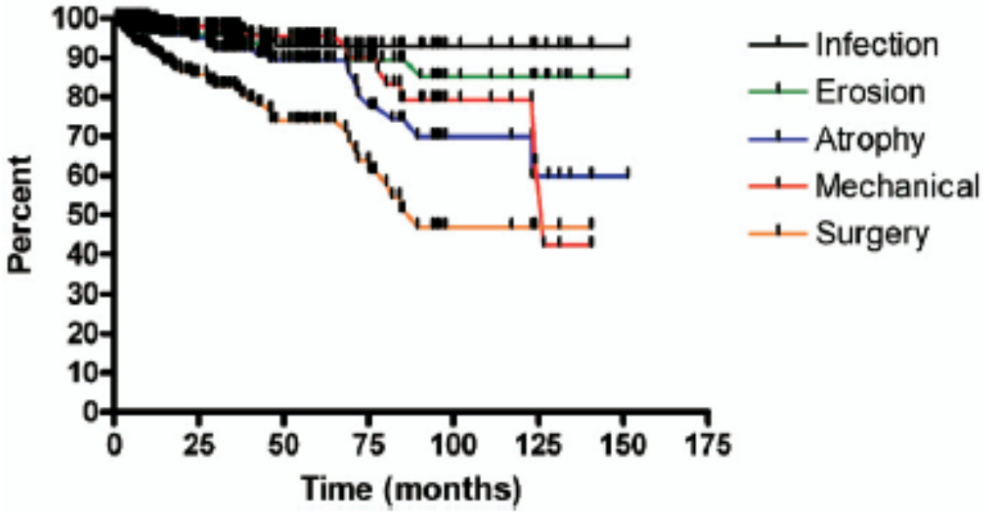
TABLE 2. *AUS complications*

	Overall	Prostatectomy		Neurogenic Bladder*	Secondary Implantation†
		No Radiation	Pelvic Radiation		
No. pts	218	116‡	60‡	11	31
Mean age	67.3	68.7	70.0	46.3§	65.2
Mean followup (mos)	36.5	38.6	40.5	28.5	23.9
Mean pads/day:					
Preop	5.3	5.2	5.6	5.7	6.0
Postop	1.1	1.0	1.4	0.13	1.2
% Infection	5.5	6.9	3.3	9.1	3.2
% Cuff erosion	6.0	5.2	5.0	9.1	9.7
% Urethral atrophy	9.6	12.1	3.3	9.1	12.9
% Mechanical failure	6.0	8.6	1.7	0	6.5
% Surgical revision or removal	27.1	30.2	20.0	36.4	25.8
% No function at last followup	10.1	8.6	15.0	9.1	6.5

* Including spinal cord injury, spina bifida, tethered cord and pelvic fracture.
† Patients presented to Baylor College of Medicine with AUS complications, including 16 with prior infection or erosion with AUS already removed, 3 with tubing leakage, 6 with mechanical failure, including pump failure in 3, and 6 with urethral atrophy.
‡ Total of 176 patients includes 160 with radical retropubic prostatectomy and 16 with transurethral prostate resection.
§ $p < 0.0001$.



Kaplan-Meier complication curves

Reasons for Revisions

Of 554 men undergoing AUS implantation – 21% had revision. Of those:

- Mechanical – 25%
  - Cuff leak – 16 cases
  - Other leak – 8 cases
  - Pump malfunction – 3 cases
- Non-mechanical – 75%
  - Atrophy – 63 cases
  - Cuff size – 4 cases
  - Erosion – 21 cases

Webster G. et al. *J Urol*. 173; 1242.

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Questions?

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