

Evaluation and Management of Urinary Incontinence

Ketul Shah, MD
Assistant Professor of Urology
Department of Urology
The Ohio State University Wexner Medical Center

Case presentation

- 62 yo female referred by her PCP for 2-year history of incontinence.
- She leaks with cough, sneeze.
- Reports urinary urgency, frequency, urge incontinence.
- No difficulty emptying bladder, no pelvic fullness, no pelvic pain.
- OB history: 2 difficult vaginal deliveries
- PMH: HTN, Diabetes and hypothyroidism
- Surgical history: Tubal ligation
- SH/FH: Homemaker, married, sexually active
- Medication: Metformin, Hydrochlorothiazide and Synthroid.

What Is Incontinence?

- Incontinence is the unintentional release of urine
- Embarrassing; unpredictable condition; it can cause patients to:
 - Avoid an active lifestyle
 - Shy away from social situations
 - Constantly search for the nearest bathroom
 - Become too embarrassed to talk to their doctor

Incidence

Urinary incontinence

- 30-40%, > 60 years
- 50%, long-term care facility

Pelvic Organ Prolapse

- 50%, > 50 years of age
- 30-50%, lifetime prevalence

Female patients comprise 40% of a general urology practice

How Many People Have Incontinence?

Agency for Healthcare Policy Research:

- 13 million Americans of all ages suffer from urinary incontinence
- 85% (11 million) are women

Urinary Incontinence A Hidden Condition *

- Two-thirds of patients are symptomatic for 2 years before seeking treatment
- 30% of patients who seek treatment receive no assessment
- Nearly 80% are not examined



*Patients self-manage by voiding frequently,
reducing fluid intake and wearing pads*

* Survey conducted by Gallup Group (European Study)

Urinary Incontinence Barriers to Treatment

- Patient misconceptions and fears

“Normal part of aging”

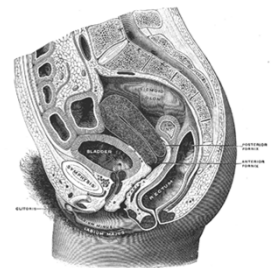
“Not severe or frequent enough to treat”

“Too embarrassing to discuss”

“Treatment won't help”

Types of Incontinence?

- 4 Types
 - Stress – incontinence with cough, laugh and sneeze
 - Urge – with symptoms of frequency and urgency
 - Mixed – combination of stress and urge
 - Overflow – due to incomplete bladder emptying and retention



Author: Henry Gray

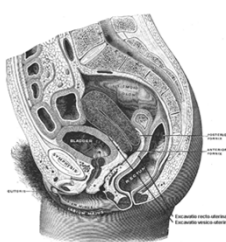
What is Pelvic organ prolapse

- POP is herniation of pelvic organs to or beyond the vaginal wall



Cystocele

Author: Mikael Häggström



Rectocele

Author: Henry Gray



Uterine prolapse

Author: Mikael Häggström

What Causes incontinence & POP ?

- Pregnancy and childbirth
- Aging – loss of pelvic muscle tone
- Menopause
- Hysterectomy
- Obesity
- Chronic pelvic muscle strain
 - chronic cough
 - chronic constipation
 - Heavy lifting

Office Evaluation of UI Goals

- Nature of incontinence
- Degree of interference with lifestyle/activities
- Predisposing medical/surgical conditions
- Prior medical/surgical therapies for incontinence
- Presence of pelvic floor defects



Direct appropriate and effective therapy

Female Bladder Questionnaire

INITIAL HISTORY AND PHYSICAL FEMALE University of Colorado Hospital
 (This section to be completed by patient) DIVISION OF UROLOGY
 Patient Name _____ Medical Record # _____
 Date _____ Age _____ Phone _____
 Chief Complaint (Why you want to see the doctor today?): _____

Bladder SYMPTOM QUESTIONNAIRE (circle symptoms that are present now)
 (Please be sure to complete the bladder diary you were sent)
 How often do you urinate: during the day? _____ during the night?
 Is the amount of urine you usually pass: _____ Large _____ Average
 Small Do you have difficulty starting your urinary flow? Yes No
 Do you strain to void your urine? Yes No
 Is your urine flow (circle one) _____ Strong Weak Dribbling
 Intermittent
 Do you feel that you empty your bladder completely? Yes No
 Do you notice dribbling of urine after voiding? Yes No
 Do you have to assume abnormal positions to urinate? Yes No

Past History

- **Medical History**
 - Diabetes mellitus
 - GI complaints/Constipation
 - Neurological disorders
 - Prior CVA
 - Multiple sclerosis
 - Parkinson's disease
- **Surgical**
 - Incontinence and prolapse surgery
 - hysterectomy
 - Spinal surgery

Obstetrical/Gynecological

- Number of children (vaginal or cesarean)
- Vaginal deliveries
 - Number
 - Large birth weight
 - Forceps delivery
- Menopausal status
 - Estrogen replacement

SUI Subjective Data

- **Precipitating events**
 - Minimal provocation: quiet walking, bending
 - Moderate provocation: coughing, sneezing
 - Significant provocation: strenuous exercise
- **Magnitude of stress incontinence**
 - Drops v. complete void
 - Frequency of episodes
 - Type of pads used: liners, maxipads or diapers
 - How many used daily
 - Changed when wet, damp or dry (changed by habit)

Urge Incontinence

- **Triggers**
 - "Key in the door", hand washing
 - Rising from the seated position
- **Overactive bladder symptoms**
 - Frequency - more than 8 times per 24 hrs
 - Nocturia – more than 2 times
 - Urgency - a strong, sudden desire to void

Pad Weight Test

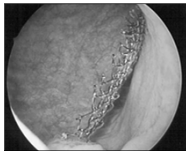
- Only truly objective measure of incontinence
- 1ml urine roughly equals 1gm
- Weight of wet pad minus sample dry pad

Laboratory Evaluation

- Urine analysis and culture
- Bladder scan for PVR
- BUN and creatinine
- Hematuria
 - Cytology
 - Upper tract evaluation (CT Urogram)
 - Cystoscopy

Cystoscopy

- Urethra
 - Urethritis , diverticulum
 - Stricture
- Bladder
 - Signs of infection, tumor
 - Ureteral orifice
 - Trabeculations and Diverticula
 - Calculi and foreign bodies like mesh



Not usually required in most patients, but generally helpful in patients with prior surgery or where surgical procedure is planned for

Urodynamic Study

Not generally required in most patients with uncomplicated incontinence

- **Indications**
 - *Initial tests inconclusive*
 - *Prior corrective surgery for incontinence*
 - *Prior radical pelvic surgery or radiotherapy*
 - *Neurologic disorder*
 - *Mixed stress/urge symptoms*

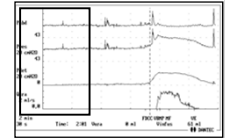
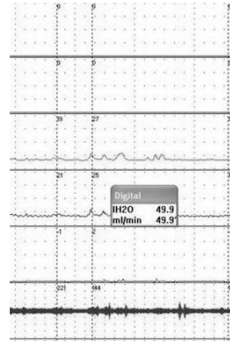
Urodynamic Study



- **Uroflowmetry**
- **Complex CMG**
- **EMG**
- **Pressure Flow study**
- **P/Q nomograms**
- **VCUG**

Filling Phase

- Pves
- Pabd
- Pdet
- EMG



- **Capacity**
- **Sensation/Urge**
- **Contractions**
- **Leak with valsalva ?**

Management of incontinence

Urge incontinence & Overactive bladder

Stress incontinence

Mixed incontinence

Mx of urge incontinence & OAB

First line

Pt education
Behavioral therapy

Second line

Third line

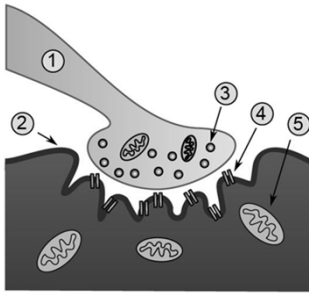
Botulinum toxin A
Sacral Neuromodulation
Tibial Nerve stimulation

Forth line

Bladder augmentation

Anti-cholinergics

- Goal: block muscarinic receptors thereby decreasing detrusor activity



Author: Nrets (CC BY-SA 3.0)

Drugs & Trade names	Half life (hrs)	Dosage & Formulations
Oxybutynin (Ditropan)	2-6	IR – 5 mg tid XL – 5,10,15 mg OD TDS-3.9 mg Gel- Gelnique
Tolterodine (Detrol)	2-8	IR – 1 & 2 mg bid ER- 2 & 4 mg QD
Solifenacin (Vesicare)	50-60	5 & 10 mg QD
Darifenacin (Enablex)	12	7.5 & 15 mg QD
Trospium (Sanctura)	19-36	20 mg bid XL 60 mg QD
Fesoterodine (Toviaz)	7-8	4 & 8 mg QD

Anti-cholinergic: Side effects

- Dry mouth – most common, 7-25%
- Constipation – 2-20%
- CNS - cognitive impairment, sleep deficits, hallucinations, confusion
- Headache: Low incidence , 3-5 %

Intravesical Botulinum A Toxin (Botox)

- Botox is derived from the organism *Cl. botulinum*
- Inhibits the vesicular neuronal blockade of acetylcholine
- Indications:
 - Refractory OAB
 - Neurogenic incontinence

Schurch B, et al.: J Urol 2000
Smith CP and Chancellor MB: J Urol 2004

Intravesical Botulinum A Toxin (Botox)

- **Technique:** under LA or sedation
- **100 to 300 Units dose**
- **Re-treatment every 6-9 months**
- **Side effects:**
 - Urinary retention (6%) and need for CIC
 - UTI

Schurch B, et al.: J Urol 2000
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Sacral Neuromodulation

- **Lead placement in S 3 foramen**
- **Current Limitation: MRI compatibility**

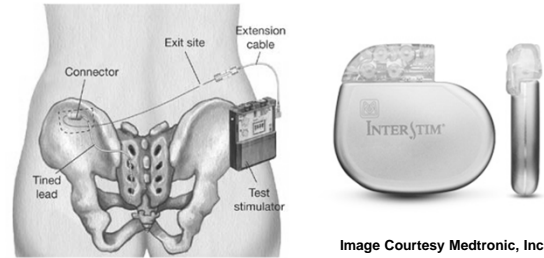


Image Courtesy Medtronic, Inc.

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Kessler TM and Fowler CJ (2008) Sacral neuromodulation for urinary retention
Nat Clin Pract Urol doi:10.1038/ncpuro1251

Percutaneous Tibial Nerve Stimulation

- **Form of neuromodulation therapy**
- **Based on Acupuncture principle**
- **Needle electrode inserted into posterior tibial nerve 30 minutes weekly sessions x 12 weeks**
- **Maintenance protocol – session every month**
- **70-80 % response rate**

Management of incontinence

Urge incontinence & Overactive bladder

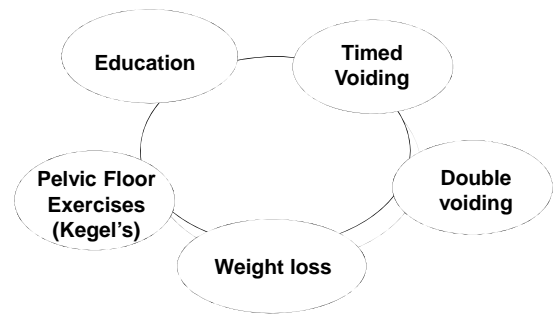
Stress incontinence

Mixed incontinence

Treatment for SUI

- Behavioral therapy
- Pelvic floor therapy
- Injection therapy - Urethral bulking procedures
- Vaginal mesh procedures
- Autologous Rectus fascial sling procedure

Management of Urinary Incontinence Behavioral Modifications

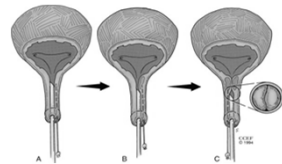


Injection therapy: Urethral bulking

- Submucosal injection of bulking agent

Advantages:

- Outpatient procedure
- Under sedation
- Quick post op recovery
- Lasts 1-2 years
- Can be repeated



Injection therapy: Urethral bulking

Indications:

- High risk pts with multiple medical problems
- Young pt desiring future pregnancy

Examples:

- Collagen (Contigen) – not available
- Silicone microimplants (Macroplastique)
- Calcium hydroxyapatite (Coaptite)

Vaginal mesh: How Does It Work?

- Restores urethra's ability to control urine loss
 - Mesh is placed beneath the urethra
 - During strenuous activity:
 - ✓ Provides support to the urethra
 - ✓ Closes the urethra and prevents incontinence

Benefits of mesh surgery:

- Quick and Outpatient surgery
- Short recovery time
- Minimal pain
- Durable objective and subjective cure rates

Potential Risks of mesh surgery:

- Hemorrhage and infection
- Urinary retention and need for catheterization
- Mesh related complications – vaginal pain and dyspareunia

Legal Implications



- Multi-district litigations (MDL) involving 26,000 cases
- All 6 large mesh producers are involved
- Main accusations:
 - Actively and intentionally misleading the FDA, the medical community, patients with safety
 - Failing to conduct proper testing and research

Autologous Rectus fascial sling procedure

- Use patient's own body tissue – prevent mesh rejection
- Type of graft:
 - Rectus fascia from abdomen
 - Fascia lata from thigh
 - Cadaveric fascia lata
- Problems:
 - Long post op recovery

Rectus Fascia Graft in Place

