3 General Categories of Disorders

- Urinary Incontinence
- Pelvic Organ Prolapse
- Anal Incontinence

Additional History

- Previous treatments and responses
- History of UTIs
- Obstetrical history
- Other medical problems/symptoms
- DM – neuropathy
- Neurologic dz/sxs – weakness, numbness, visual changes
- Medications
- Prior Urologic or Gyn procedures/surgeries
Types of Urinary Incontinence

- Stress Incontinence
- Urge Incontinence
- Mixed Incontinence
- Overflow Incontinence
- Unaware Incontinence

Urinary Incontinence

- Stress Urinary Incontinence (SUI) - complaint of involuntary leakage on effort or exertion, or on sneezing or coughing
- Urge Urinary Incontinence (UUI) - complaint of involuntary leakage accompanied by or immediately preceded by urgency
- Mixed Urinary Incontinence - complaint of involuntary leakage associated with urgency and also with exertion, effort, sneezing or coughing
- Overflow Incontinence - occurs when the bladder reaches the limit of its viscoelastic properties; occurs with urinary retention
- Unaware Incontinence - occurs without associated activity or urge and without the patient being aware of the leakage
Urinary Incontinence (Cont’d)

- Neurologic – CVA, MS, SCI, spina bifida
- Inflammation/Infection – radiation, UTI
- Pharmacologic – diuretics, sedatives, etc
- Restricted Mobility
- Obstruction – POP
- Fistula – radiation, recent pelvic surgery

Stress Urinary Incontinence (SUI)
- Generally occurs with sudden movements or increases in intra-abdominal pressure - coughing, laughing, sneezing, or running.

Urge Incontinence
- Typically preceded by an urge to void and can involve a trigger such as running water, opening a door, removing undergarments.
- Mixed Urinary Incontinence: Involuntary leakage associated with urgency and also with exertion, sneezing, or coughing (SUI).
Overactive Bladder

- Urgency - DRY
- Frequency - DRY
- Urges Urinary Incontinence (UUI) - WET

Urinary Incontinence - Evaluation

**HISTORY**
- Main complaint
- Impact on her lifestyle
- Description of symptoms and quantification - duration, frequency, and severity, as well as any previous treatment.
- Quantity of urine loss - pad use (number/day/type)

**EXAM**
- Stress test
- Post void residual
- Urine analysis (dipstick)
- Bladder diary

Further Evaluation

- Urinalysis
  - Hematuria, pyuria, glucosuria, proteinuria, nitrites
- Urine Culture
- Urine cytology
  - Looks for malignant cells
  - Indicated in patients with hematuria or storage symptoms not responding to treatment
- Bladder US/PVR
  - Measurement of residual urine after a patient has voided (mL <50mL)
- Voiding diary - Record of fluid consumed, volume of each void, incontinence episodes, urinary symptoms
- Urodynamics - assess bladder function
- Cystoscopy - look for urothelial tumors or foreign body
- CT scan
- Imaging
Physical Exam
- Neurologic exam
- Abdominal exam
- Pelvic exam
- Relaxed and with Valsalva
- Urethral hypermobility – movement with straining or coughing
- Pelvic organ prolapse – split speculum
- Assess patient’s ability to perform a Kegel
- Rectal exam
- Sphincter tone
- Perineal sensation

Incontinence Physical Exam
- Standing or Supine Stress Test

Bladder Function – Phase I
STORAGE / FILLING
- Accommodation of increasing volumes of urine at a low pressure – elasticity of the bladder
- Sympathetic stimulation and parasympathetic inhibition reduces detrusor tone
- Contraction of bladder neck/sphincter to prevent leakage
- Sympathetic stimulation increases smooth sphincter tone
- Somatic pelvic nerve stimulation increases striated sphincter tone
Bladder Function – Phase II

EMPTYING / MICTURATION
- Lowering of smooth and striated sphincter resistance
- Sympathetic and somatic pelvic nerve inhibition
- Relaxation of the striated sphincter is the 1st event in normal micturition
- Coordinated contraction of the detrusor muscle
- Parasympathetic stimulation – increases detrusor tone
- Sympathetic inhibition – decreases detrusor tone

Storage Symptoms
- Frequency – complaint by the patient that she voids too often during the day
- Nocturia – complaint that the patient has to wake at night one or more times to void
- Urgency – complaint of a sudden compelling desire to pass urine
- Urinary Incontinence – complaint of any involuntary leakage of urine
- Overactive Bladder (OAB) – urgency with or without urge incontinence and usually with frequency and nocturia

Voiding Symptoms
- Intermittency – urine flow stops and starts on more than one occasions during micturition
- Hesitancy – difficulty in initiating micturition resulting in a delay in the onset of voiding
- Straining – muscular effort is used to initiate, maintain, or improve the urinary stream
- Slow Stream – patient’s perception of reduced urine flow, usually compared to previous performance
Post Void Residual & Urine Dipstick

- Why?
- PVR
  - Normal: 10-80cc (age dependent)
  - Abnormal: > 100-150cc
- UA: negative findings

Voiding Diary

<table>
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<tr>
<th>TIME</th>
<th>Amount Voided (CC)</th>
<th>ACTIVITY</th>
<th>LEAKAGE AMOUNT</th>
<th>URINE</th>
<th>TOTAL AMOUNT</th>
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- Normal Voiding
  - Less than 8 voids/day
  - Urine output < 2,800

Total Output: 3,720 ml (124 oz)
Total Fluid Intake: 3,360 ml (112 oz)

Overflow Incontinence

- Obstruction of urethra
- Poor contractile bladder muscle
- Must find out PVR !!

** Must stop anticholinergics!!
Simple Cystometry (Urodynamics)

Multichannel Urodynamics

INDICATIONS

- Uncertain diagnosis
- Fail to respond to treatment
- Prior failed surgery

Risk Factors of UI

- Sex: Women are more likely than men to have stress incontinence – pregnancy, childbirth, and menopause.
- Age: As you get older, the muscles in your bladder and urethra lose some of their strength. Changes with age reduce how much your bladder can hold and increase the chances of involuntary urine release. However, getting older doesn’t necessarily mean that you’ll have incontinence. Incontinence isn’t normal at any age — except during infancy.
- Obesity: Being overweight increases the pressure on your bladder.
- Smoking: A chronic cough can cause episodes of incontinence or aggravate incontinence that has other causes. Smokers are also at risk of developing overactive bladder.
- Other diseases: Having kidney disease or diabetes may increase risk of urinary incontinence.
Treatment Urinary Incontinence

- Lifestyle modification
- Pads
- Physical Therapy - Kegels, biofeedback
- Pessary
- Medications - e.g. anticholinergics (Detrol)
- Botox (OAB)
- Surgery (many!!)
  - Burch (Abdominal procedure)
  - Slings
  - Pubovaginal
  - Tension free vaginal tapes (TVT, TOT)
  - Bulking agents: collagen, macroplastique, durasphere, coaptite
  - Artificial sphincter - used primarily for male stress incontinence

Management of OAB/Urge Incontinence

BEHAVIORAL THERAPY

- Timed Voiding
  - Voiding every 1-2 hours; prior to urge to avoid leakage
- Reducing fluid intake
- Avoid bladder irritants (caffeine, alcohol, acidic foods)
- Bladder training
  - Pt attempts to consciously delay voiding
  - Increase the interval between voids
  - May help with frequency

Pelvic Floor Muscle Training (Kegel exercises)

- Abdomen deflexion contraction
- Pt should be assessed prior to make sure that they can voluntarily contract the pelvic floor
- 3 sets of 8-12 slow velocity PFM contractions
- Sustained for 5-8 seconds
- Performed at least 3-4 times/week
- For at least 15-20 weeks

Biofeedback

- BF-assisted PFMT is no more effective than PFMT alone
- May be useful for purposes of teaching, motivation, compliance
- May be useful in women who cannot identify PFMs
Management of OAB/Urge Incontinence (Cont’d)

**ANTIMUSCARINICS**
- Mainstay of medical treatment
- Can be combined with behavioral therapy
- MOA – Competitive inhibition of muscarinic receptors on the detrusor muscle
- Side effects (caused my inhibition of muscarinic receptors outside of the bladder)
  - Dry mouth
  - Constipation
  - Blurred vision
  - Confusion/Cognitive effects (concern in the elderly)
  - Urinary retention
  - Tachycardia
- Contraindicated in patients with narrow angle glaucoma

Management of OAB/Urge Incontinence (Cont’d)

**INTRADETRUSOR INJECTION of Botulinum Toxin**
- Not FDA approved
- Inhibits muscle contraction by blocking release of acetylcholine
- Repeat injections required

**SACRAL NEUROMODULATION**
- Stimulation of S3 nerve root by implanted electrical pulse generator
- 2-stage procedure
- Contraindication for MRI

**AUGMENTATION CYSTOPLASTY**
- Increases bladder capacity and decreases intravesical pressure during contraction
- Pts may require CIC

Management of Stress Incontinence

**PELVIC FLOOR MUSCLE TRAINING**
- Pt should be assessed prior to make sure that they can voluntarily contract the pelvic floor
  - 3 sets of 8-12 slow velocity PFM contractions
  - Sustained for 6-8 seconds
  - Performed at least 3-4 times/week
  - For at least 15-20 weeks
- Biofeedback
  - BF-assisted PFMT is no more effective than PFMT alone
  - May be useful for purpose of teaching, motivation, compliance
  - May be useful in women who cannot identify PFMs
Management of Stress Incontinence (Cont’d)

MEDICATIONS

- Alpha-adrenergic drugs (pseudoephedrine, ephedrine)
  - Inconsistent results and high rate of AE’s
- Duloxetine (serotonin and NE reuptake inhibitor)
  - Available in Europe
  - Withdrawn from FDA consideration for approval in US

Management of Stress Incontinence (Cont’d)

PESSARY - device inserted into the vagina; used to compress the urethra

Surgical Management of SUI

BULKING AGENTS

- Injection of a substance to augment the urethra and increase the compressive force inward toward the urethral lumen
- Not permanent; repeat procedures necessary

SLINGS - placed under urethra to improve support

- PVS with Autologous fascia
- Midurethral Synthetic Sling
Tension Free Vaginal Tape

RETROPUBIC SLINGS

- 1990 Petros & Ulmsten introduced the sling concept
- 1995 P&U working with Gynecare (Purchased by JNJ - 50 patients inside out approach
- AMS introduces SPARC – top to bottom approach
- Many vendors – same principle

Tension Free Vaginal Tape

TRANSOSTURATOR SLINGS

- Transobturator approach described by Delorme
- Introduced in the US by Ob Tape (Mentor Corporation, Santa Barbara Corp)
- Initially described as outside in
- DeLeval reported an inside-out technique (JNJ)

Retropubic Approach
Transobturator Approach

Transobturator Outside-In

Pelvic Prolapse

Pelvic Organ Prolapse

**DESCENT OF:**
- Anterior vaginal wall
- Apex of the vagina (cervix or vault)
- Posterior vaginal wall

**PATIENTS MAY PRESENT WITH:**
- Vaginal bulge/pressure
- Incontinence/Difficulty Voiding
- LUTS – frequency, urgency, UII
- Sexual sx – dyspareunia
- Bowel sx – constipation, soiling, fecal urgency
3 Compartments of Prolapse

- Anterior
- Middle or Apical
- Posterior

Compartments

Anterior Compartment  Apical Compartment  Posterior Compartment

3 Compartments: Normal Support
3 Compartments: Prolapse

Compartments:
- Prolapse
- Cystocele (Anterior)
- Vaginal Vault Prolapse / Entercele (Middle/Apical)

SYMPTOMS:
- bulging, pressure, “mass”, difficulty voiding, incomplete emptying, splinting vaginal wall, difficulty inserting tampon, pain with intercourse.
Rectocele (Posterior)

SYMPTOMS: bulging, pressure, “mass”, difficulty defecation, incomplete defecation, splinting vaginal wall or perineum, difficulty inserting tampons.

Complete Eversion (All compartments)

- Uterine Procidentia
- Complete Uterine Prolapse

Pelvic Organ Prolapse Quantification System (POP-Q)

- Patient straining, 6 specific sites are evaluated, at rest 3 sites measured.
- Measure each site (cm) in relation to the hymenal ring, which is a “fixed”. The hymenal ring is the zero point of reference.
- If a site is above the hymen, assigned a negative number.
- If site prolapses below the hymen, the measurement is positive.
What type of prolapse?
What compartment?

Risk factors for vaginal apical prolapse
Aging
Pelvic surgery, such as prior hysterectomy
Menopause and hypoestrogenism
Loss of muscle tone
Multiple vaginal births
Obesity
Chronic constipation, coughing, or heavy lifting
Uterine fibroids
Family history
Connective tissue disorders, such as Marfan’s syndrome
Prolapse Treatment Options

- Expectant Management
- Physiotherapy??
- Pessary
- Surgery (Many!)
  - Abdominal
  - Vaginal
  - Laparoscopic
  - Robotic Assisted Laparoscopy
  - Mesh kits

Management of Pelvic Organ Prolapse

PESSARIES

- Symptomatic patients who do not want surgical intervention
- Patients that are not good surgical candidates
- Temporary use until surgery is performed

PESSARY MAINTENANCE

- Vaginal estrogen
- If possible teach patient to remove and reinsert device
- Preferably leave out overnight at least once weekly
- Re-examine within 1 week of insertion
Management of Pelvic Organ Prolapse Cont’d

ISSUES/COMPLICATIONS WITH PESSARY USE:

- Vaginal discharge
- SUI
- Vaginal erosion/ulceration
- Fistula
- Voiding or defecatory difficulties

Surgical Management of POP

- Transvaginal Approaches
- Abdominal/Laparoscopic Approaches

Mesh Repairs
Immediate Postoperative Care

- Pain control
  - Narcotics, NSAIDs

- Infection control
  - Vaginal and urinary tract

- Voiding issues
  - Insure adequate bladder emptying

- Restrictions
  - Limit strenuous activity
  - Pelvic rest

Surgical outcomes

- Sling success rates

- Prolapse repair
  - Anterior compartment
  - Apical compartment
  - Posterior compartment

- Complications
  - Mesh exposure/extrusions
  - Vaginal scarring
  - Urinary retention
  - Incontinence

THANK YOU