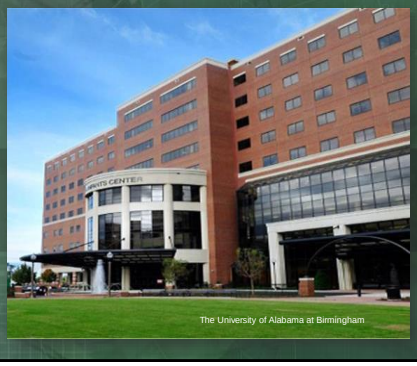




# Efficient Evaluation of the Incontinent Woman

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## Disclosures

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- UpToDate: Royalties
- Renovia: Consultant
- NICHD, NIA: research funding

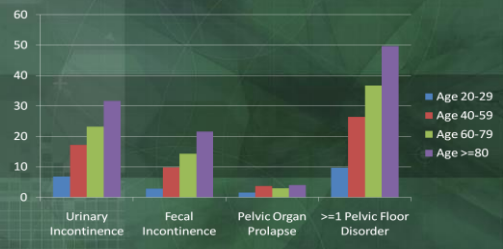
- No conflict of interest

## Objectives

At the end of this talk, the participant:

- Will gain knowledge with respect to the epidemiology and risk factors associated with urinary incontinence (UI)
- Will appreciate the rationale for evaluation of a woman with UI symptoms
- Will understand a simple approach for the evaluation of UI

Prevalence Rates of Pelvic Floor Disorders in Women from the National Health and Nutrition Examination Survey (NHANES) 2005-06




Nygaard et al, JAMA, 2008

## UI Prevalence

- The proportion of women that reported UI symptoms increased from:
- 6.9% [95% CI, 4.9%-9.0%] in women aged 20 to 39 years
- to 17.2% [95% CI, 13.9%-20.5%] in women aged 40 to 59 years
- to 23.3% [95% CI, 17.0%-29.7%] in women aged 60 to 79 years
- 31.7% [95% CI, 22.3%-41.2%] in women aged 80 years or older

p<0.001

As women are living longer, will be seeking treatment, including surgery in increasing numbers

## UI Continence

The continence mechanism depends on a complex interaction between the urethra, bladder, pelvic floor, spinal cord and CNS requiring:

- Intact intrinsic urethral function
- A well supported bladder
- A normal volume, low pressure bladder
- Intact innervation

## UI - caused by factors affecting either the anatomy or the physiology of the lower urinary tract or both

## Documented Risk Factors

- Pregnancy, vaginal delivery and forceps
- Obesity
- Smoking
- High impact physical activities
- Diabetes
- Stroke
- Estrogen depletion
- Pelvic muscle weakness

## Documented Risk Factors

As women get older:

- Immobility associated with chronic degenerative disease
- Environmental Barriers
- Fecal Impaction
- Diminished cognitive status and delirium
- Medication, including diuretics

## Evaluation of UI

- Understanding the pathophysiology of UI is critical for evaluation and diagnosis
- Evaluations assess urethral competence and bladder neurologic function

## What "constitutes" continence?

Depends on the urethral closure pressure being greater than the bladder pressure

## URETHRAL INCOMPETENCE

- Loss of urethral or bladder neck support (extrinsic compression mechanism)
- Loss of urethral wall function (intrinsic mechanism)
  - Neuromuscular dysfunction
  - Failure of other urethral wall tissues

## EXTRINSIC SUPPORT MECHANISM

## Pelvic Floor Support

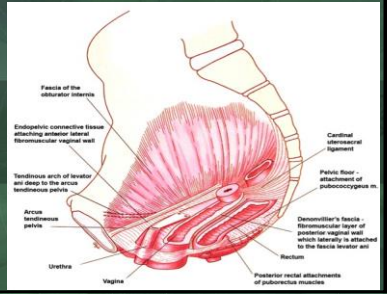
Levels of support

*-Level 1*: Uterosacral/cardinal ligament (most cephalad

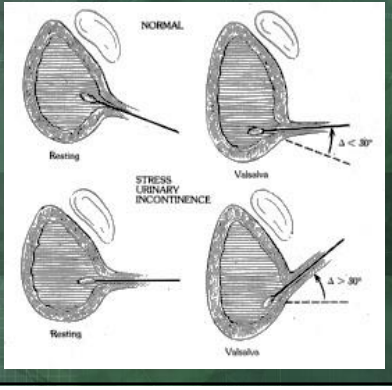
*-Level 2*: Paravaginal, arcus tendineus fascia

*-Level 3*: Perineum (distal support)

*All levels connected through endopelvic fascia



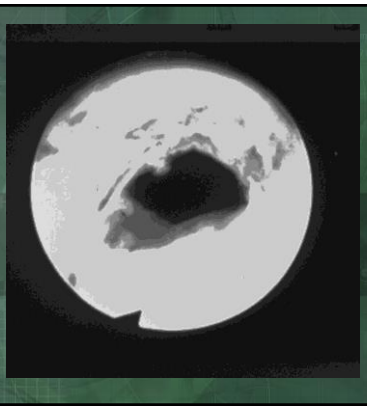

DeLancey et al, 1992

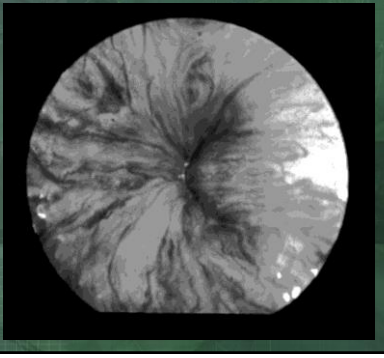


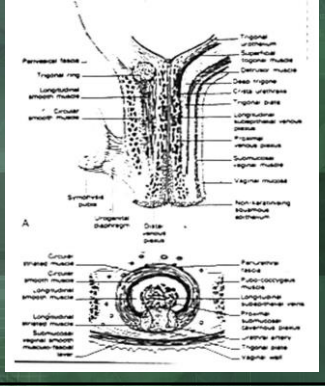
INTRINSIC URETHRAL INCOMPETENCE

Three components:

- Mucosal seal effect of the urethra
- Competent bladder neck
- Functional urethral sphincter







## CNS

Controls and coordinates bladder and urethra to maintain appropriate storage and release of urine

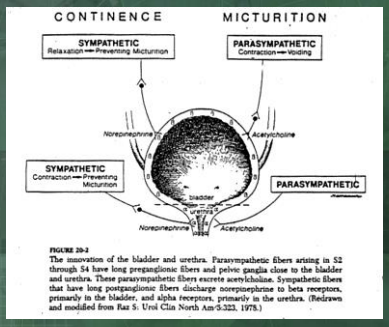
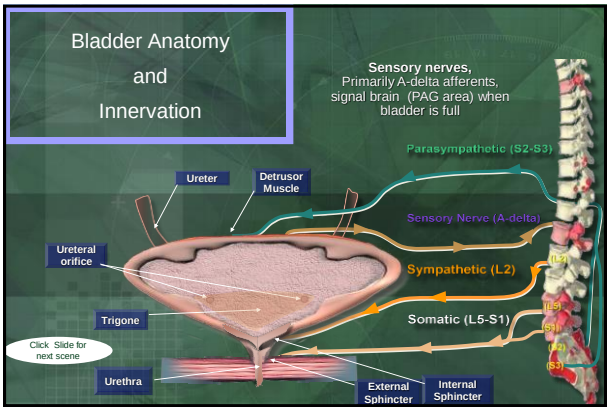
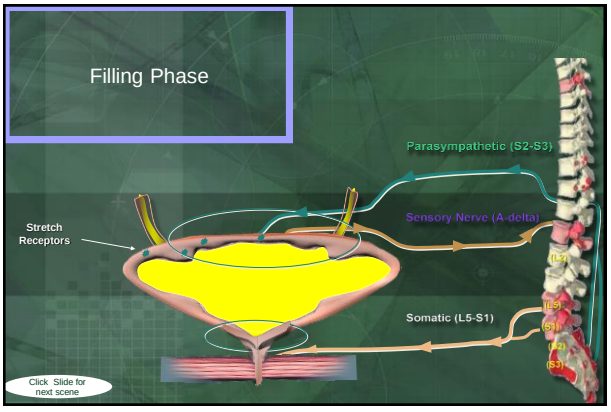
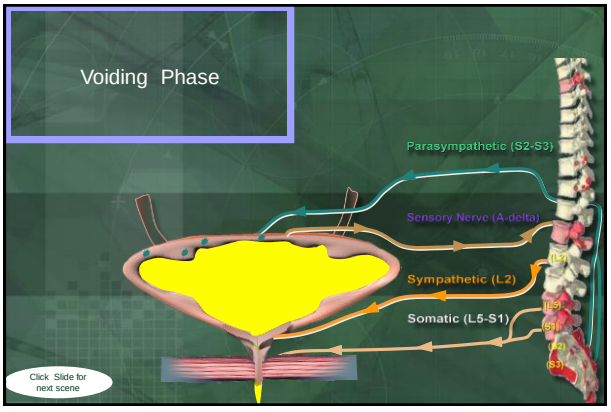



FIGURE 20-2
The innovation of the bladder and urethra. Parasympathetic fibers arising in S2 through S4 have long preganglionic fibers and pelvic ganglia close to the bladder and urethra. These parasympathetic fibers secrete acetylcholine. Sympathetic fibers that have long postganglionic fibers discharge norepinephrine to beta receptors, primarily in the bladder, and alpha receptors, primarily in the urethra. (Redrawn and modified from Raz S: Urol Clin North Am 5:323, 1978.)




## Case

- 56 yo presents with a 5 year h/o UI- impacts ability to work out
- She has to wear a pad daily
- She is S/P SVD times 3
- Healthy
- Starting to gain weight and is very distressed by increasing incontinence

## Urinary Incontinence Types

- Stress urinary incontinence (SUI)
- Detrusor instability/Urgency Urinary Incontinence (UUI)
- Mixed Urinary Incontinence (MUI)
- Overflow incontinence
- Fistula
- Congenital or acquired anatomical defects

## Stress Urinary Incontinence

Pressure in urethra falls below bladder pressure

### Signs

- Small losses of urine when coughing, laughing, sneezing, straining
- Usually dry at night

## Urgency Urinary Incontinence

Pressure in bladder exceeds pressure in urethra

### Signs

- Strong urge to urinate
- Urinating more frequently
- Urinating a lot at night
- Low volume urination

## Mixed Urinary Incontinence

- Patients typically have symptoms of both SUI and UUI
- Most impact on QOL

## Overflow Incontinence

Bladder pressure overcomes urethral pressure only at very high bladder volume

### Signs

- Swollen bladder
- Tenderness above pubic region
- Reduced urine flow

## Functional Incontinence

Not due to urinary tract problems; otherwise continent people with difficulty getting to the bathroom

### Signs

- Early morning incontinence
- Accidents on the way to the bathroom

## Iatrogenic Incontinence

Caused by drugs or medical treatment

### Signs

- Sudden changes in urination after surgery or starting new medications

## Basic UI Evaluation

- History
- Physical Examination-Urethral Hypermobility
- Post Void Residual Volume-UA (urine dip)
- Cough Stress Test (SUI)

Lukacz ES, UpToDate, 2017
ACOG Committee Opinion, 2014

## EVALUATION OF URINARY INCONTINENCE

- Focused medical, neurologic and genitourinary history
- Assessment of risk factors
- Review meds
- Detailed exploration of the symptoms of the UI and associated symptoms and factors (should include intakes utilizing validated assessment measures ie MESA, PFDI)

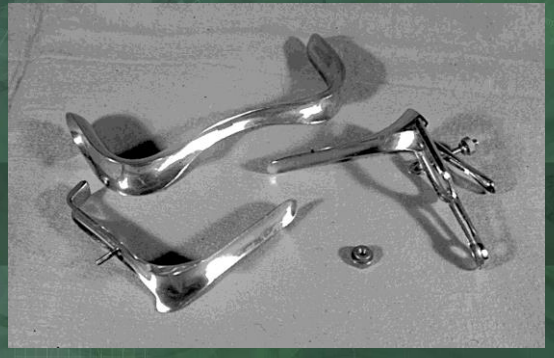
## Evaluation *cont*

- Characteristics of leakage
- Severity of problem (intake, output, leakage chart helpful, bladder diary, pad test)
- Potential exacerbating factors
- General health and expectations of patient

## Urinary Incontinence

Etiology – Transient/Reversible Causes

- D ementia
- I nfection
- A trophic urethritis
- P harmacologic
- P sychogenic
- E xcessive output / Endocrine
- R estricted mobility
- S tool impaction

## Physical Examination

- General examination
  - edema
  - neurologic abnormalities

- Abdominal Exam
  - diastasis
  - organomegaly
  - masses
  - peritoneal irritation
  - fluid collections

- Pelvic Examination
  - skin irritation
  - genital atrophy
  - pelvic organ prolapse
  - pelvic masses
  - paravaginal muscle tone
  - neurologic exam

## BASIC BLADDER AND URETHRAL EVALUATION

- Patient voids in a hat
- Q-tip test or POPQ point Aa (measure of urethral mobility), vaginal Q-tip*
- Post Void Residual urine
- Urine dip or Urinalysis and culture as indicated
- Bladder fill
- Stress test

*Meyer et al, 2016
Lukacz ES, UpToDate, 2017
ACOG Committee Opinion, 2014

## For our Patient With Uncomplicated Stress Predominant UI

- In women with stress predominant UI considering surgery
- No POP requiring intervention
- Normal PVR
- No infection
- Positive stress test at 300 ml or less
- No UDS are necessary prior to MUS
- ValUE trial

Nager et al, NEJM, 2012

## For Our Patient With Uncomplicated Urgency Predominant Urinary Incontinence

- R/O POP requiring intervention
- Check for normal PVR
- No evidence infection or other reversible cause for UI
- Can initiate behavioral/medication treatment
- No UDS are necessary prior to treatment

Gormley et al, 2012, amended 2014

## URODYNAMICS

- Tests for the presence of detrusor instability
- Documents stress incontinence; helps to quantify severity
- Tests micturition function
- Evaluates intrinsic urethral sphincter function
- Can assess neurological functions of the filling and emptying phases (Valsalva vs Detrusor voiding)

## Conclusions

- Urinary incontinence is a prevalent condition
- Evaluation and correct diagnosis of UI type is important; transient etiologies important to diagnose
- Treatment can be initiated after an efficient, directed evaluation
- Individualization of therapy
- Ultimate Goal: Improved QOL!!!