Canadian Undergraduate Urology Curriculum (CanUUC): Incontinence

Last reviewed June 2014

Objectives:

1. Define and describe stress, urge, overflow and total incontinence.
2. Outline the basic evaluation (including history and physical examination) of an incontinent patient.
3. Describe the medical and surgical treatment options for stress incontinence.
4. Describe the medical treatment options for urge incontinence and overactive bladder

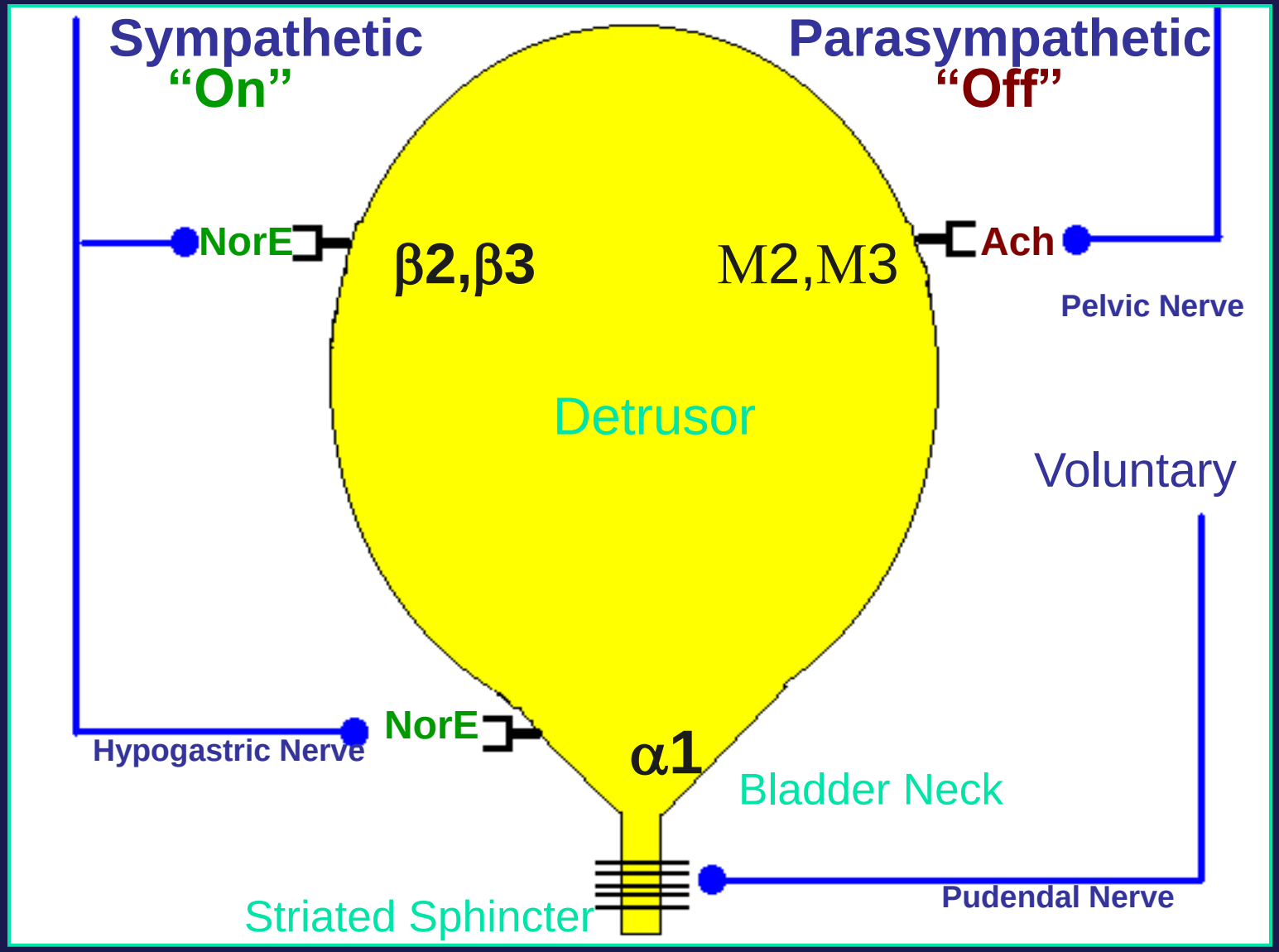
What is Needed for Normal Bladder Function?

1. **Filling** - Efficient and low pressure
2. **Storage** - Low pressure, with perfect continence
3. **Emptying** - Periodic complete urine expulsion, at low pressure, when convenient

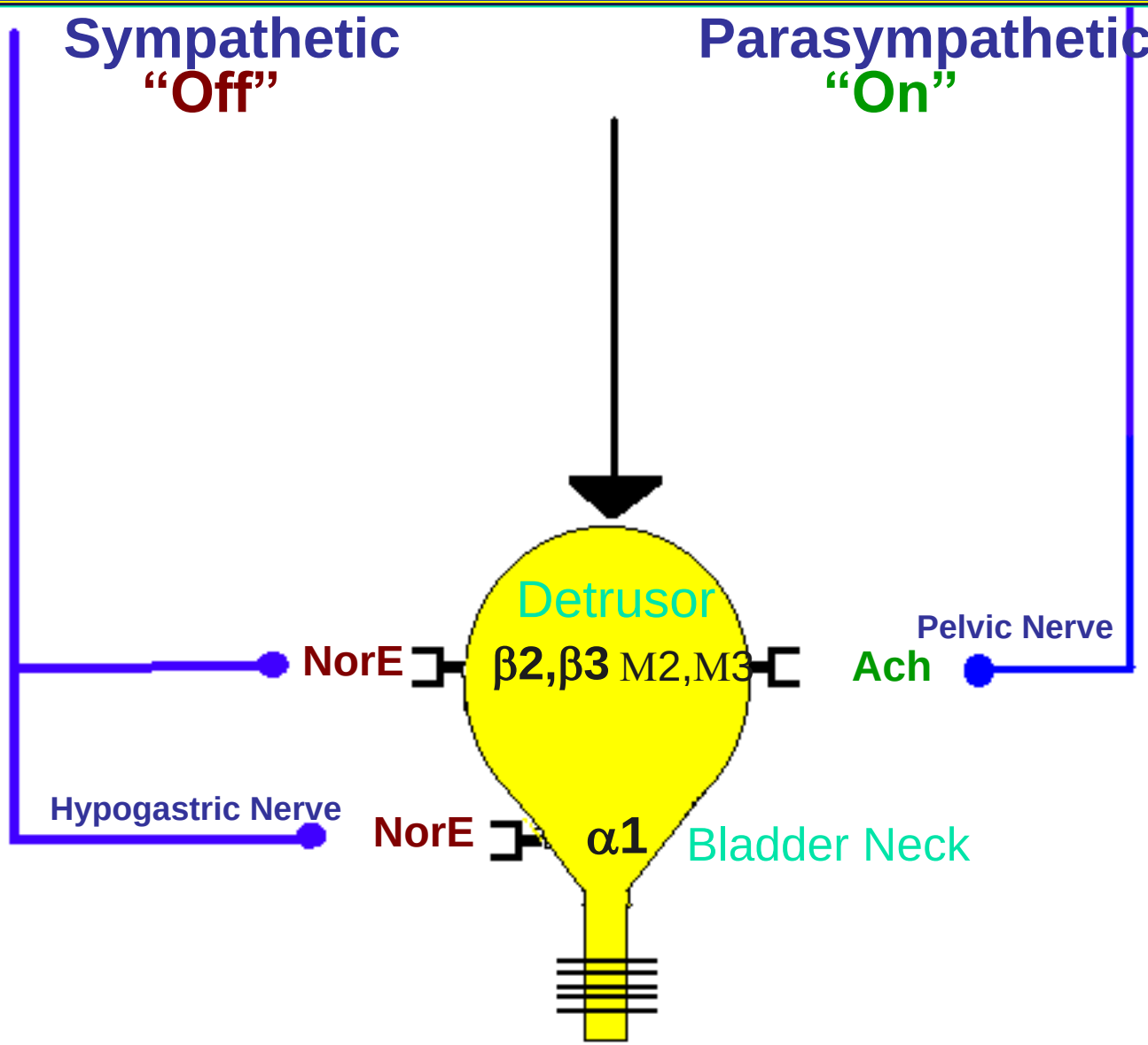
The Bladder: Innervation

- Bladder innervation
  - Sympathetic (Hypogastric nerve)
  - Parasympathetic (Pelvic Nerve)
  - Somatic (Pudendal Nerve)
- Common disorders:
  - Classification
  - Stress Urinary Incontinence
  - Urge Incontinence/Overactive Bladder (OAB)
  - Neurogenic Bladder

Normal Bladder Function: Bladder Filling

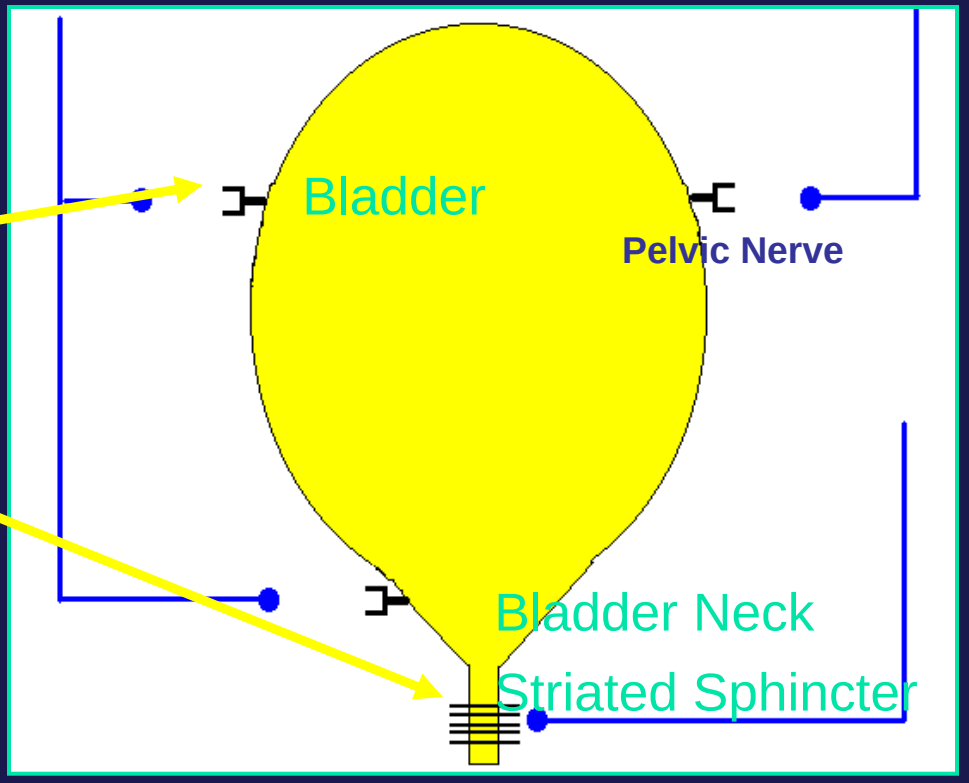


Normal Bladder Function: Bladder Emptying



Voiding Dysfunction: Functional Classification

- Classification:
  - Failure to Store
    - Bladder
    - Outlet
  - Failure to Empty
    - Bladder
    - Outlet



Incontinence: Definition

"the complaint of any involuntary loss of urine".

Incontinence: Types

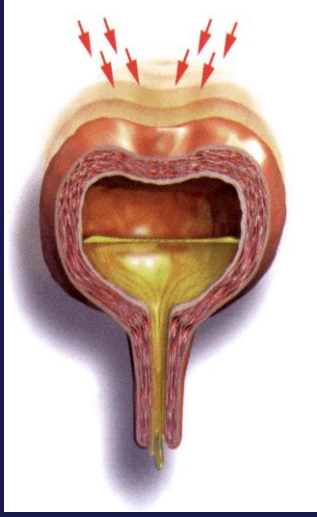
- ***Stress incontinence:*** Loss **of urine with** exertion or sneezing or coughing.
- ***Urge incontinence:*** Leakage accompanied by or immediately preceded by urinary urgency.
- ***Mixed incontinence:*** Loss of urine associated with urgency and also with exertion, effort, sneezing, or coughing.

Incontinence: Types (continued)

- ***Overflow incontinence:*** Leakage of urine associated with urinary retention.

- ***Total incontinence:*** Is the complaint of a continuous leakage.

Other Incontinence Terms: Definitions



- Frequency: voiding too often
- Urgency: sudden compelling desire to pass urine which is difficult to defer
- Urge incontinence: involuntary loss of urine associated with or immediately preceded by urgency
- Nocturia: waking one or more times per night to void

Incontinence History: Try to Classify the Incontinence

- Stress Incontinence
  - *Involuntary loss of urine with coughing or sneezing, or physical exertion*
  - "Do you leak when you cough, sneeze, laugh, lift, walk, run, jump?"
- Urgency Incontinence
  - *involuntary loss of urine associated with or immediately preceded by urgency*
  - "Do you get that feeling like you "really" have to pee before you leak?
- Mixed Incontinence - both

Incontinence History: Other Key Points

- Use and number of incontinence pads
- Lower urinary tract symptoms (LUTS)
- Presence of neurologic disease
- History of pelvic surgery or radiotherapy
- Obstetrical history
- Bowel and sexual function
- Medication history
- **Impact on quality of life**

Physical Examination

- General examination
  - Edema, Neurologic Abnormalities, Mobility, Cognition, Dexterity
- Abdominal examination
  - Assess for palpable or distended bladder
- Pelvic exam - women, ?prolapse
- DRE - men
- Cough test - observe urine loss

Incontinence: Investigations

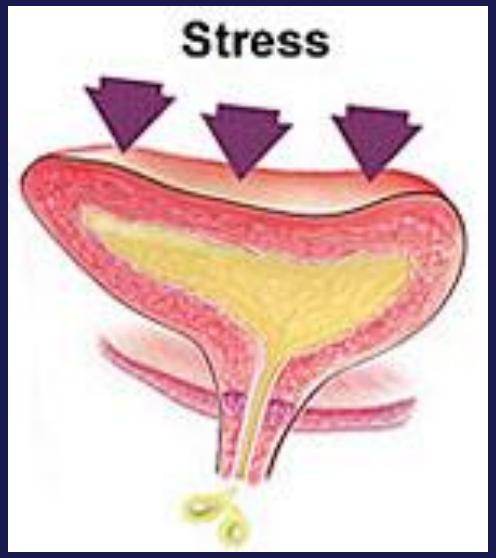
- Urinalysis
- Urine Culture
- Voiding Diary
  - Type of incontinence
  - Number of episodes
  - Volume of leakage

Incontinence in the Elderly: Try to identify and treat underlying reversible causes (DIAPPERS)

- D – delirium (impaired cognition)
- I – infection (UTI)
- A – atrophic vaginitis/urethritis
- P – psychological
- P – pharmacologic (diuretics, narcotics, etc.)
- E – endocrine (DM)/excessive urinary output
- R – restricted mobility
- S – stool impaction

Stress Urinary Incontinence

- “Loss **of urine with** exertion or sneezing or coughing”



Stress Incontinence: Primary Care (Initial) Management

- Risk Reduction
  - Weight loss
  - Smoking cessation
  - Topical Estrogen
- Behavioral techniques:
  - Kegel exercises
    - Designed to strengthen pelvic floor muscles
    - Initial treatment for stress incontinence
    - Also helpful for urge incontinence

Stress Incontinence: When to Refer?

- If incontinence causes decrease in quality of life
- Previous SUI
- Failed Kegel exercises

Stress Incontinence: Other Treatment Options

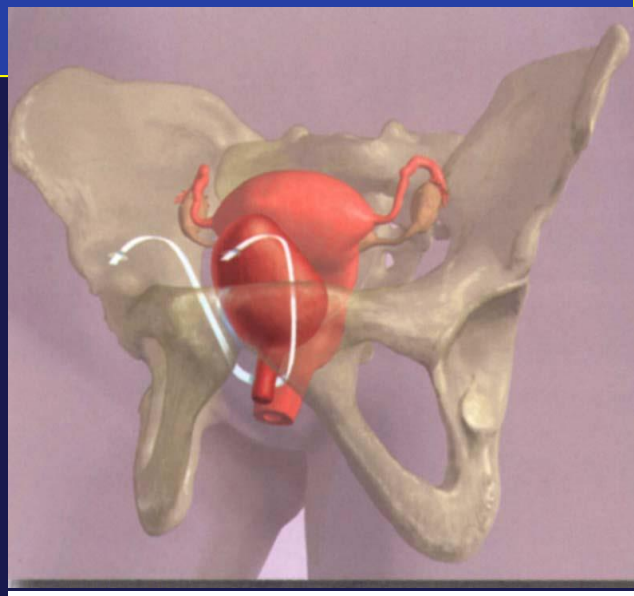
- Pelvic Floor Biofeedback
- Pessary
  - Intra-vaginal insert to reduce prolapse and support the urethra
- Urethral Bulking Agents: (collagen, etc.)
  - Minimally invasive
  - Less durable than surgery
- Surgery
  - Urethral sling – Effective and durable

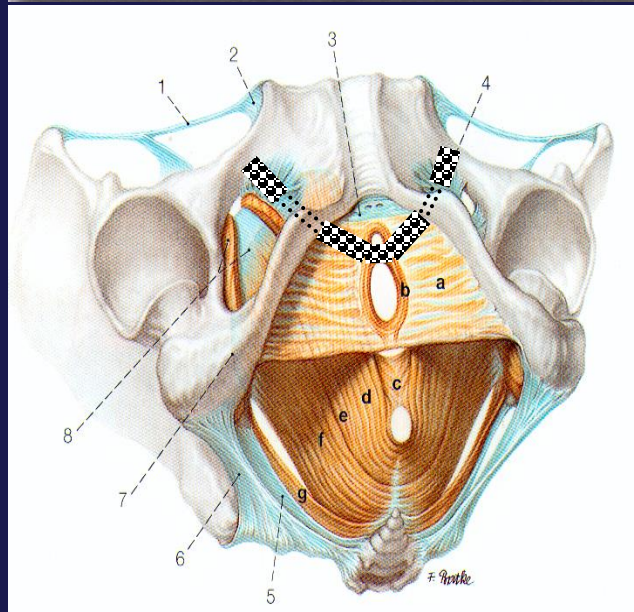
Stress Incontinence: Surgery
Synthetic Mid-Urethral Sling

- Day surgery, outpatient
- GA, spinal, or conscious sedation
- 20-30 minutes
- Risks: bleeding, infection, too tight/retention
- Post-op: Tylenol and Advil
- Off work 2-4 weeks
- No restrictions after 4 weeks

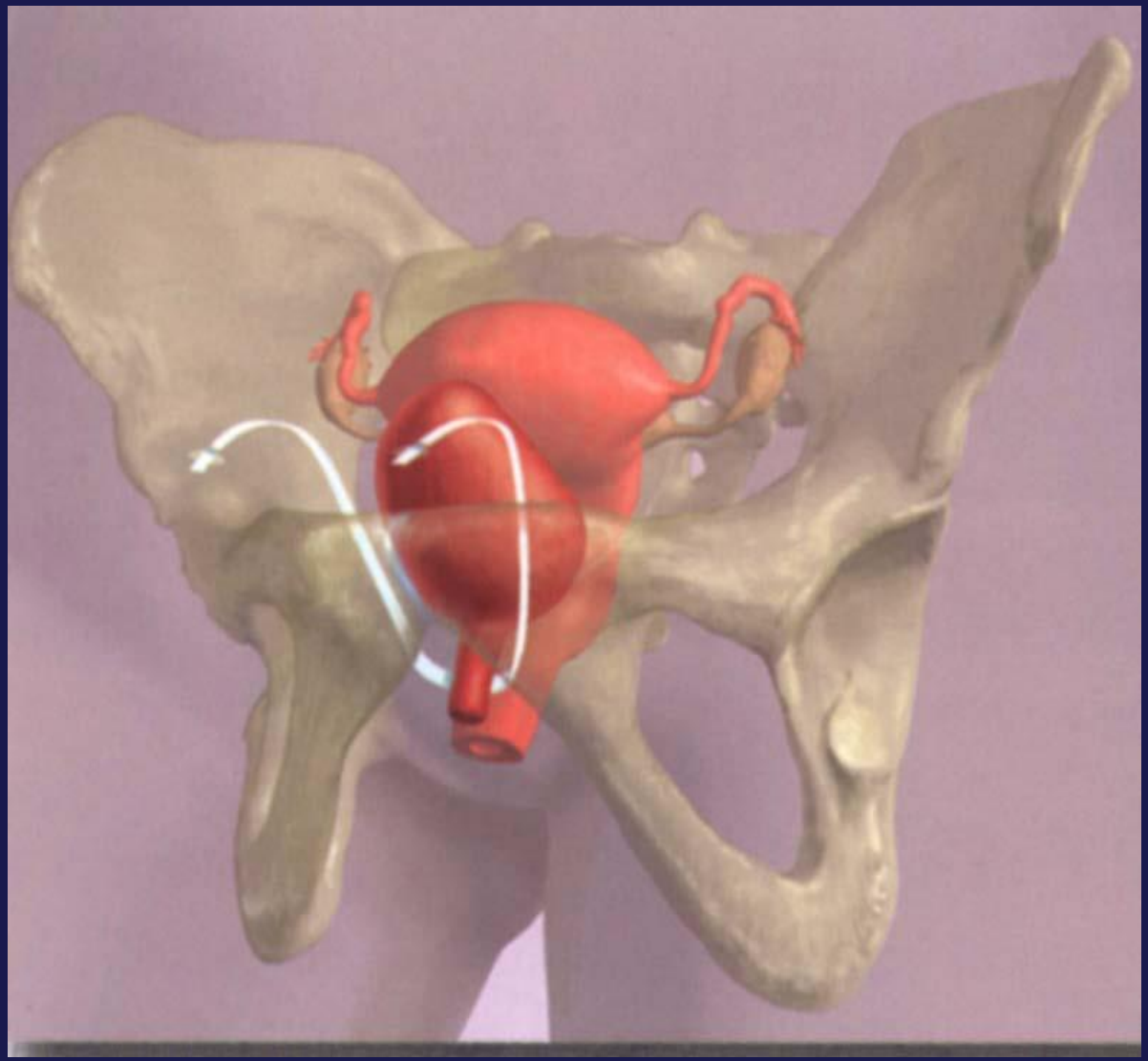
Stress Incontinence Surgery: Mid-Urethral Slings

- Limited vaginal dissection
- Polypropylene mesh under midurethra without tension
- No fixation of the tape
- Operation can be done under local anaesthetic, sedation, GA, or SA

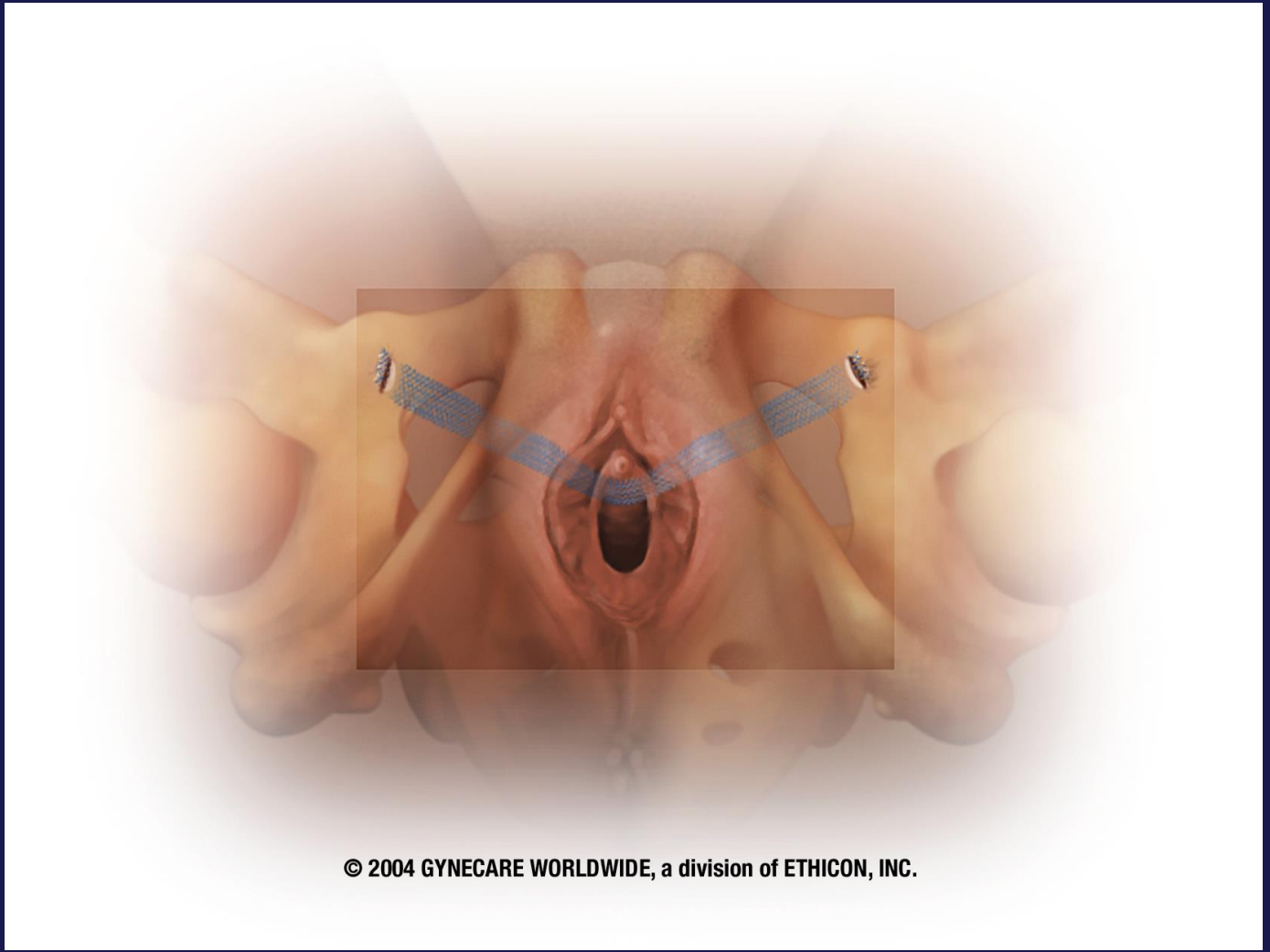




Stress Incontinence Surgery: Retropubic Sling



Stress Incontinence Surgery: Transobturator Sling



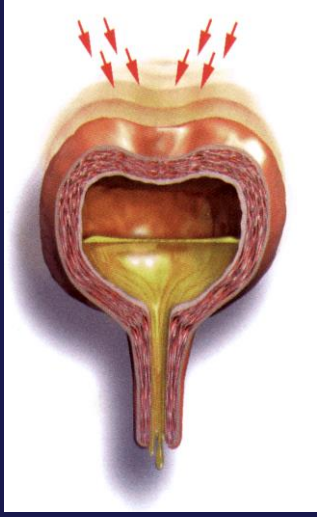
Stress Incontinence Surgery: Does it Work?

- Success: 80-85%
- Not all bladder/women the same
- Treats stress incontinence, not OAB
- 30% of women will have improvements in OAB symtpoms
- Retention: 2-3%
- How long?

Urge Urinary Incontinence (UUI) /Overactive Bladder (OAB)

- Urge Incontinence:
  - Involuntary leakage of urine accompanied by or immediately preceded by urinary urgency
- OAB:
  - A symptom complex of urgency, with or without urge incontinence, usually with frequency and nocturia

Overactive Bladder: Definitions



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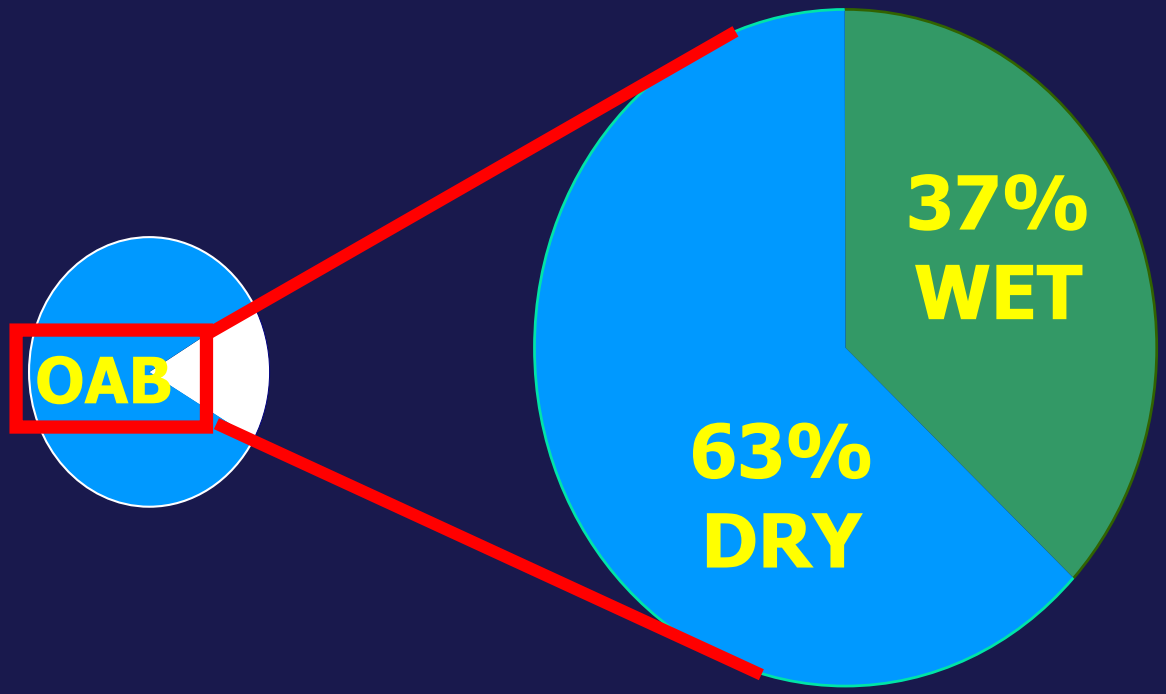
Overactive Bladder: Prevalence: Incontinent versus Continent



Stewart W et al. Prevalence of OAB in the US: results from the NOBLE program. Poster presented at WHO/ICI; July, 2001; Paris, France.

Overactive Bladder: Etiology

- Inappropriate contraction (or sensation) of detrusor muscle during bladder filling
- Idiopathic
  - no identifiable cause
  - ?related to aging (unclear mechanism)
- Neurogenic
  - stroke, Parkinson's disease, MS, Alzheimer's disease, brain tumor

Overactive Bladder: Important Questions on History

- How often do you void during the day?
  - Give examples: q1hr, q2-3hr, etc.
- When you gotta go, do you gotta go?
- How many times do you get out of bed to void?
- Do you leak urine?
- Do you have to wear pads? Change clothes?
- Do you have a strong or slow stream?
- Feel like you empty?

OAB/Urge Incontinence: Primary (Initial) Treatment

- Most cases of OAB can be diagnosed and treated by primary health care providers.
- Treat OAB and urge incontinence the same.
- Treat for 6-8 weeks and reassess
- Consider voiding diary (frequency volume chart for 3 days)

Overactive Bladder: Treatment Options

- Behavioral therapy
- Medication (Anti-cholinergics, B3 Agonists)
- Combined therapy[1]
- Minimally invasive therapy
- Surgery

1. Burgio KL et al. *J Am Geriatr Soc*. 2000;48:370-374.

Overactive Bladder Treatment: Behavioral Therapy

- Patients should implement the following program at home:
  - Regular pelvic floor muscle exercises
  - Specified voiding schedule aimed at avoiding emergencies
  - Reduce fluid intake to 1.5 litres per day
  - Avoid caffeine and alcohol

Overactive Bladder Treatment: Anti-cholinergic Medications

First line treatment :

Oxybutynin IR	generic oxy	2.5 to 5mg QID

Second line treatment:

Tolterodine IR	Detrol	1 or 2mg BID
Tolterodine ER	Detrol LA	2 or 4mg OD
Oxybutynin ER	Ditropan XL	to 30mg OD
Oxybutynin TDS	Oxytrol	3.9mg OD (2-wk)
Oxybutynin ER	Uromax	10 or 15mg OD
Darifenacin	Enablex	7.5 or 15mg OD
Solifenacin	Vesicare	5 or 10mg OD
Trospium	Trosec	20mg BID

Other

Myrbetriq	Mirabegron	25-50mg OD

Anti-Cholinergic Medications and Glaucoma

- What do you do?
  - Okay, if open angle glaucoma
  - May be okay for closed angle glaucoma if treated.
  - If not sure, ask for the ophthalmologist “okay”, not the urologist

Overactive Bladder Treatment: Follow-up Appointment

- Review urinalysis and culture
- Compare voiding diaries
- “Did the treatment work?”
- Any side effects?
- Switch to another anti-cholinergic medications, or
- Increase dose

When should you refer to a urologist?

1. Uncertain diagnosis/no clear treatment plan
2. Unsuccessful therapy for OAB – after 2-3 meds?
3. Neurological disease
4. Stress incontinence concurrently
5. Hematuria without infection
6. Persistent symptoms of poor bladder emptying
7. History of previous radical pelvic or anti-incontinence surgery

What to include in the referral?

- Urinalysis & Urine Culture
- Previous urologic/pelvic surgery
- Type of incontinence (UUI, SUI, Mixed)
- Attempted treatments
- ? Voiding diary

OAB/UUI: Key clinical points

- Educate and reassure the patient
- No anti-cholinergic better than another
- Efficacy and side effects vary from individual to individual
- OK to try different medications
- Realistic expectations – not a cure
- Be careful in geriatric patients
  - Trosec 20 mg daily or bid, Detrol 2mg or 4mg, Enablex, Vesicare

Total Incontinence: Key Points

- ***Total incontinence:*** The complaint of a continuous leakage.
- This may be indicative of an abnormal communicating tract between urinary tract and other organ (commonly with the vagina)
  - i.e. vesicovaginal fistula
- Inquire about past surgical history
- Needs referral and further investigation

Neurogenic Bladder: Definition

- Failure of bladder function with loss of innervation
- Normal bladder:
  - Holds 350-500mL
  - Senses fullness
  - Low pressure
  - Empties >80% efficiency

Neurogenic Bladder: Classification

- Innervation:
  - Parasympathetic (S2-4) – empties bladder (bladder contracts, sphincter relaxes)
  - Sympathetic (T10-L2) – fills bladder (bladder relaxes, sphincter contracts)
- Classification:
  - Upper motor neuron (lumbar and higher)
  - Lower motor neuron (sacral and lower)

Neurogenic Bladder

- Upper motor lesion:
  - Detrsuor overactivity – Above pons
  - Detrusor overactivity & discoordinated sphincter – Spinal cord (thoracic & lumbar)
- Treatment
  - Lower bladder pressure – Anticholinergics
  - Empty bladder – Intermittent self catheterization
  - Augment bladder (surgery) if high pressures persist

Neurogenic Bladder

- Lower motor lesion (sacral or lower):
  - Detrusor atony/areflexia
  - Treat with Clean Intermittent catheterization

Neurogenic Bladder: Autonomic Dysreflexia

- Autonomic dysreflexia
  - Massive sympathetic release in response to stimulation below spinal cord lesion
  - Hypertension, headaches, bradycardia, flushing above
  - THIS IS A POTENTIALLY LIFE THREATENING EVENT
  - Treat with alpha-blockers, sublingual nifedipine

Incontinence: Take Home Points

- Urinary incontinence is quite common
- Basic evaluation
  - Classify incontinence on history
  - Urinalysis, Urine C&S
  - Voiding Diary
- Excellent surgical options for stress incontinence but try Kegel exercises first
- Urge incontinence/OAB try lifestyles measures and anti-cholinergic treatment