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Dunedin School of Medicine
University of Otago

Saturday, August 10, 2019

(Room 4)

11:00 - 11:55 WS #90: Managing Urinary Incontinence

12:05 - 13:00 WS #100: Managing Urinary Incontinence (Repeated)

Urinary Incontinence in Women. Practical Implications for General Practice

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10 August 2019

Disclosures

- No relevant conflict of interest to report

Objectives

- Evaluate and identify the different types of urinary incontinence
- Initiate conservative or pharmacologic treatment for urinary urge incontinence
- Initiate conservative therapy for stress urinary incontinence
- Identify women requiring specialist referral for evaluation and management
- Understand the treatment options present and future for urinary incontinence in women

Urinary Bladder and Incontinence Meds

- Function of lower urinary tract
- Filling and storage of urine
- Emptying of urine

Urinary Bladder

- Storage function
- Increase volume while maintaining low pressure
- Sensation of bladder filling
- Bladder outlet that remains closed when subjected to pressure
- Absence of involuntary contraction

Urinary Bladder

- Voiding function
- Coordinated bladder contraction with relaxation of the outlet
- No physical obstruction



sensation

inhibition



detrusor muscle

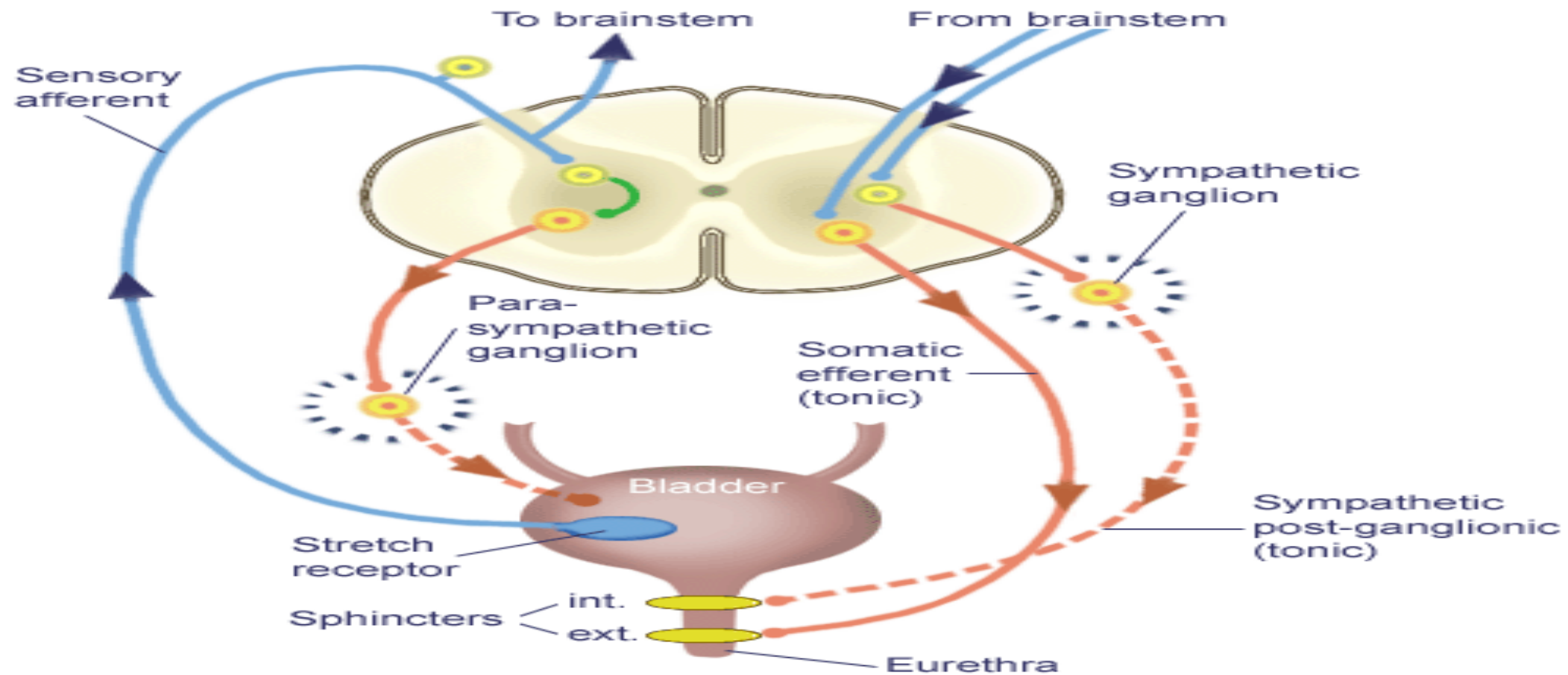


desire to void

detrusor contraction



Urinary Bladder



Types of urinary incontinence in women

- Urinary Urge Incontinence
- Stress Urinary Incontinence
- Overflow Incontinence (Will only cover briefly)
- Urinary Tract Fistula (Will only cover briefly)

Urinary Urge Incontinence (UUI)

- Etiology:
- Uninhibited detrusor muscle contractions
- Failure of cortical inhibition of sacral reflex arc

Urinary Urge Incontinence (UUI)

- History alone is very effective at diagnosing the type of incontinence
 - History elements:
 - Urinary Leakage-
 - Circumstances
 - Frequency
 - Effect on quality of life

Urinary Urge Incontinence (UUI)

- Urological
 - Urgency?
 - Daytime frequency
 - Nocturia
 - Voiding difficulty
 - Dysuria? UTIs? Haematuria?

Urinary Urge Incontinence (UUI)

- Bowel habit?
- Obstetric, Medical, Gynae History:
- Deliveries?
- Chronic cough?
- Other predisposing factors?
- Prolapse symptoms?
- Age of menopause?
- Leakage with intercourse?

Urinary Urge Incontinence (UUI)

- Previous Gynaecologic surgery?
 - Previous incontinence/pelvic floor surgery:
- Previous conservative management?
 - Pelvic floor muscle training/physiotherapy

Urinary Urge Incontinence (UUI)

- Medications/lifestyle:
 - Coffee?
 - Smoker?
 - Diuretics, alpha-blockers, HRT?
 - Heavy lifting in employment?

Urinary Urge Incontinence (UUI)

- Physical Examination components:
 - BMI, general exam
 - Abdominal exam-any pelvic masses?
 - Simplified neurological exam
 - Pelvic Exam:
 - Atrophic vaginitis
 - Demonstrable stress incontinence (cough stress test)
 - Pelvic organ prolapse, particularly cystocele
 - Pelvic masses
 - Residual urine?
 - Pelvic floor muscle contraction

Urinary Urge Incontinence (UUI)

- Baseline Investigations:
 - MSU/urine analysis
 - Urinary diary
 - HbA1c

Day:

Date:

Date of first day of last period:

Time	Drink	Urine passed	Urgent	Leakage & activity	Pad changed	Underwear changed	Outer wear changed
8:20		240 ml	✓	getting up ✓	✓	✓	
9:20	Coffee 300ml						
9:45		100 ml					
10:00	Coffee 300ml						
10:15		50 ml					
10:45		180 ml	✓				
11:40		140 ml					
12:40	Coffee 300ml						
13:00		30 ml	✓				
14:05	Juice 300ml			✓ walking	✓		
14:20		100 ml					
15:00	Coffee 300ml						
16:05	Water 200ml						
16:15		140 ml					
18:00	Red wine 200ml						
18:30	Water 200 ml						
19:10		170 ml	✓				
20:15		100 ml					
22:00	Coffee 300ml	190 ml					

Urinary Urge Incontinence (UUI)

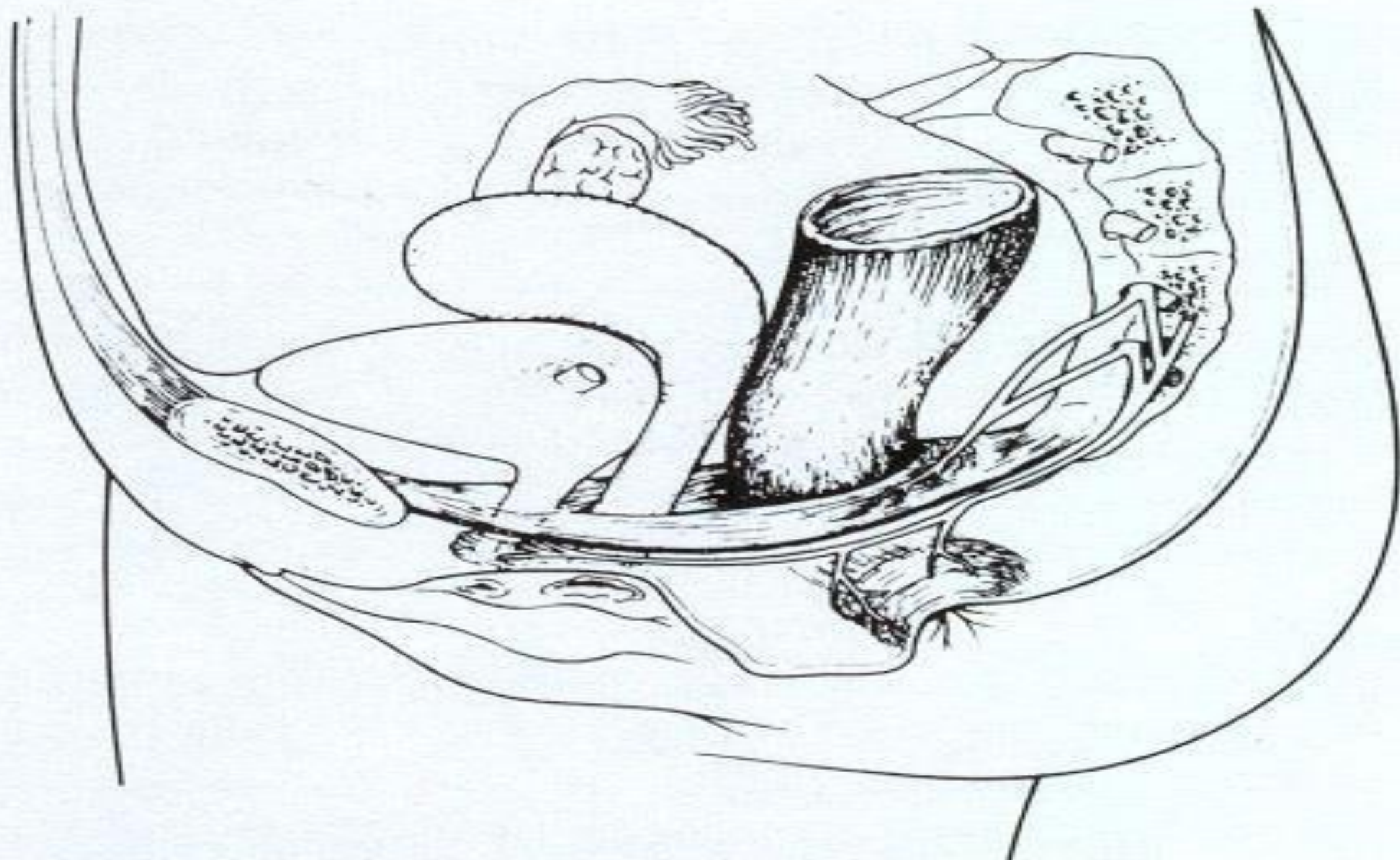
- Conservative management
- Lifestyle changes
- Physiotherapy
- Bladder retraining

Urinary Urge Incontinence (UUI)

- Weight reduction
- Relieving constipation
- Cessation of smoking/treatment of chronic
- cough
- Caffeine reduction/fluid management
- Reduction of physical forces (exercise, work)
- Postural changes

Urinary Urge Incontinence (UUI)

- The urethra has oestrogen receptors
- It is possible that oestrogen deficiency (after the menopause) may be an aetiological factor in the development of UI in women
- Vaginal oestrogens may improve incontinence (RR 0.74, 95% CI 0.64-0.86)
- Around 1-2 fewer voids in 24 hours and less frequency and urgency and recurrent UTIs
- Systemic HRT (using conjugated equine oestrogen) may worsen incontinence
- No serious adverse effects with local oestrogens
 - Cody et al 2012, Cochrane Review



Urinary Urge Incontinence (UUI)

- Pelvic floor muscle training (PFMT)
- Level 1 A evidence to suggest that for women with stress, urge and mixed incontinence, PFMT is better than no treatment

Urinary Urge Incontinence (UUI)

- Lack of consistency in PFMT programmes
- 4 sets of 8-10 squeezes held for 6 seconds, performed 3-4 times a week and continued for at least 15-20 weeks is recommended.
- The single factor that is consistently associated with positive outcome is motivation and/or compliance with the intervention

Urinary Urge Incontinence (UUI)

- Assessed by a person with special training
- –correct contraction performed
- –ensure appropriate training intensity
- Expected rates of cure/improvement are 65-74% in short term
- Improvement in symptoms is a more common outcome than cure

Urinary Urge Incontinence (UUI)

- Norwegian (selected) figures
- 70% of women still exercising more than once per week
- 70% improvement at 5 years

Urinary Urge Incontinence (UUI)

- “Bladder Retraining”
- First described by Jeffcoate and Francis in 1966 as “bladder discipline”
- Programme of patient education and a scheduled voiding regime

Urinary Urge Incontinence (UUI)

- Patient education and scheduled voiding
- Mechanisms of continence and incontinence
- Increasing voiding intervals
- Urgency control strategies
- Self monitoring of voiding behaviour
- Positive reinforcement by a clinician

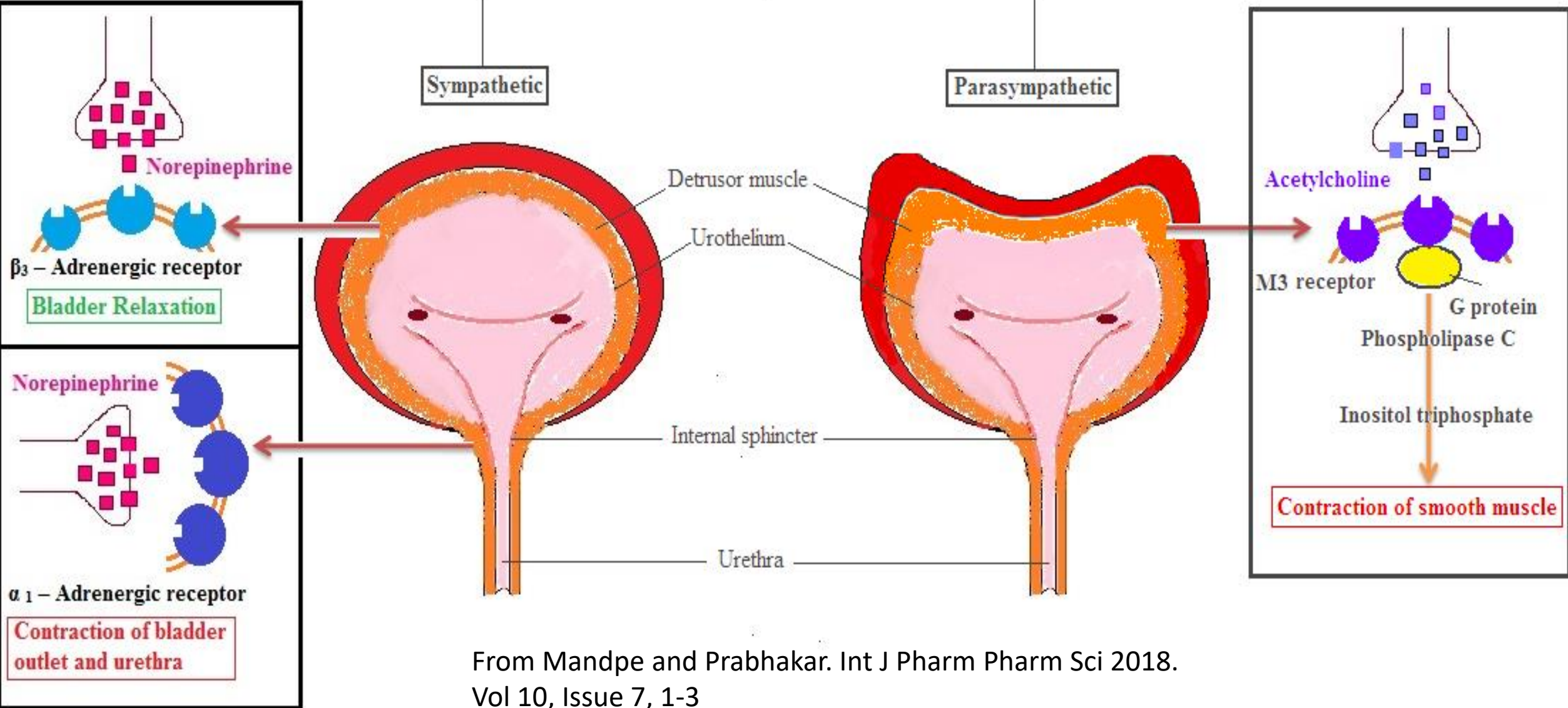
Urinary Urge Incontinence (UUI)

- Pharmacotherapy
 - Anticholinergic agents
 - Beta-3 agonists
 - Botox

Central Nervous System

Sympathetic

Parasympathetic



From Mandpe and Prabhakar. Int J Pharm Pharm Sci 2018.
Vol 10, Issue 7, 1-3

Anticholinergic
Adverse Effects

A**B****C****D**s

Agitation

Blurred vision

Constipation & Confusion

Dry mouth

Stasis of urine & sweating

Remember anticholinergic toxidrome: Mad as a hatter, hot as a hare, red as a beet, dry as a bone, blind as a bat.

From Speed Pharmacology on Youtube



5:09 / 14:20

Scroll for details



Rx

Urinary Bladder

- Physiologic bladder contraction is mediated by ACh at post-ganglionic muscarinic receptors (M3)
- Treatment of abnormal contraction (overactive bladder or detrusor overactivity) is mainly with anticholinergic agents

Urinary Bladder

- Most anticholinergic medications lack specificity for receptors
- Most are effective for OAB
- Differences are in the tolerability of the treatment
- Common side effects: dry mouth and eyes, blurred vision, tachycardia, pruritis, sedation, headache, constipation
- Contraindication in narrow angle glaucoma and urinary retention

Urinary Bladder

- Combined antimuscarinic and direct smooth muscle effects:
 - Oxybutynin
 - Increases bladder capacity and decreases detrusor pressure
 - High incidence of side effects (SE due to metabolite)
 - SE reduced with transdermal and extended release formulations
 - Contraindicated in narrow angle glaucoma

Urinary Bladder

- Specific Meds:
- Atropine (belladonna alkaloid): side effects limit its use
- **Solifenacin**: More selective for M3 than M2 or M1. Once daily dosing. Compared to tolterodine, similar efficacy but more dry mouth and constipation

Urinary Bladder

- Tolterodine: More selective for bladder than salivary gland. Effective and well tolerated. Special authority medication in NZ.
- **Mirabegron**: β -3 Agonist. Relaxes the bladder without anticholinergic side effects. Not currently available in NZ.

Botox

- Botulinum toxin A or B. Usual dose 100-200 Units
- Presynaptic inhibition of ACh release (vesicle formation and storage)
- Injected in a grid pattern into the detrusor muscle to treat OAB/UUI
- 5% risk of urinary retention
- Lasts 6-12 months then can be repeated

Botox technique



Urinary Urge Incontinence (UUI)

- When to refer:
- When conservative measures (lifestyle interventions, PFMT and scheduled voiding are not successful **AND**
- Anticholinergic therapy is contraindicated, ineffective or not tolerated

Stress Urinary Incontinence (SUI)

- Mechanism
- Evaluation
- Current treatment options



Pelvic Organ Prolapse: An Interactive Guide

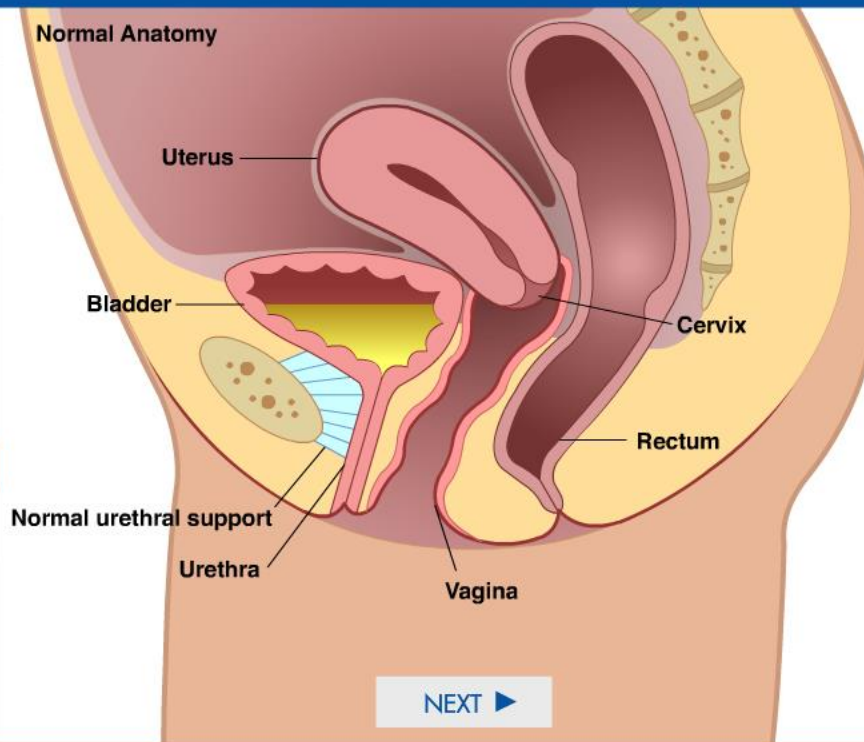
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- Normal Anatomy
- Stress Urinary Incontinence (SUI)
- SUI Treatment with Sling
- SUI Treatment with Bulking Agent

[Interactive Prolapse Evaluation](#)

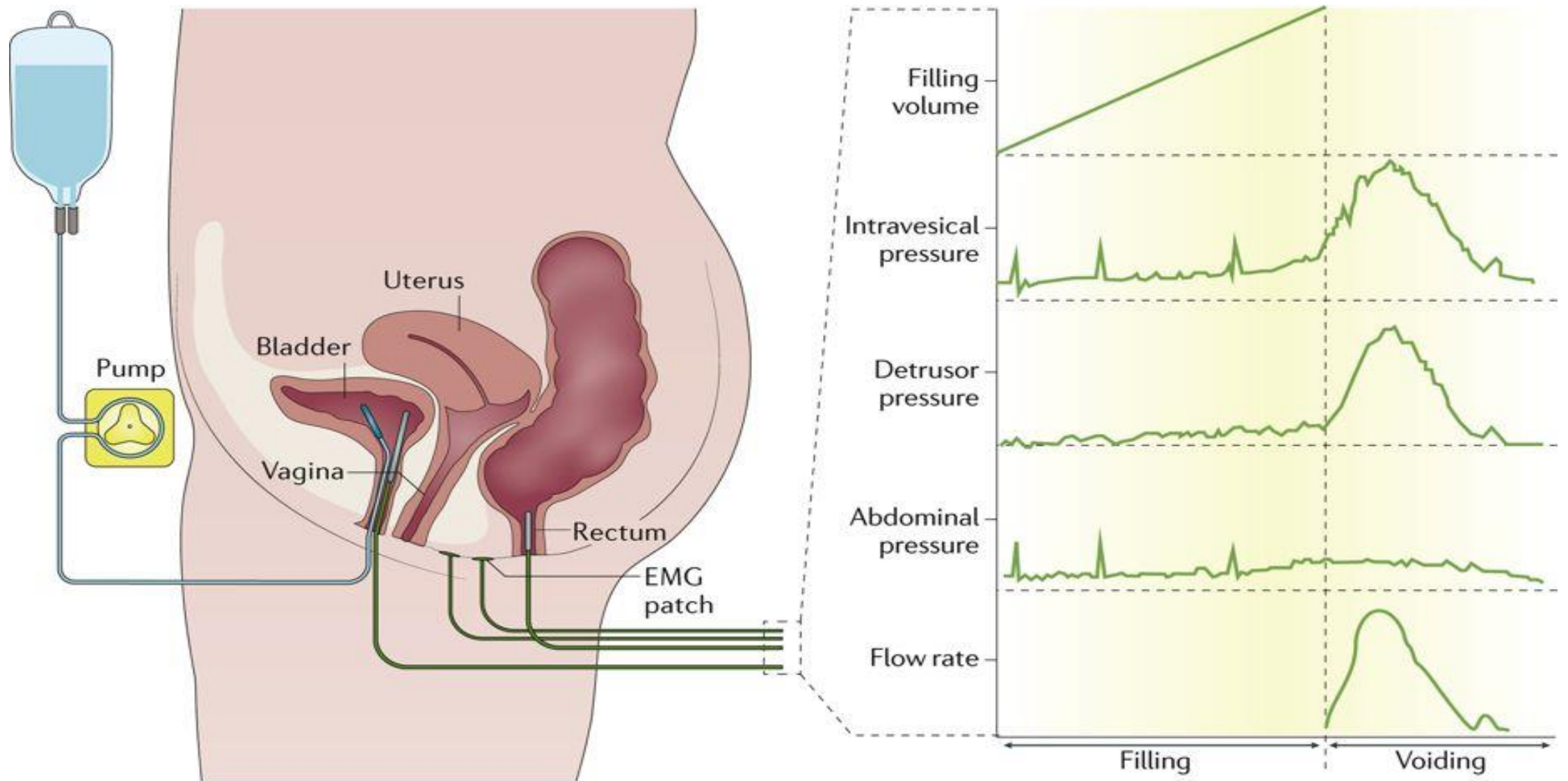
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Developed in consultation with
Dr. Patrick Culligan, M.D.
Weill Cornell Dept. of Urology, New York, NY


 Print

Stress Urinary Incontinence (SUI)

- History:
- Leakage events triggered by increase in abdominal pressure
 - Cough, sneeze, lifting, exercise, walking, standing
- Physical exam: Mobility of bladder neck
- Investigations: MSU, Bladder diary, Urodynamic testing



Nature Reviews | Disease Primers

Stress Urinary Incontinence (SUI)

- Physiotherapy:
- As previously discussed.
- Improvement in symptoms is a more likely outcome than outright cure.

Stress Urinary Incontinence (SUI)

- Surgical therapy-Slings



Pelvic Organ Prolapse: An Interactive Guide

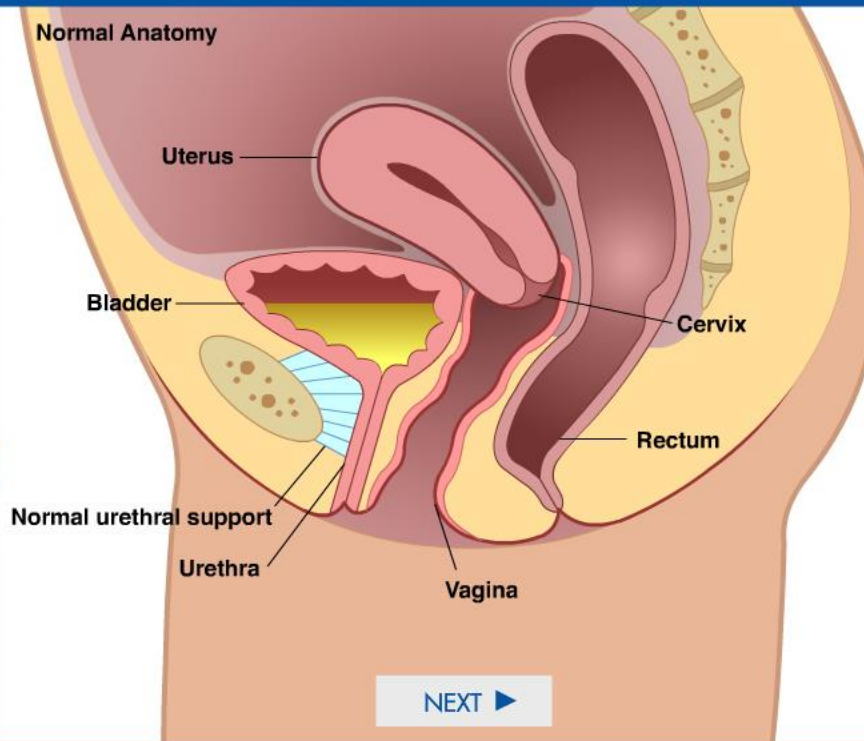
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Stress Urinary Incontinence (SUI)

- Surgical therapy-Slings
- Outcomes: Effectiveness:
 - Pubovaginal sling 89.4%
 - Retropubic Mid-urethral sling: 89.1%
 - Open colposuspension: 76.7%
 - Trans-obturator MUS: 64.1%

Imamura M et al BMJ June 2019

Stress Urinary Incontinence (SUI)

- Surgical therapy-Slings
- Complications:
- Voiding dysfunction: 4%
- Mesh Exposure 2%

Ford AA et al. Cochrane database. July 2017

Pubovaginal sling

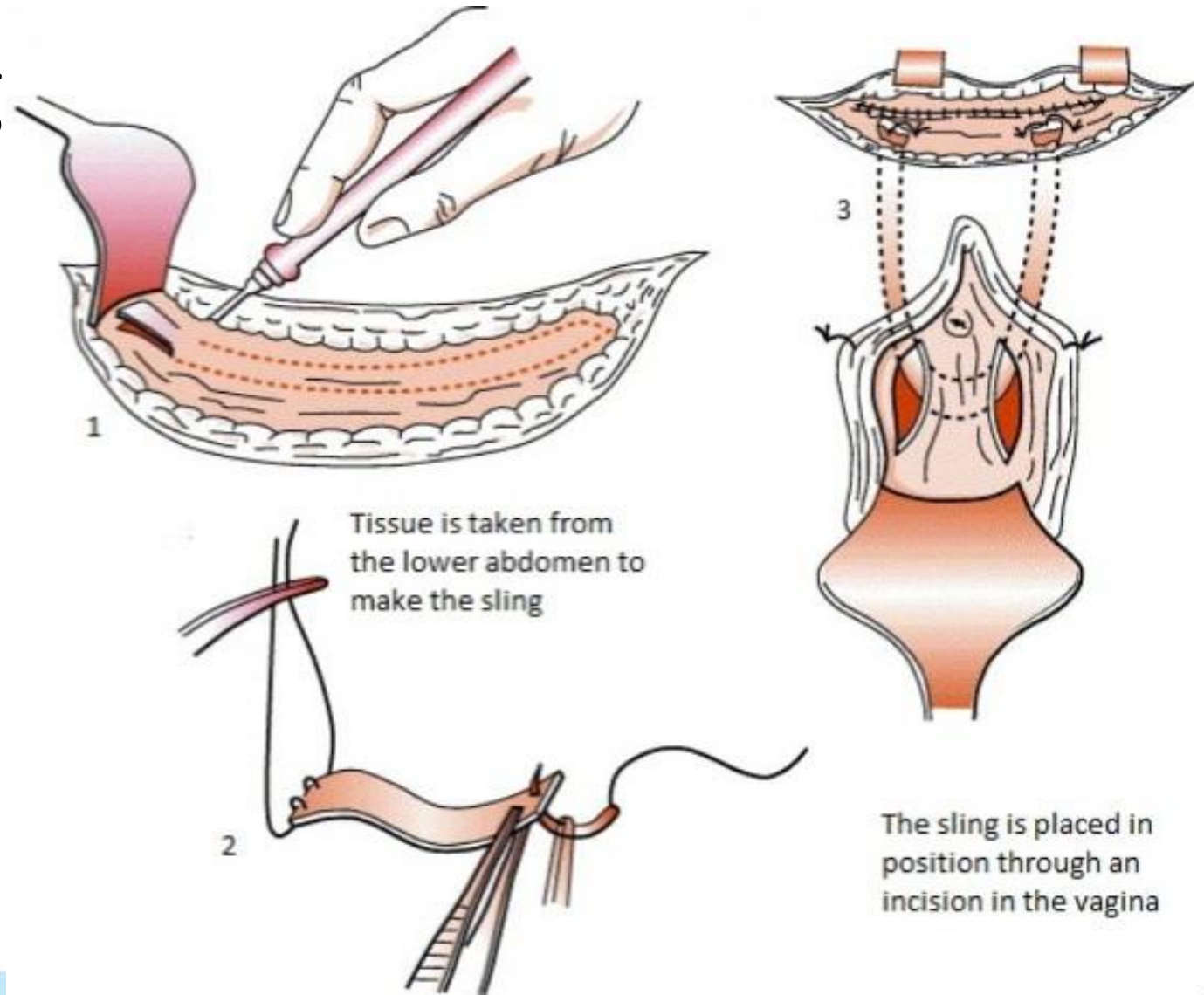


Image from Urology Associates

Mid urethral Sling

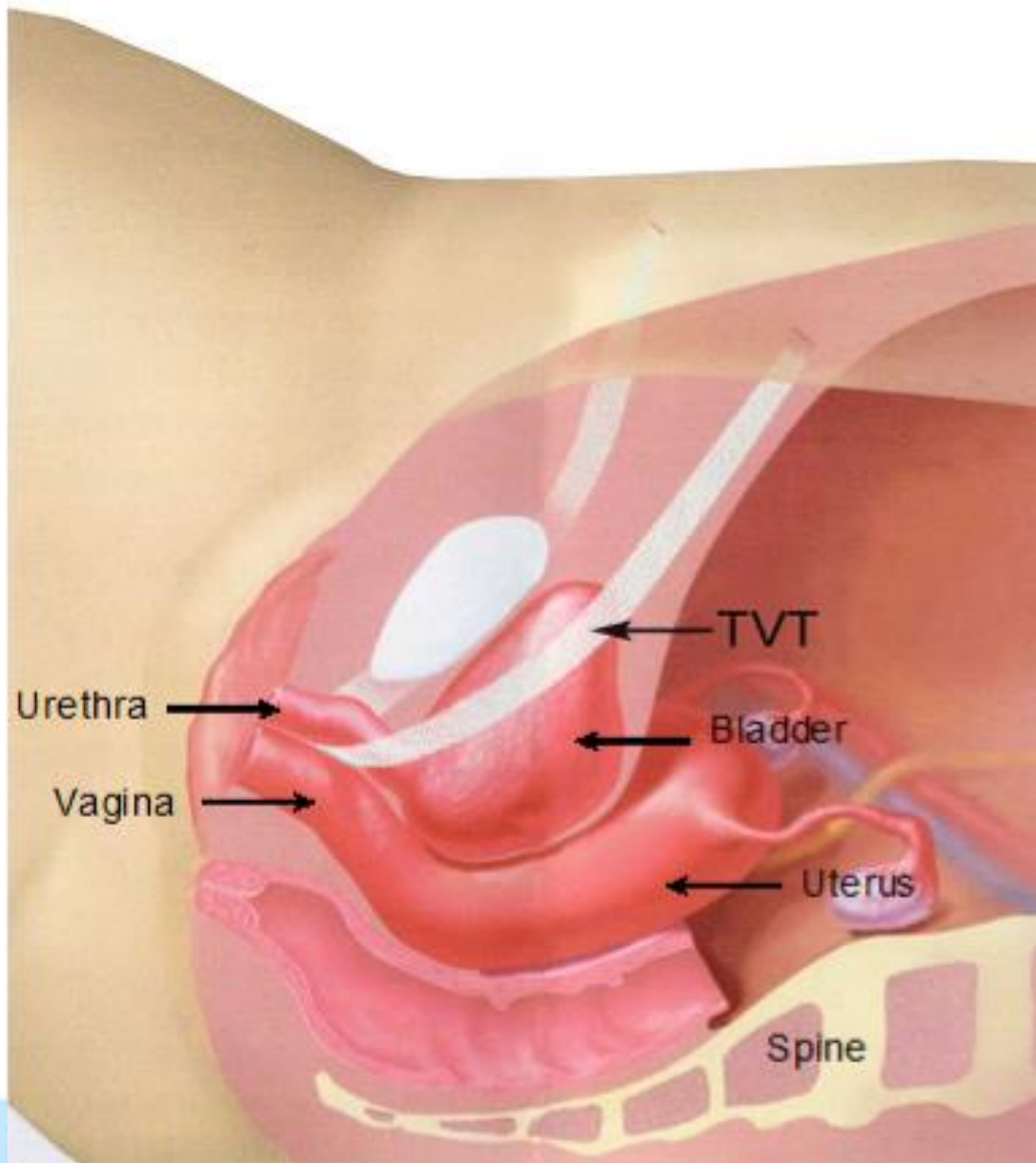


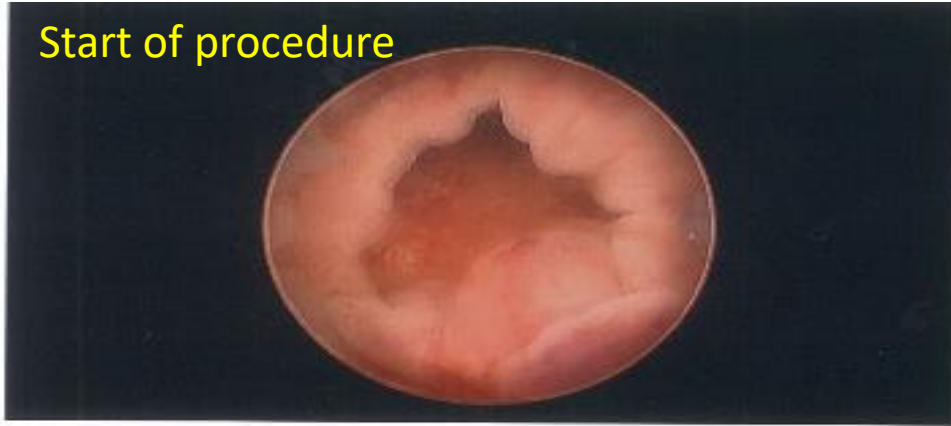
Image from Urology Associates

Stress Urinary Incontinence (SUI)

- Surgical therapy-periurethral injections
 - Macroplastique-polymethylsiloxane
 - Bulkamid-polyacrilimide
 - Coaptite-Calcium hydroxylapatite

Stress Urinary Incontinence (SUI)

Start of procedure



After injections at 4 and 8 o'clock positions



Final result after three injections.



Stress Urinary Incontinence

- Bulkamide: 80% success at 7 years
- Coaptite: 66.7% success at 2 years
- Macroplastique 64% success at 18 months

Stress Urinary Incontinence (SUI)

- MESH is a four letter word!
- Midurethral slings using mesh are under significant pressure from regulatory agencies and community activism
- Back to the Future: colposuspension and harvested tissue pubo-vaginal slings.
- Increased uptake of peri-urethral injections.

Overflow Incontinence

- Evaluation: Mainly history in GP practice.
 - Diabetes
 - Neurologic condition
 - Result of surgical therapy

Overflow Incontinence

- Evaluation:
 - MSU
 - Post-void residual (Bladder scanner or by catheter)

Overflow Incontinence

- Evaluation:
 - Formal UroFlow studies required so early referral is prudent!

Urinary Tract Fistula

- Etiology: Developed versus developing world
 - A result of ischemic injury from prolonged obstructed labour
 - Problematic where access to safe Caesarean delivery is limited

Vesico-vaginal fistula



From: Dr Tyler Muffly, Denver Health Care



From: Introduction to Obstetric Fistula Surgery. Brian Hancock

Urinary Tract Fistula

- The consequences of this are devastating as incontinence is continuous.

Urinary Tract Fistula in New Zealand

- Surgical injury
- Radiotherapy
- Cancer
- Congenital (ongoing unexplained incontinence in a child, or incontinence in an adolescent)

Urinary Tract Fistula

- Evaluation: Refer!
- Cystoscopy
- Dye testing
- Radiologic evaluation

Conclusions

- Thorough targeted history and brief physical exam can differentiate types of urinary incontinence
- Conservative measures should be trialled for managing SUI and UUI
- Pharmacotherapy can be initiated for UUI
- Referral is warranted for urodynamics and surgical management when conservative measures fail.
- Overflow incontinence and suspected fistula cases should be referred.

Questions?

