

Obstetrics & Gynecology TEAM



Urinary Incontinence

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◆ very important ◆ mentioned by doctor ◆ team notes ◆ not important

1-Normally you're emptying your bladder whenever you want and in the suitable conditions , so when the bladder is full it will send signals to the brain and usually you can hold for some time , if things happen out of the normal context then you're going to have involuntary loss of urine .

2-The main two urinary organs responsible for storage and emptying are : urinary bladder and urethra , but sometimes your bladder and urethra are normal but you have spinal cord injury that means sympathetic and parasympathetic which supply the bladder are effected , these pt usually come with weird presentation and unexpected age .

3-In normal circumstances the bladder should be relax and starts to contract during voiding .

4-(bladder) type of muscle : smooth muscle , type of receptors :cholinergic

When Ach released from nerve endings the bladder wall contract , if you want the wall relax you going to block these receptors by anti-cholinergic medications.

5-(urethra) type of receptors : alpha adrenergic , urethra muscle in rest :contract

What if the urethra is loose and there is leaking and you want the urethra to be more contracted ?you give alpha agonist . But what is the problem with these medication ???

Hypertension , because we have alpha receptors everywhere in our body mainly in heart and smooth muscle , so until now there is no medication targeting only the alpha adrenergic receptor of the urethra .

6- some of antidepressant medications have alpha adrenergic action (Rx of stress urinary in continence)

Definition:

involuntary loss of urine. Incidence ↑with age and parity.

Special thanks to 428 team work

Normal physiology:

normal continence occurs if the intravesical pressure is lower than urethral sphincter, HOW?

- By a relaxed detrusor muscle (muscle within bladder wall) with contracted bladder neck and urethra.
- Micturition (opposite): occur when intravesical pressure exceeds
- Urethral sphincter pressure, by contracting detrusor and relaxing sphincter.
- Urethral length: longer urethra better continence, so incontinence in ♀ (5cm) more than ♂ (12cm).
- Pubourethral ligaments: support the urethra, loss of support of these ligaments ☒ incontinence.

Statistics:

- 10-60% of women report urinary incontinence
- 50% of women that have had children develop prolapse
- Only 10-20% seek medical care

Impact of Urinary Incontinence on Quality of Life:

Psychological	1-Guilt/depression 2-Loss of self-respect and dignity 3-Fear of: <ul style="list-style-type: none"> ○ being a burden ○ lack of bladder control ○ urine odor 4-Apathy/denial	<p>Psychological—People with OAB often feel guilty about their symptoms, and some become depressed. The embarrassment of leaking or smelling of urine leads to a loss of self-respect and dignity.</p> <p>Social—Overactive bladder sufferers might restrict social activity outside the home for fear of leaking urine or because of the frequent need to use a toilet.</p> <p>Domestic—Some individuals with OAB use disposable pads on the bed during the night or undergarments for incontinence. These items can be costly and are not covered by medical insurance.</p> <p>Occupational—Overactive bladder may lead to decreased productivity in the workplace. Some patients may avoid going to work for fear of leaking urine.</p> <p>Sexual—Women with overactive bladder have reported avoiding dating and sexual intimacy because of overactive bladder symptoms and fear of leaking urine.</p> <p>Physical—Some physical activities like exercising might be limited because of the frequent need to urinate or fear of</p>
Social	1-Reduction in social interaction 2-Alteration of travel plans 3-Increased risk of institutionalization of frail older persons	
Domestic	1-Requirements for specialized underwear, bedding 2-Special precautions with clothing	
Occupational	Absence from work Decreased productivity	
Sexual	Avoidance of sexual contact and intimacy	
Physical	Limitations or cessation of physical activities.	

Compounding Problems:

- Embarrassment leads to silence
- Time constraints lead to inadequate attention
- Knowledge limits lead to patients accepting
- Technology limits lead to inadequate investigation
- Resource limits lead to inadequate access

Types of Urinary Incontinence:

1. Stress incontinence
2. Urge incontinence
3. Mixed
4. Overflow incontinence
5. Functional incontinence
6. Miscellaneous (UTI, dementia)

There are many types of urinary incontinence but the most common major two: stress and urge.

1-Stress incontinence :

Weak urethra + any small increase in intra-abdominal pressure (coughing , jumping...etc)= the pressure in the abdomen transmitted into bladder , so bladder pressure will exceed the pressure of the urethra resulted in leaking of urine . The problem in this type is in the urethra .

Rx: alpha adrenergic agonist to increase the pressure of the urethra

2- urge incontinence:

Sudden uncontrolled desire to void ,the problem here in the bladder wall (detrusor muscle)

Rx: anti- cholinergic medication

3-mixed : stress+ urge incontinence

4-Overflow incontinence:

the bladder filled to the maximum (500cc) , after this the bladder cant expand more , in these patients the bladder loss its sensation of expansion due neurological causes or damage to detrusor muscle

5-Functional incontinence:

Old lady with sever osteoarthritis (limited movement) or uses wheel chair, she needs time to reach bathroom , she gonna leak , because the problem here is not with here urinary organs (bladder send signals 20 mins ago) but with here mobility .

Rx : time voiding (every 3 hours)

6-Transient Incontinence : UTI , the incontinent will stop when infection controlled by antibiotic.

Types

Stress Incontinence:

- Loss of urine with increases in abdominal pressure
- Caused by pelvic floor damage/weakness or weak sphincter(s)
- Symptoms include loss of urine with cough, laugh, sneeze, running, lifting, walking

Urge Incontinence:

- Loss of urine due to an involuntary bladder spasm (contraction)
- Complaints of urgency, frequency, inability to reach the toilet in time, up a lot at night to use the toilet
- Multiple triggers:
Hearing water running ,caffeine, cold weather

<p>Mixed Incontinence:</p>	<ul style="list-style-type: none"> • Combination of stress & urge incontinence • Common presentation of mixed symptoms • <u>Urodynamics</u> necessary to confirm <p>Its very specialized test , we insert catheter inside the bladder and the other one either in the rectum or vagina then we start to fill the bladder with water and measure the pressure in the bladder , and every time when reaches 100 cc you ask her to cough , another 100 cc you ask her to cough ..etc</p> <p>1- if she leaks without increase in intra-vesicle pressure >>> stress incontinence 2- if she leaks with increase intra-vesicle pressure>>>urge incontinence</p>
<p>Chronic Urinary Retention:</p> <p>Some patients with previous surgery in the urethra or having urithitis (chlamydia)or any infection that lead to scar tissue formation , then the outlet of bladder is obstructed</p> <p>Chronic retention can present as :</p> <p>1- overflow incontinence . 2- urgency , frequency</p>	<ul style="list-style-type: none"> • Outlet obstruction or bladder under activity • May be related to previous surgery, aging, development of bad bladder habits, or neurologic disorders • Medication, such as antidepressants • May present with symptoms of stress or urge incontinence, continuous leakage, or urinary tract infection
<p>Functional and Transient Incontinence:</p>	<ul style="list-style-type: none"> • Mostly in the elderly • Urinary tract infection • Restricted mobility • Severe constipation • Medication - diuretics, antipsychotics • Psychological/cognitive deficiency
<p>Unusual causes of urinary incontinence</p>	<ul style="list-style-type: none"> • Urethral diverticulum <p>Ballooning of urethra wall</p> <ul style="list-style-type: none"> • Genitourinary fistula <p>e.g between bladder and vagina</p> <ul style="list-style-type: none"> • Congenital abnormalities (bladder extrophy, ectopic ureter) • Detrusor hyperreflexia with impaired contractility <p>In patient with MS or spinal cord injury when the bladder in spasm but not enough to emptying the bladder.</p>

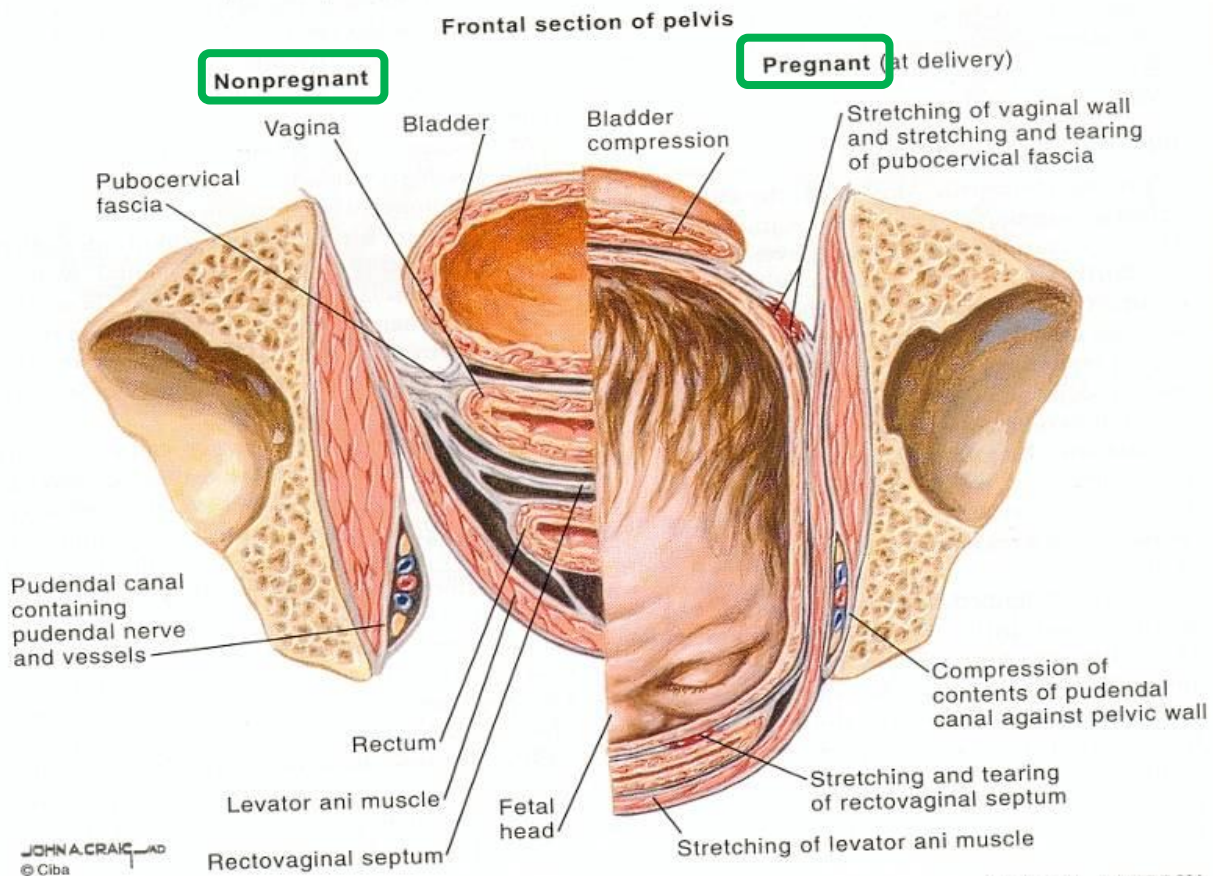
Causes of Incontinence:

Inherited or genetic factors:

- Race
- Anatomic differences
- Connective tissue
- Neurologic abnormalities

External factors

- **Pregnancy and childbirth** Because of mechanical and hormonal effect on ligaments and muscles
- **Aging**
- **Hormone effects**
- **Non-obstetric pelvic trauma and radical surgery**
- **Increased intra-abdominal pressure** Especially if its chronic e.g. cough , constipation
- **Drug effects** Antidepressants , diuretics



During child birth , when baby's head passes through the pelvis : bladder get compressed against pubic bone , that's why in delivery we always have to empty the bladder because if its full its gonna rupture .
The worst situation after childbirth is pudendal nerve damage because with time muscle will get damage (atrophy)

Causes	
Urogenital Damage/dysfunction:	<ul style="list-style-type: none"> • Vaginal delivery • Aging • Estrogen deficiency • Neurological disease • Psychological disease
Aging:	<ul style="list-style-type: none"> • Gravity • Neurologic changes with aging • Loss of estrogen • Changes in connective tissue crosslinking and reduced elasticity
Pregnancy and Childbirth:	<ul style="list-style-type: none"> • Hormonal effects in pregnancy • Pressure of uterus and contents • Denervation (stretch or crush injury to pudendal nerve) • Connective tissue changes or injury (fascia) • Mechanical disruption of muscles and sphincters
Hormone Effects:	<ul style="list-style-type: none"> • Common embryonic origin of bladder urethra and vagina from urogenital sinus • High concentration of estrogen receptors in tissues of pelvic support • General collagen deficiency state in postmenopausal women due to the lack of estrogen (falconer et al., 1994) • Urethral coaptation affected by loss of estrogen
Increased Intra-abdominal Pressure:	<ul style="list-style-type: none"> • Pulmonary disease • Constipation/straining • Lifting • Exercise • Ascites/hepatomegaly • Obesity
Drug Effects: *Drugs causing incontinence <u>Remember</u>: we want alpha action not alpha blocking	<ul style="list-style-type: none"> • Alpha-blocking agents • Terazosin • Prazosin • Phenoxybenzamine • Phenothiazines • Methyldopa • Benzodiazepines

Patient Evaluation


- History
- Physical examination (general ex include neurological ex)
- Urinalysis
- PVR - if indicated (very important)
 - Symptoms of incomplete emptying
 - Longstanding diabetes mellitus
 - History of urinary retention
 - Failure of pharmacologic therapy
 - Pelvic floor prolapse
 - Previous incontinence surgery

<p>Patient History:</p>	<ul style="list-style-type: none"> • Focus on medical, neurologic, genitourinary history • Review voiding patterns/fluid intake • Voiding diary • Review medications (rx and non-rx) e.g. herbals • Explore symptoms (duration, most bothersome, frequency, precipitants) • Assess mental status and mobility 	<p>Symptoms:</p> <ul style="list-style-type: none"> • Frequency • Nocturia • Dysuria • Incomplete emptying • Incontinence • Urgency • Recurrent infections • Dyspareunia • Prolapse
<p>Physical Examination:</p>	<ul style="list-style-type: none"> • General examination <ul style="list-style-type: none"> - Edema, neurologic abnormalities, mobility, cognition, dexterity • Abdominal examination • Pelvic and rectal exam - women • Examination of back and lower limbs • Observe urine loss with cough 	
<p>Urinalysis:</p>	<ul style="list-style-type: none"> • Conditions associated with overactive bladder • Hematuria • Pyuria • Bacteriuria • Glucosuria • Proteinuria • Urine culture 	
<p>Postvoid Residual Volume (PVR): Its above your level ,don't remember numbers but ideally we want it low (should be less than 50% of what she voided) e.g.1- if she voided 700 ml and PVR is 150 that's ok 2-if she voided 200 ml and PVR is 150 that's too high</p>	<ul style="list-style-type: none"> • If clinically indicated accurate PVR can be done by • Catheterization • Ultrasound • PVR of <50 ml is considered adequate, repetitive PVR >200 ml is considered inadequate • Use clinical judgement when interpreting PVR results in the intermediate range (50-199 ml) 	

Treatment: Depends on the type, signs and symptoms.

Non-surgical

- Fluid management
- Reduce caffeine, alcohol, and smoking
- Bladder retraining
- Pelvic floor exercises
- Pessaries
- Continence devices
- Hormone replacement therapy
- Medication to help strengthen the urethra
- Medication to help relax the bladder

Non- surgical treatment	
Fluid management	1-Avoid caffeine and alcohol 2-Avoid drinking a lot of fluids in the evening
Bladder retraining	1-Regular voiding by the clock 2-Gradual increase in time between voids 3-Double voiding
Physiotherapy	1-Pelvic floor exercises (Kegels) 2-Biofeedback 3-Electrical Stimulation 4-Vaginal cones
Pelvic Floor Muscle Training Its very effective especially in stress incontinence , we ask pt to do kegel exercise 60% of symptoms will improved by doing this exercise especially mild cases	1-Kegels 2-Biofeedback 3-Electrical Stimulation 4-Vaginal Cones → 
Pessaries	1-Support devices to correct the prolapse 2-Pessaries to hold up the bladder
Hormone replacement	1-Systemic 2-Local -Vaginal cream -Vaginal estrogen ring
Medication to strengthen the urethra In stress inc...: antidepressant	Cold medication -Ornade
Medication to relax the bladder In urge inc...: anti- cholinergic	1-Oxybutynin (ditropan) 2-Toteridine (detrol) 3-Flavoxate (urispas) 4-Imipramine (elavil)

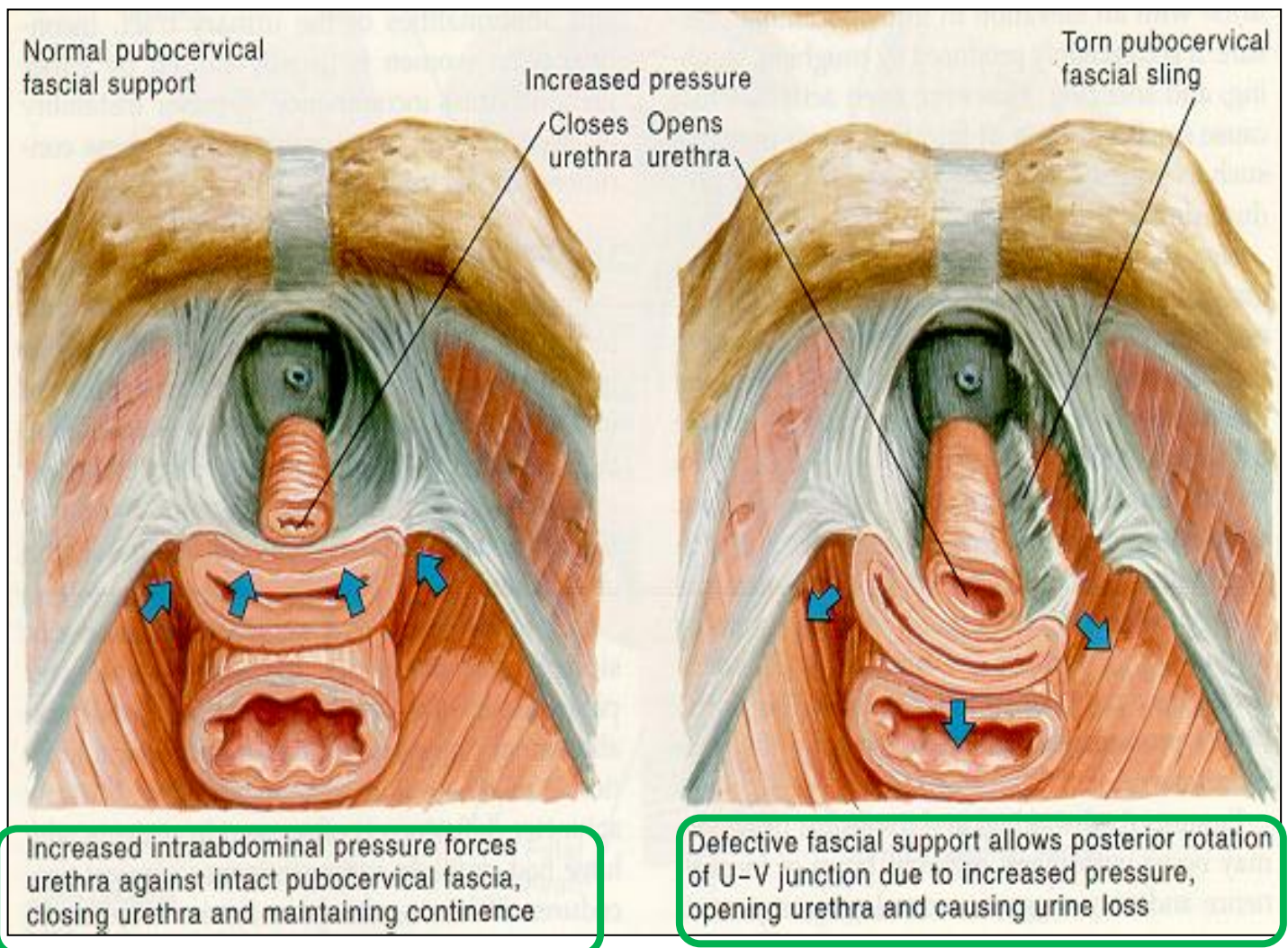
Surgical :

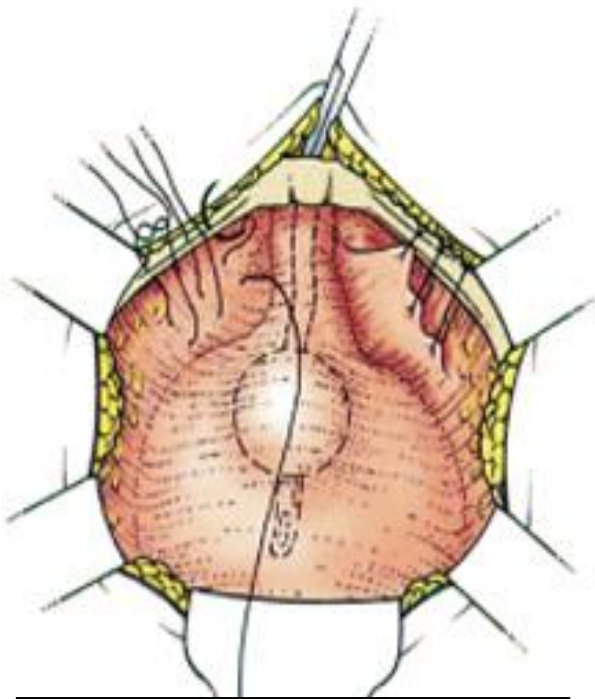
- Only For stress incontinence
- Theories:
 - 1) bladder neck elevation
 - 2) integral theory (ulmsten)

Hyper mobility of urethra

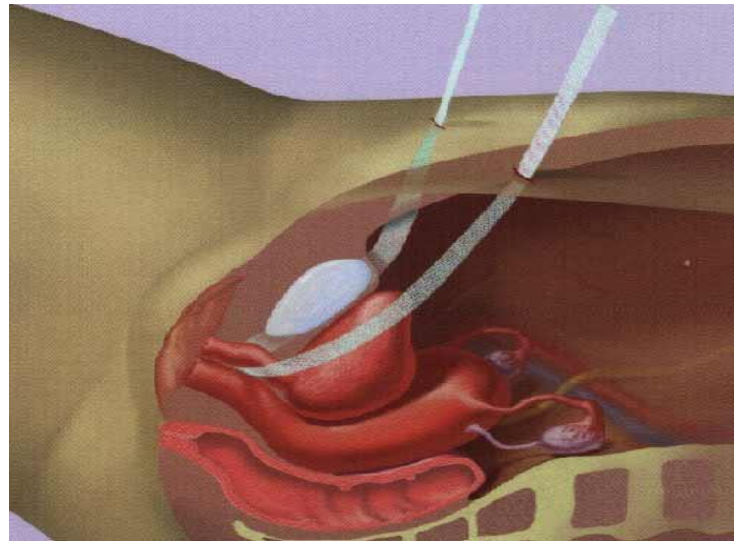
- Types:

- 1) Burch repair the golden standards are : Bruch and TVT
- 2) Marshall-marchetti-krantz repair
- 3) Sling
- 4) Needle suspension
- 5) Injections
- 6) Tension free vaginal tape





Abdominal approaches :Open retropubic colposuspension : Burch or MMK

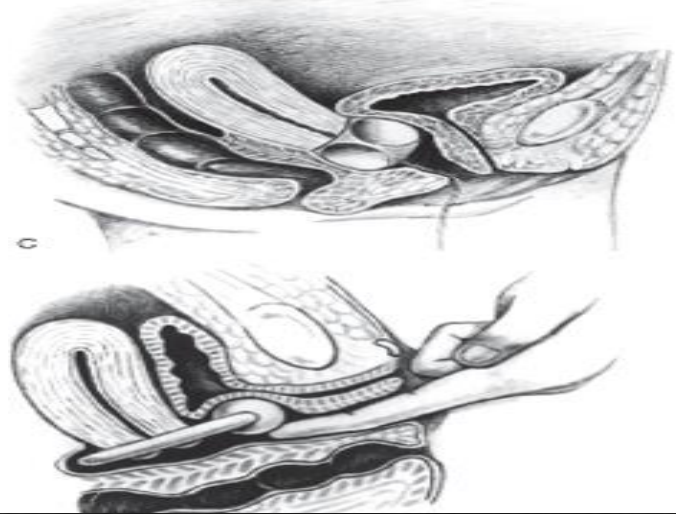


TVT: in tension-free vaginal tape (TVT) procedure, a mesh tape is placed under your urethra like a sling or hammock to keep it in its normal position. The tape is inserted through tiny incisions in your abdomen and vaginal wall



▶ [Klik om de animatie af te spelen \(3,77 MB\)](#)

TVT-O (TOT)



Pessaries

Summary

- 1. Urinary incontinence occurs in about 30% of women, all women should be asked about bothersome incontinence.**
- 2. Interview alone often indicates if the problem is from stress or urge incontinence and can suggest first line therapy.**
- 3. Stress incontinence can be treated effectively with surgery, which for most cases is minimally morbid or invasive**