



มหาวิทยาลัยราชภัฏนครปฐม



4172701 Adult Nursing 1

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Learning outcomes



- Describe patients with abnormalities in the urinary system.
- Describe Pathology, signs and symptoms of patients with abnormalities in the urinary system.
- Describe treatment in patients with abnormalities in the urinary system.
- Describe nursing diagnosis and nursing care in patients with abnormalities in the urinary system.

Urinary tract disorders: overview



- urinary tract infection : cystitis, Pyelonephritis
- acute glomerulonephritis
- Lithiasis
- CA bladder
- neurogenic bladder
- acute kidney injury
- chronic kidney disease
- male reproductive disorders

Urinary tract disorders

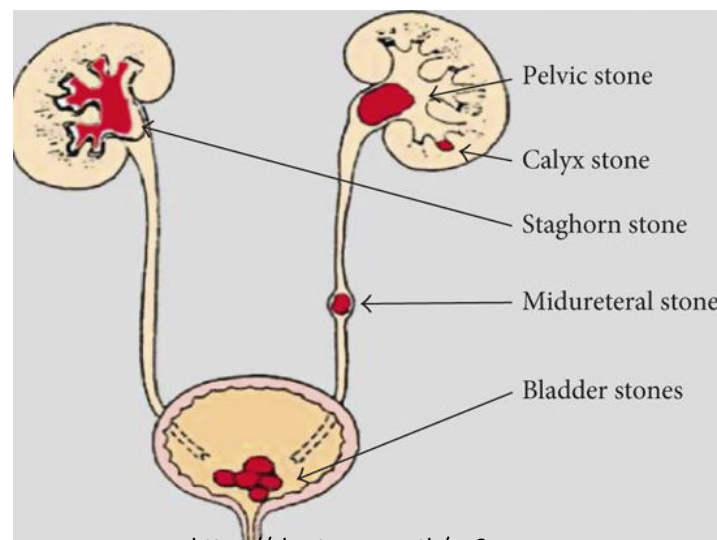


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Part 2 Non infection

Urolithiasis

- Renal stones are formed within the kidneys, and this is called nephrolithiasis.
- Urolithiasis is a condition that occurs when these stones exit the renal pelvis and move into the remainder of the urinary collecting system, which includes the ureters, bladder, and urethra.



<https://short.npru.ac.th/av6>

Urolithiasis

Types of kidney stones



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Calcium Kidney Stones 80 %



Risk Factors:

Calcium or vitamin D dietary supplement

Foods - very high in Oxalates

Avocados, Dates, Grapefruit, Kiwi, Orange, Raspberries, Spinach and Tomato Sauce.

Struvite Stone 10 %



Composed of magnesium, ammonium and phosphate

Risk Factors:

Urinary tract infections: Proteus mirabilis, Klebsiella pneumonia, Enterobacter, and Pseudomonas aeruginosa.

Uric Acid Stone 9 %



Risk Factors:

Diarrhea and Gout

Cystine stones 1 %



Risk Factors:

Rare disorder called "Cystinuria"

Urolithiasis

Signs & symptoms



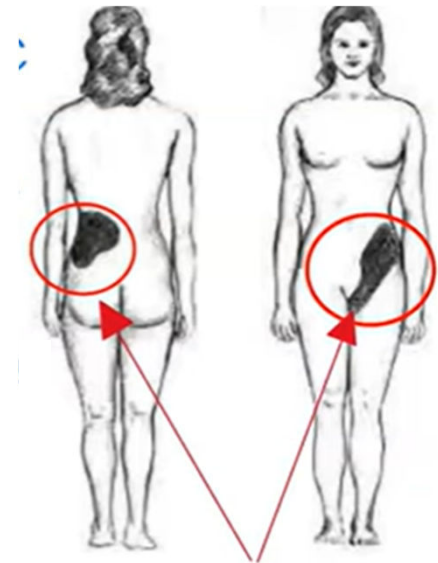
Fever



**Stomach
pain**



**Blood in
the urine**



Pain radiates
from the flank to
the groin or to
the inner thigh.



Backache

Pain lasting 20 to 60 minutes



Dizziness



Dizziness

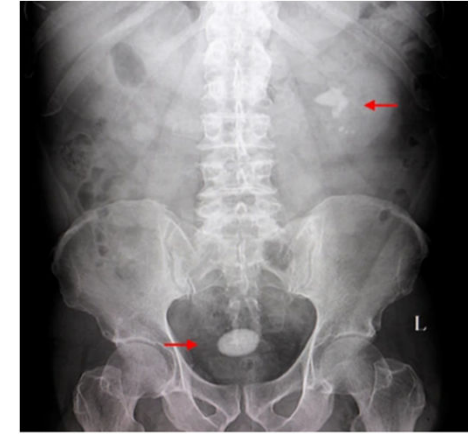


Vomiting

Urolithiasis

Physical Exam

- Urine analysis (UA)
- Blood: CBC, BUN, Cr.
- Imaging: ultrasound, KUB, IVP, CT, MRI
- cystoscopy

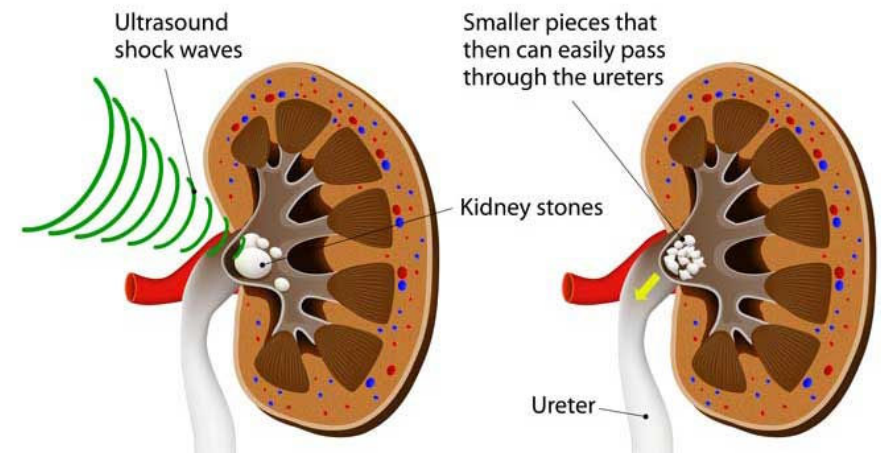


Conservative medical therapies:

- Approximately 86% of stones will pass spontaneously within 30-40 days.
- **pain control:** Oral and IV anti-inflammatory medications (NSAIDs), opioid
- **Nausea and vomiting:** IV antiemetic medications such as ondansetron, metoclopramide, promethazine
- **Dehydrated:** IV crystalloid fluids
- **uralyte-U**

Surgical interventions:

- extracorporeal shockwave lithotripsy (ESWL)
- flexible ureteroscopy (URS)
- percutaneous nephrolithotomy (PCNL)
- Pyelolithotomy
- Nephrolithotomy
- Nephrectomy
- Suprapubic cystolithotomy
- Litholapaxy





- Acute pain management
- Infection control.
- Stone removal.
- Prevention of stone recurrence
- Renal function preservation.
- Education and patient awareness.
- Lifestyle modifications.
- Prevent complication

Bladder cancer



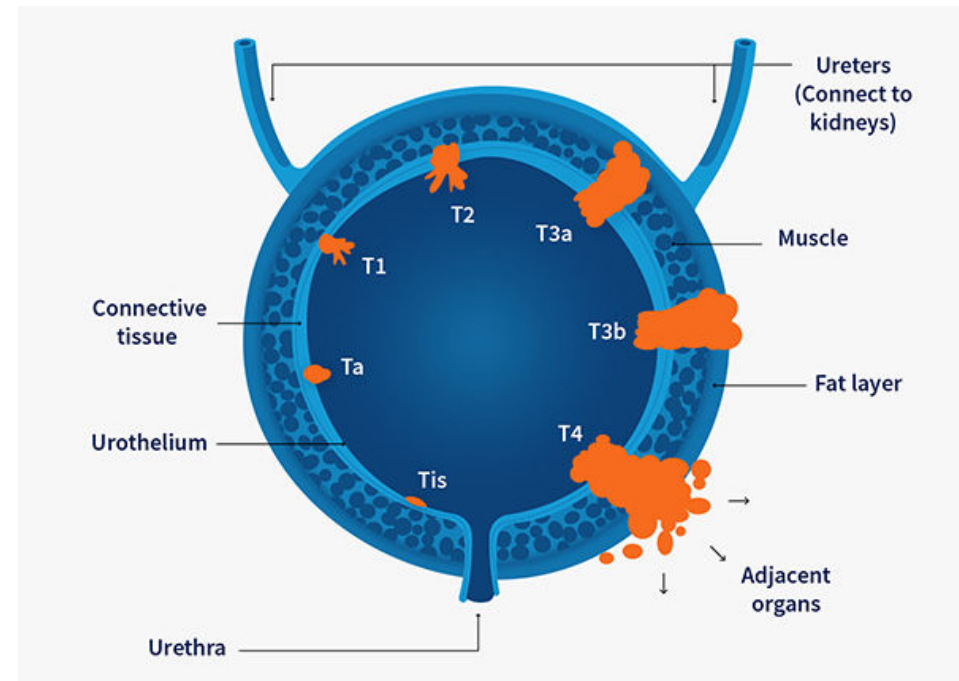
- Bladder cancer occurs when cells in the bladder start to grow without control

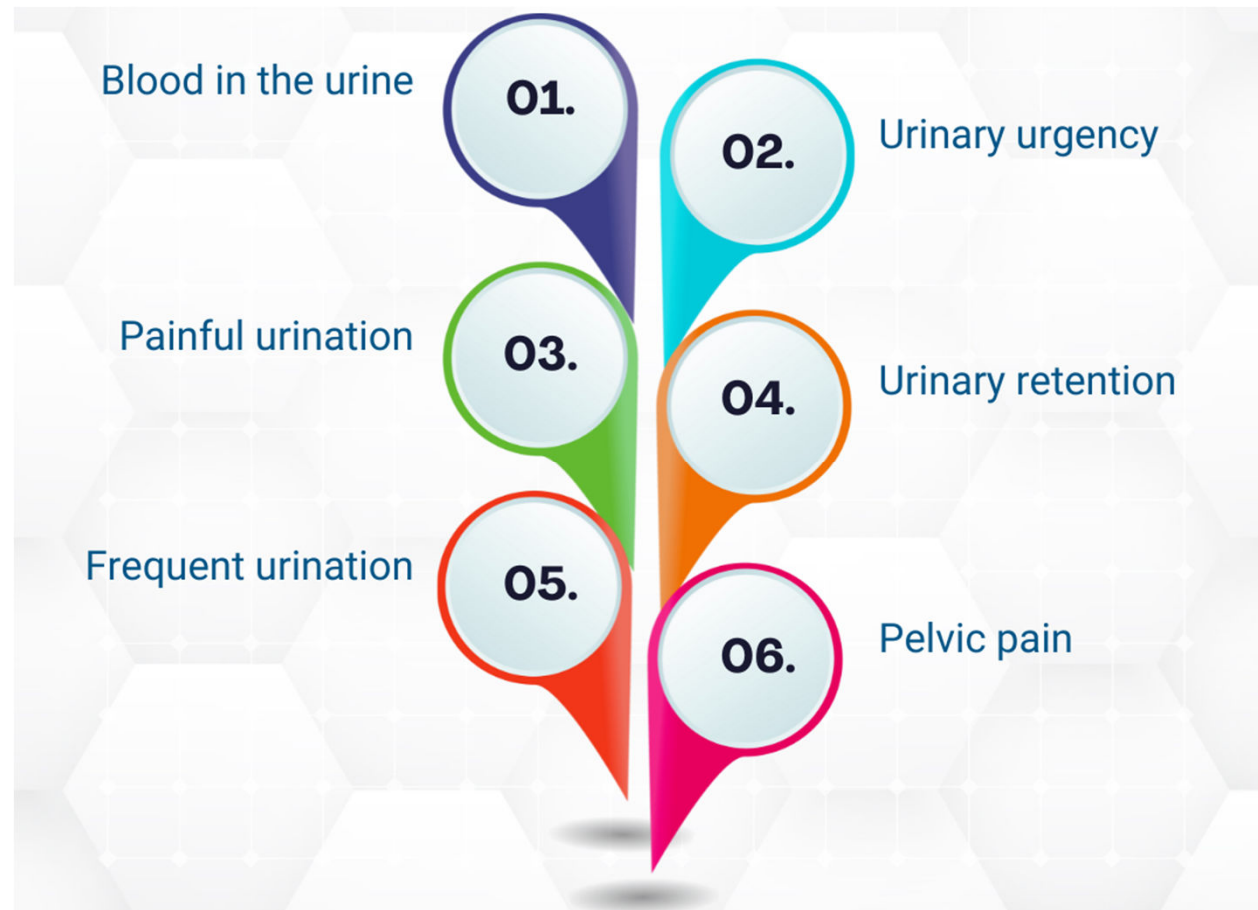
Bladder cancer

Types

- **Transitional cell carcinoma:** begins in the urothelial cells
- **Squamous cell carcinoma:** begins in squamous cells
- **Adenocarcinoma:** begins in glandular cells
- **Small cell carcinoma of the bladder:** begins in neuroendocrine cells

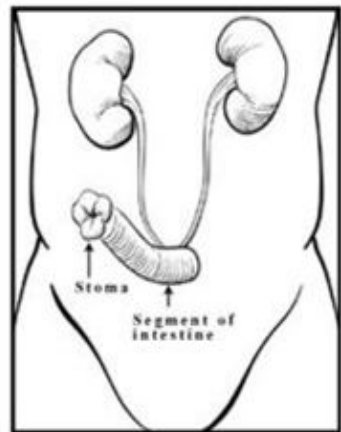
Stage



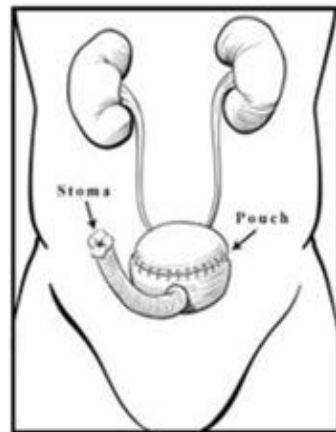


1. Surgery: remove the tumour and any surrounding tissue that may be affected.
2. Chemotherapy: uses drugs to kill cancer cells.
3. Radiation Therapy: uses high-energy beams to kill cancer cells.
4. Immunotherapy: boosts the body's immune system to help fight cancer cells.

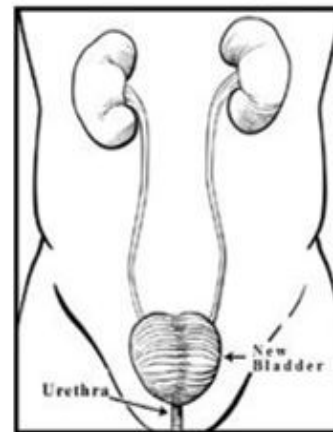
urinary reconstruction and diversion



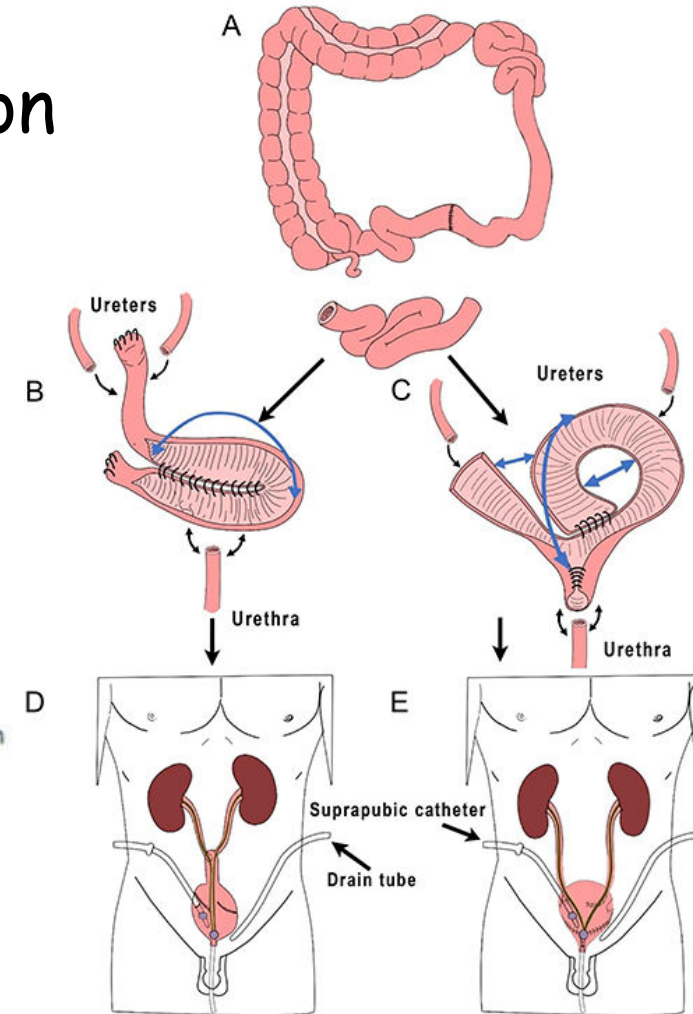
Ileal conduit urinary diversion



Indiana pouch reservoir



Neobladder to urethra diversion



<https://short.npru.ac.th/avg>

Bladder cancer

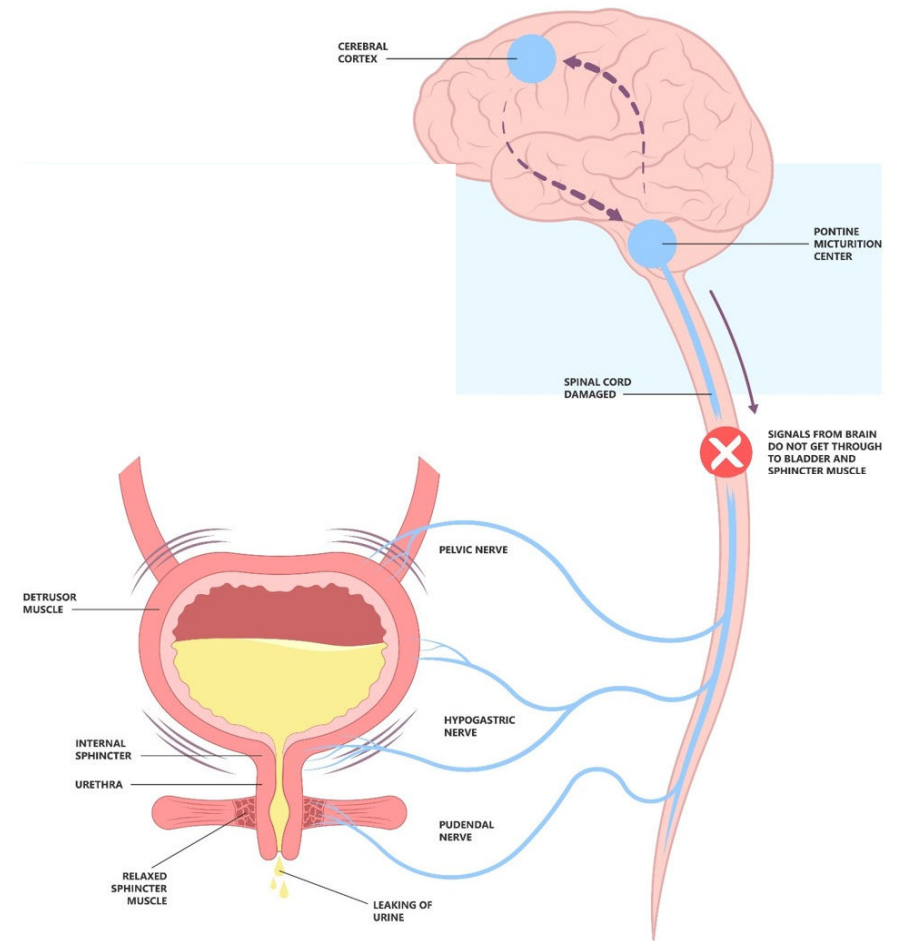
Nursing care plans for cancer involve assessment, support for therapies (e.g., chemotherapy, radiation, etc.), pain control, post operation, promoting nutrition, and providing emotional support.

Ex. Nursing diagnosis

- Impaired urinary elimination related to hematuria and transurethral surgery
- Acute pain related to irritative voiding symptoms and catheter related discomfort
- Anxiety related to diagnosis of cancer

Neurogenic bladder

Neurogenic Bladder:
Neurogenic Lower Urinary Tract Dysfunction, is when a person lacks bladder control due to brain, spinal cord or nerve problems.



Neurogenic bladder

Symptom



- **upper motor neuron damage:** loss of control of bladder contraction
→ bladder **cannot hold and store urine**, frequent urination, urgency, and urgent incontinence.
- **lower motor neuron damage:** failure to deliver the message of a full bladder to the brain
→ bladder to **hold too much urine and fail to empty the bladder**, dysuria, frequent urination, urgency, nocturia, inflammation, infection, and urine incontinence.



Neurogenic bladder

Treatment

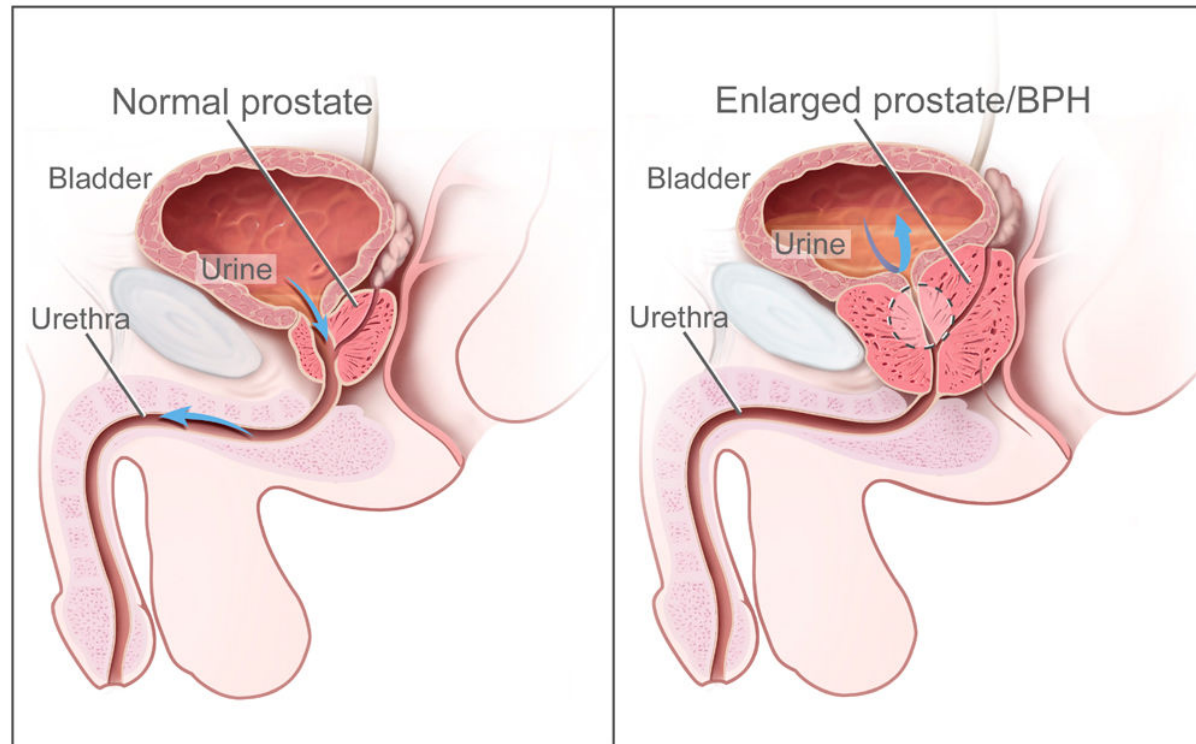


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- medication : Anticholinergics, Beta-3 adrenergic receptor agonists
- intermittent catheterization, Bladder training
- Surgical treatment
- Lifestyle modification

Benign Prostate Hypertrophy: BPH

A noncancerous enlargement of the prostate gland that can make urination difficult.





- BPH becomes increasingly common as men age, especially **after age 50**.
- The precise cause is not known but probably involves changes caused by **hormones**, including testosterone and especially dihydrotestosterone
- Drugs such as over-the-counter **antihistamines** and nasal **decongestants** can increase resistance to the flow of urine or reduce the bladder's ability to contract, causing temporary blockage of urine flow out of the bladder in men with BPH.

Irritative symptoms

urgency

nocturia

frequency

Obstructive symptoms

Urine hesitancy

intermittency

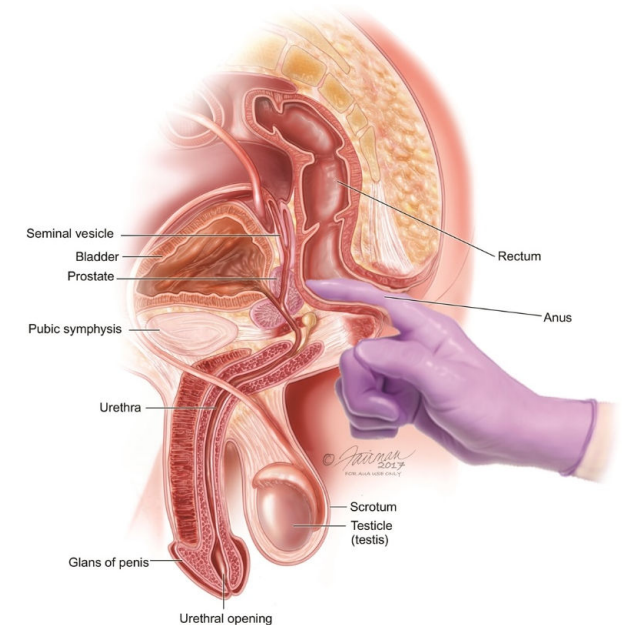
Post void dribbling

Straining

Incomplete emptying

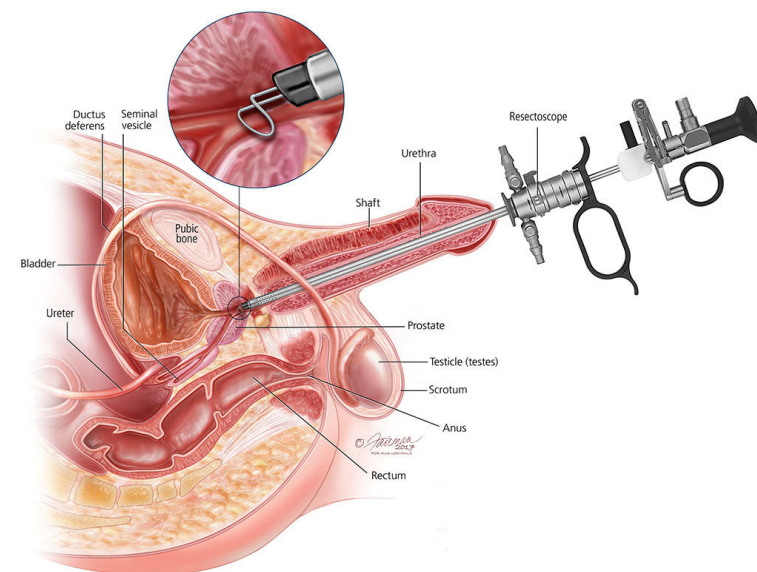
Decrease force of urination

- A digital rectal exam
- Urine Tests: Urinalysis , Post-void residual volume, Uroflowmetry
- Scans: Ultrasounds, Cystoscopy, MRI, CT
- Blood Tests: Prostate-specific antigen (PSA)

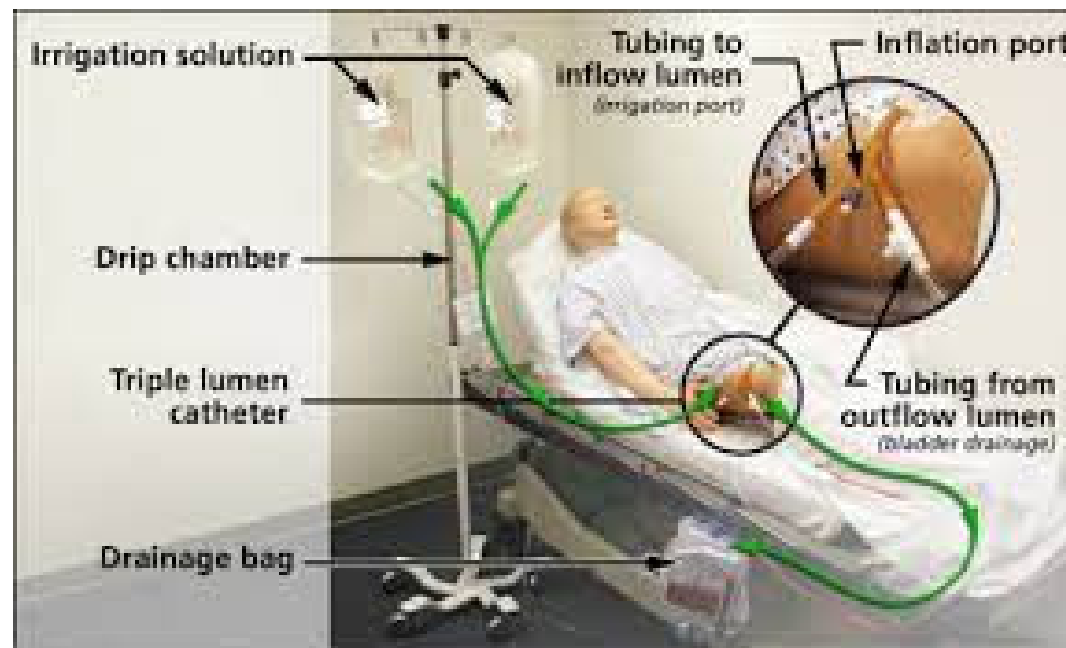


- Drugs:
 - Alpha blockers: prazosin, doxazosin (cardura)
 - 5-Alpha reductase inhibitors: finasteride (proscar), dutasteride (avodart)
 - Combined therapy
- Surgery
 - transurethral resection of prostate (TURP)
 - transurethral incision of prostate (TUIP)
 - suprapubic prostatectomy
 - retropubic prostatectomy
 - perineal prostatectomy
 - urethral dilatation
 - TUMT

PROSTATE - Transurethral Resection (TURP)



- Continuous bladder irrigation (CBI) is a medical procedure that flushes the bladder with sterile liquid
- It use to prevent or remove blood clots after surgery in the urinary system



BPH

CBI



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CBI care:

- Check the color of the urine.
- Control the drip and flow of the sterile solution, speeding it up or slowing it down as needed.
- Empty the drainage bag frequently.
- Measure urine output (how much comes out).
- Monitor blood, clots or debris in the urine.
- Replace a bag of sterile saline when it's empty.

<https://short.npru.ac.th/b03>

Irrigation Rate Color Grade	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
	ml/h	300~400	500~700	900~	2200~2800	2700~3300
gtt/min	50~70	80~120	150~	370~470	450~550	900~1080
3000 ml per bag/ time (h)	7.5~10	4~6	2.5~	1~1.5	1	0.5





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