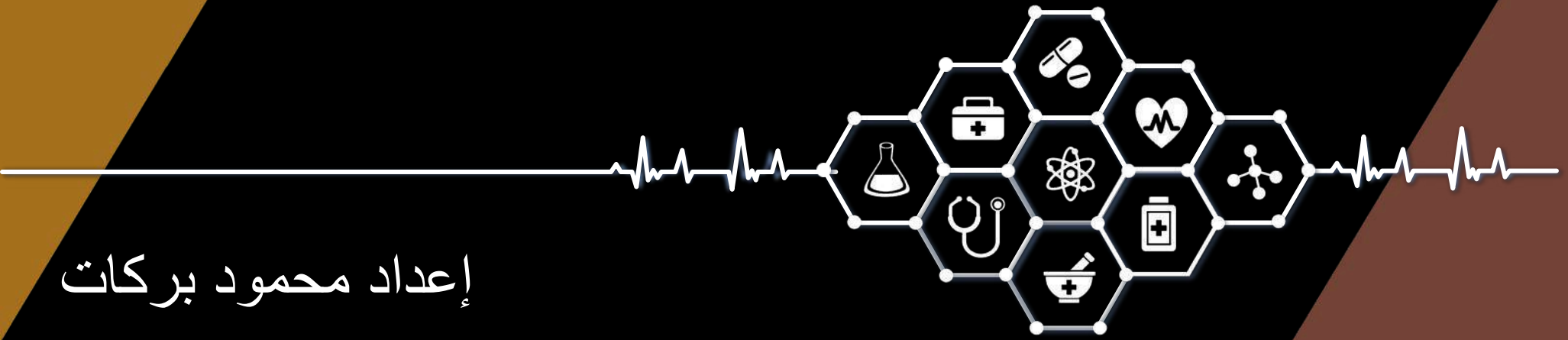
Ur olog y
Mini-OSCE Dossier

2025edition



إعداد محمود بركات

الملاحظات

- شامل لأسئلة سنوات حتى شهر ١١ -٢٠٢٥
- الملف مرتب حسب المواضيع تحت كل موضوع فيه ملاحظات الدكاترة وأسئلة السنوات
- أسئلة السنوات المكررة تم جمعها بسؤال واحد ووضع عدد مرات تكرار السؤال في هامش أعلى الصفحة من جهة اليمين أو على يسار السؤال
- أي كتابة بصندوق يعتبر هامش للملالاحظات
- معاني الألألوان: المهم، ملالاحظات أو إضافات أو أسئلة من عندي، معلومات إضافية
- الكلالام الي بلغتكم فيه بدوسيه الألأشعة قائم برضوعلى هذا الملف وأي الملفاتثانية اشتغلتها ويا ريتبس هبل
- تذكير ان هذا ملف فيه أهم الألأشياء وليس ملف جامع مانع للمادة بالكامل

Last update: 11/2025

العناوين الرئيسية

1.Introduction

2.signs & symptoms

3.investigations

4.catheterization

5.neurogenic bladder

6.Trauma

7.UTI

8.Urolithiasis

9.Pediatric urology

10.Renal Tumor

11.Bladder CA

12.BPH

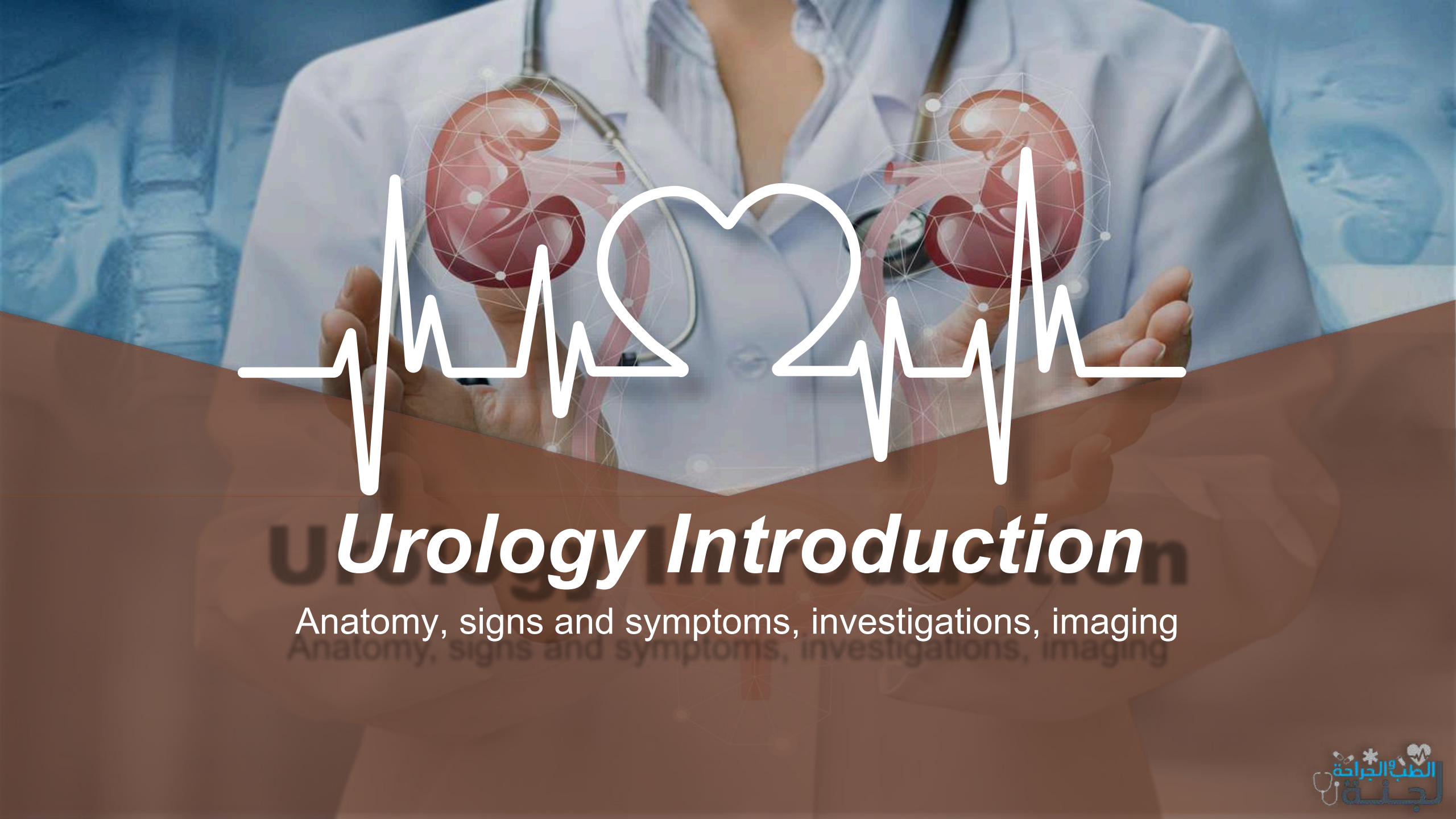
13.Prostatic Tumor

14.Benign scrotal swelling

15.Testicular Tumor

16.Erectile dysfunction

17.Male infertility



Urology Introduction

Anatomy, signs and symptoms, investigations, imaging

Anatomy

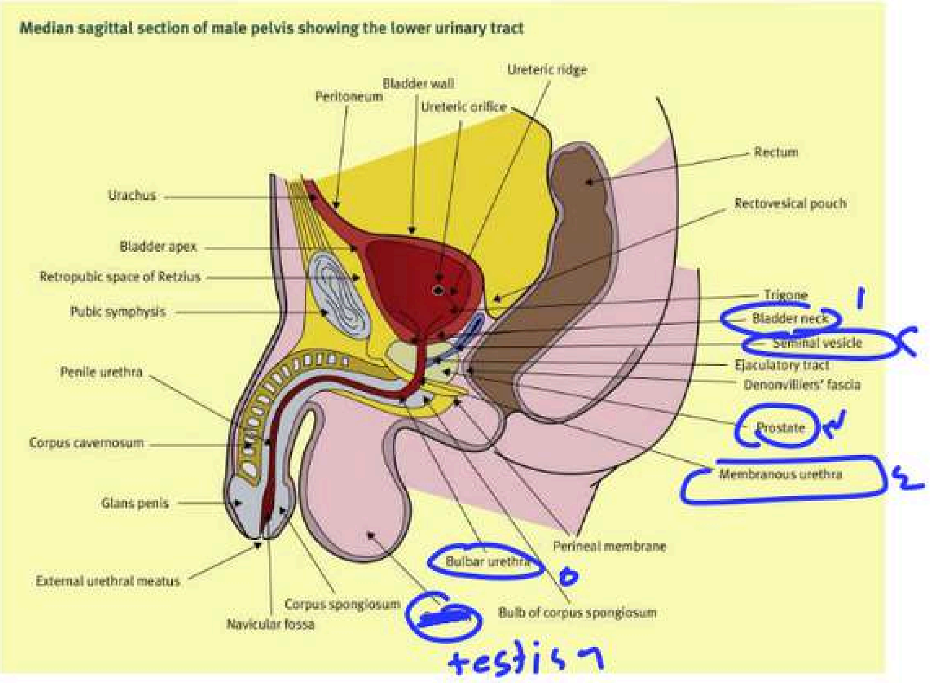
- **Upper urinary tract**: Kidney+Ureter
- **Lower urinary tract**:Bladder+Urethra
- **Parts of the male urethra from anterior to posterior (من د.سامرالرواشدة)**:
  - External urethral meatus ⟶ Fossa naviculars ⟶ penile(spongy) urethra ⟶ Bulbar urethra → Membranous urethra ⟶ Prostatic urethra ⟶ Preprostatic urethra ⟶ bladder neck ⟶ bladder
- **Clinical importance of the fossa navicularis**:
  - It’s the widest part of the urethra (Foley’s catheter is inserted through this area and inflated 1-2 ml).

oPathologies in this part (Urethral stricture, Urethral injury, Stenosis, Tumors).

* سؤال الصورة وعليها أجزاء أناتومي ونكتب كل جزء (رمز + اسم)

Q8

1. most of semen fluid produced in??
Seminal vesicle
2. most common part associated with urethral-injury in pelvic fracture??
Membranous urethra
3. ??site of action of a-blocker in BBH-
Bladder neck
4. ??site of production PSA-
Epithelial cells of prostate



Signs and Symptoms of GUT

شرح

1. Abnormalities in urine volume, composition

❖Abnormalities in urine volume:

- **Polyuria**: The production of an abnormally large amount of urine. (**> 3 liters** of urine in **24 hours**).
- **Oliguria**: The production of an abnormally small amount of urine. (**< 400 mL** per **24 hours**in adults).
- **Anuria**: The failure of the kidneys to produce urine, usually a result of acute or chronic renal failure. (< **50 mL**per **24 hours**).
- **Nocturia**: Awakening 2 or more times at night to urinate. (سنوات 1)
- **Nocturnal polyuria**: a condition in which the rate of urine output is excessive only at night and total 24-hour output is within normal limits

❖Abnormalities in urine composition:

- **Pneumaturia**: passing gas bubbles in the urine (Indicates bowel fistula)
- **Fecaluria**: passing feces in the urine (Indicates bowel fistula)
- **Hematuria**: the presence of RBCs in the urine
- **Proteinuria**: excess protein in urine (>2g/24h)

2. Abnormalities in urine color

- **Orange-brown**:
  - Conjugated Bilirubin
  - Concentrated urine

- **Red-Brown**:
  - Blood,myoglobin,free hemoglobin
  - Drugs (ex. rifampin)

- **Brown-Black**:
  - Conjugated Bilirubin

- **Blue, Green**:
  - Drugs/Dyes(propofol, florescent, triamterene)

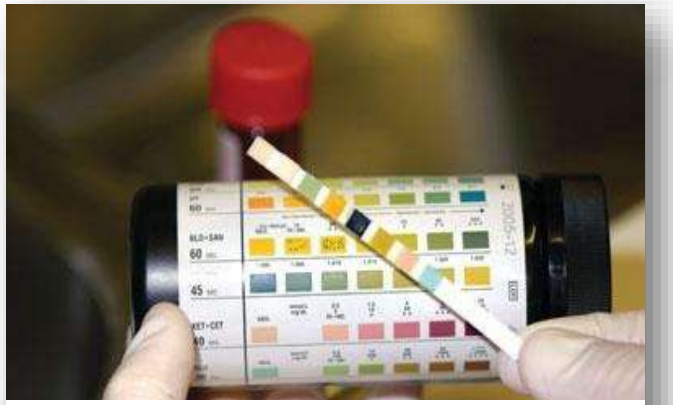
3. Hematuria

❖**Definition**: The presenceofRBCsintheurine

❖**Classification**:

1. **Accordingto quantity**:
   - **Microscopic hematuria (dipstick)**: can indicates glomerular damage
   - **Macroscopic hematuria (gross hematuria)**: Kidneys, upperand lower urinary tract
2. **According to the pain**:
   - **Painful**
   - **Painless**: Absent dysuria, suprapubic pain, and flank (loin) pain

Gross Hematuria



Dipstick urinalysis

Hematuria

❖**Classification**:

3. **Accordingto the timing**:
   - **Initial**: Suggest **urethral** damage
   - **Midstream**:Suggestdamage to**bladder**
   - **Terminal**: Suggest damage to **bladder neck**, **prostate**, or *trigonal area*
   - **Total**: Suggest damage to **bladder**, **ureters**or **kidneys**
4. **According to the severity**:
   - **Mild**: Pink color
   - **Moderate**: Fresh blood
   - **Severe**: Clots

❖**Gross painless hematuria** is the most common clinical finding in urinary tract cancer and should be evaluated with **cystoscopy**.

❖CT scan before and after IV contrast is becoming the first-line radiological investigation of hematuria

Hematuria –Clinical case

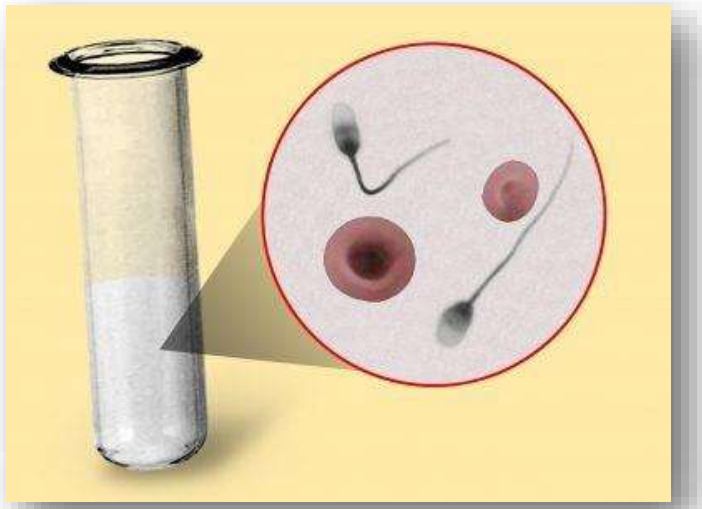
➢A 65-year-oldmalepatientpresentedtoyoucomplainingofred colored urine

❖**What are the main questions in history that you will ask ?**

- Timing during voiding
- Associated pain

4. Hematospermia

- **Definition**: The presence of bloodin the semen.Usually post sexual intercourse
- Hematospermia is benign in young males and usually indicates infection (Prostatitis) which resolves spontaneously after 2-3 weeks.
- In old aged men it indicates prostate cancer.



شرح

5. Lower Urinary Tract Symptoms

Storage symptoms

1. **Frequency**:
   - The need tovoid small quantities of urine frequently throughout the day and night
2. **Urgency**:
   - Astrong urge to void that due to involuntary contraction of the bladder
3. **Dysuria**:
   - Asensation of pain or discomfort duringmicturition.
4. **Nocturia**

   Waking at night more than one times to void.

Voiding symptoms

1. **Hesitancy**: سنوات)1(
   - Difficulty to initiate urination

2.Poor stream 3.

4. 5Prolonged terminal dribbling

Urinary retention

Straining to urinate:

- contracts abdominal muscles to initiate, maintain, and improve the urinary stream.

شرح

6. Urinary Incontinence

❖**Definition**: involuntaryleakageofurine

❖**Types**:

5(سنوات)

1. **Overflow incontinence**: Involuntary urine leakage secondary to overfilling of the bladder from increased residual or chronic urinary retention

1(سنوات)

2. **Urgency urinary incontinence**: Involuntary urine leakage accompanied by or immediately preceded by urgency. (overactive bladder)

1(سنوات)

3. **Stress urinary incontinence**: Involuntary urine leakage associated with increased abdominal pressure. (bladder pressure exceed sphincter pressure)
4. **Mixed incontinence**: combination of stress and urge incontinence
5. **Functional incontinence**: loss of urine related to deficits of cognition and mobility
6. **Continuous incontinence**: associated with fistulas

Urinary Incontinence –Case scenario 1

➢36yearsold femalepatient,has 5kids, presentedtoyourclinic complaining of passage of urine when she cough.

❖**Type of urinary incontinence**:

❖ ○ Stress incontinence

Pathophysiology of this condition:

- ○ Urethral hypermobility secondary to multiparity (i.e., damage of the pelvic floor muscle levator ani and/or the S2–S4 nerve roots)
- ○ Increase in intraabdominal pressure (e.g., from laughing, sneezing, coughing, exercising) → ↑pressure within the bladder →bladder pressure > urethral sphincter resistancetourinaryflow

❖**Mention other types of incontinence**:

- ○ Urgencyincontinence,Mixed,Overflow,Functional, Continuous

Urinary Incontinence –Case scenario 2

➢This photoshowingsuprapubicfullness for 70 years old male patient attend urology clinic complaining of inability to pass urine with episodes of urinary incontinence since more than 2 weeks.

1.What type of incontinence does this patient have?

- Overflow incontinence

2.What is the most likely diagnosis ?

- Chronic urinary retention due to BPH

أول جاوب BPH لحالها

Urinary Incontinence –Case scenario 2

➢This photoshowingsuprapubicfullness for 70 years old male patient attend urology clinic complaining of inability to pass urine with episodes of urinary incontinence since more than 2 weeks.

3.Mention 3 differences between this case and acute retention

Acute urinary retention	Chronic urinary retention
Bladder capacity (400-500ml).	Bladder capacity (2-3L).
Painful.	Feeling of fullness (Painless).
Bladder is functioning.	Bladder atony (Neurogenic bladder).
No Reflux.	Renalimpairment , Hydronephrosis & Reflux.

Urinary Incontinence –Essay

- **Urge incontinenceprimarilycausedby:**
  - overactive detrusor muscle
- **While stress incontinence occurs secondary to:**
  - Increased intra-abdominal pressure
- **Besttesttodiagnose type of incontinence:**
  - Cystometry
- **Best management of symptoms of detrusor failure:**
  - Catheterization

Injury to the external sphincter causes what type of incontinence:

- Stress UI

Urinary Incontinence –Essay

- **Patient came to you after 3 weeks of pelvic surgery complain of chronic retention and incontinence:**
- **type of incontinence:**
  - overflow
- **sexual function:**
  - sexual dysfunction due to nerve injury

شرح

7. Urinary retention

❖**Definition**: inabilitytocompletelyemptythebladder

❖**Etiology**: في كثير أسباب هذه أمثلة فقط

سنوات)1(

- Mechanical obstruction (outflow obstruction)
  - **Enlargedprostate**:BPH,Prostaticcancer,Acuteprostatitis, etc.
  - **Urethral narrowing**:Urethralstricture,etc.
  - **Bladder neck obstruction**: bladder cancer, etc.
  - Urethral/bladder trauma
- Functional obstruction (bladder innervation)
  - Neurogenic bladder
  - Drug-induced urinary retention
- Infection

❖**Acute & chronic urine retention**

ملف الواجبات

- **Acute urine retention**: painful inability to void urine with relief of pain following drainage of the bladder by catheterization
- **Chronic urine retention**: Failure to empty bladder despite maintaining an ability to urinate which result in elevated (PVR) urine volume

Differences between acute and chronic retention

	Acute retention	Chronic retention
Obstruction	Complete	Partial
Voiding	Decreased (-)	Increased (+)
Presence of anuria	Anuria present	Anuria absent
Pain	Painful	Painless
Onset	Sudden	Gradual
Suprapubic tenderness	+	+/-
Suprapubic mass	Suprapubic mass absent	Suprapubic mass present
Bladder volume	Normal bladder volume	Increase bladder volume
Drainage volume	<800 ml	>800 ml
Uremia	-	+/-
Hydronephrosis	-	+
Presentation time	Medical emergency	Detrusor hypertrophy followed by atony (Late)

Urinary retention –Case scenario 1

➢65 yearsold man came to yourclinic withFoley's catheter duetoincomplete emptying. He told you his symptom is extremely bothering him

❖Other symptoms you would ask the patient:

- o**Other voiding symptoms**: Hesitancy, Poor stream, Prolonged terminal dribbling, Straining to urinate
- ○ **Storage symptoms**: Frequency, Urgency, Dysuria, Nocturia, Nocturnal polyuria
- oVisible hematuria, suprapubic pain

❖Causes (DDx):(رتبتهم من الألأرجح للألأقل احتمالالا حسب رأيك)

- ○ BPH,Prostatecancer,Neurogenicbladder,Drug-inducedurinaryretention, Urethral stricture, Bladder cancer, Acute prostatitis, UTI

❖What tests you would like to order ?

- ○ Urineanalysis,Urinecytology, Serum creatinine, PSA, IV pyelogram (IVP), Urodynamic profile

Urinary retention –Case scenario 2

➢78 years oldmalepatient present tothe clinicwithcatheter and bagof urine due to urinary incontinenence. He said that he need toilet once every hour and told you that his symptom is extremely bothering him

❖**Other symptoms you would ask the patient:**

- **Other voiding symptoms**: Hesitancy, Poor stream, Prolonged terminal dribbling, Urinary retention, Straining to urinate
- **Storage symptoms**: Frequency, Dysuria, Nocturia, Nocturnal polyuria
- Visible hematuria, suprapubic pain

❖**One examination you would like to do**: DRE

❖**Simple investigation you would like to order**:

❖ ○ Urineanalysis,Urinecytology,Serumcreatinine, PSA, IV pyelogram (IVP)

What is your diagnosis ? BPH

Urinary retention –Case scenario 3

➢50 yearsoldfemalepatientcametoclinicwithurinaryincontinence.

❖**What should you ask her ?**

- **Othervoidingsymptoms**:Hesitancy, Poor stream, Urinary retention, Straining to urinate
- **Storage symptoms**: Frequency, Urgency, Dysuria, Nocturia, Nocturnal polyuria
- Visible hematuria, suprapubic pain

8. Pain presentations

- **Renal angle pain**:
  - Dullachebetween12thrib and erector spine muscle on the side of the affected kidney
  - **Causes**:Pyelonephritis
- **Renal colic**:
  - Severe pain in the lumbar region due to ureteric obstruction; radiates to abdomen, groin, testes, and thigh
  - **Causes**: Stone or tumor
- **Ureteric colic**:
  - Spasmodic, severe, radiation path of renal colic; may be associated with vomiting, sweating.
- **Suprapubic pain from bladder / urethra**:
  - Referredtolowerabdomen,perineumandglans penis in males

Mention 5 differences between renal and ureteric colic

Renal colic	Uretric colic
❖Vomiting absent	❖Vomiting present
❖Less sever pain	❖Sever localizedpain
❖Pseudo colic	❖true colic
❖Treatment with antibiotic	❖Treatment with nephrostomy + double J catheter
❖Mostcommon cause is pyelonephritis	❖Most common cause is stone

- What's the definition of ?
- Urinary retention
- Nocturnal
- Hematocrit
- Urgency
- Functional incontinence

Mention three complications of catheterization:

Uti, hematocrit, truma

Investigations & Imaging

Ways of urine sampling

1.Voided Urinespecimen

A.Randomspecimen(for analysis)

B.First morning specimen (analysis and microscopic)

C.Midstream clean catch specimen (for culture and sensitivity testing)

2. Catheter collection specimen

- These specimens are obtained by investing a catheter or sterile flexible tube into bladder via urethra to withdraw urine
- When thepatient is bedridden or can’t urinate independently (ex. infants)

3. Suprapubic aspiration specimen

- Thismethodisusedwhena bedridden patient can’t be catheterized, or if a sterile specimen is required

Voided Urine samples

- **Vb1**: First 10 mlofurine,thisrepresents:
  - Urethra
  - Acute prostatitis
- **Vb2**: Midstream urine, this represents:
  - Bladder
- **Vb3**: First 10 ml of urine after prostate massage, this represents:
  - Chronic prostatitis

EPS:Expressedprostatic specimen, measured after prostate massage in chronic prostatitis

شرح

Urological Investigations

- **Dipstick testing**:
  - Basicdiagnostictool used to determinepathologicalchanges in a patient'surinein standardurinalysis
  - Contains:pH,protein, Blood, WBCs, Nitrite testing**WBCs** andpositivefor **nitrite**is very likelyto be **infected**.
- **Urine microscopy**:
  - Contains:RBCmorphology, Crystals, Casts

Cloudyurinethatispositive for

Urine cytology:

- look for **abnormalcells** in the urine. It is used along with other tests and procedures to diagnose urinary tract **cancers**.
- It is most often used to diagnose **bladder cancer**, though it may also detect cancers of the **kidney**, **prostate**, **ureter**and **urethra**.
- It can **best**detect **larger and more-aggressive** urinary tract cancers, and might not detect small urinary tract cancers that grow more slowly

Urodynamic study	Target function to be evaluated	Indicated patients
1. Cystometry	storage function and sensation of the bladder during the filling phase	any incontinent subjects to be investigated for their dysfunctional conditions
2. Urethral pressure measurement	urethral closing forces	subjects suspected of urethral incompetence
3. Leak point pressure measurement A. Detrusor B. Abdominal	urethral competence against pressure generated in the bladder from detrusor or abdominal forces	subjects suspected of neurogenic lower urinary tract dysfunction (A) or urethral incompetence (B)
4. Uroflowmetry, Residual urine measurement	global voiding function	any incontinent subjects (residual) or those suspected of voiding dysfunction (uroflow)
5. Pressure-flow studies	detrusor contractility and bladder outlet obstruction during the voiding phase	subjects suspected of voiding dysfunction
6. Surface electromyography	coordinated relaxation of pelvic floor during the voiding phase	subjects suspected of dysfunctional or dyssynergic voiding
7. Videourodynamics	Simultaneous observation of the morphology and function of the lower urinary tract	subjects with suspected multifactorial etiologies for incontinence or anatomical abnormalities of the lower urinary tract
8. Ambulatory urodynamic monitoring	behavior of bladder (and urethra) and leakage mechanisms during activities of daily living	subjects suspected but not proven to have incontinence or detrusor overactivity on conventional investigations

Mention 5 microscopic findings in urine analysis

- RBC
- Pus cells
- Crystals
- Casts
- Epithelial cells

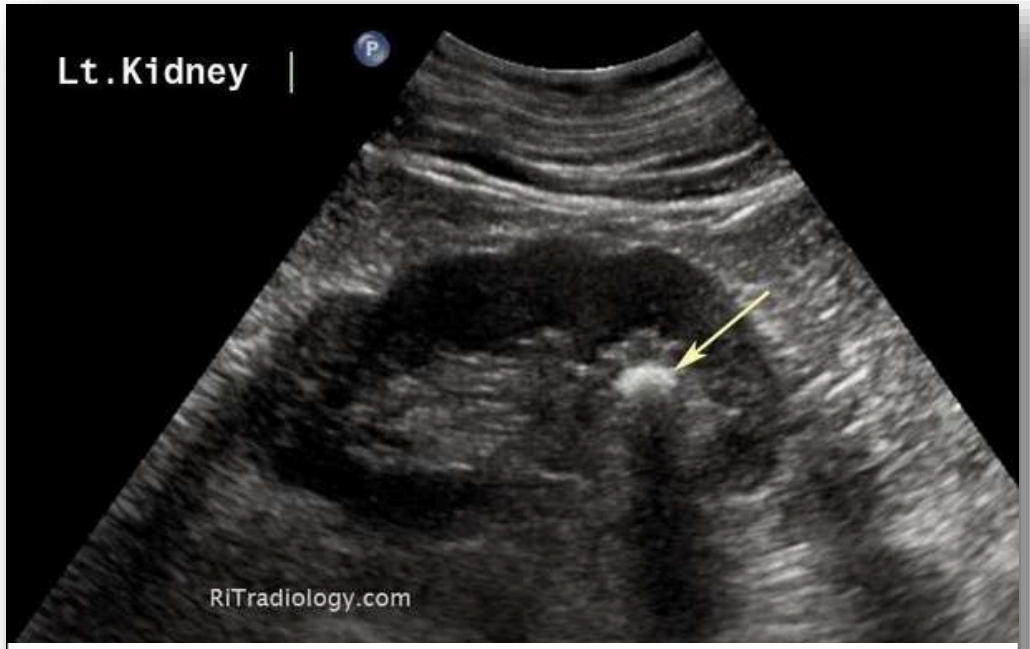
Name 5 things found in chemical urinalysis chemical urinalysis is the same as dipstick:

- **: pH, protein, Blood, WBCs, Nitrite testing,glucose,ketones**

Imaging modalities of UG

❖Ultrasound:

- Good images of the **kidneys**and the **bladder**
- Poor anatomical details of the ureter



Longitudinal ultrasound images of the left kidney show a stone (arrow) in the lower pole with posterior acoustic shadowing

Hydronephrosis. Urine in dilated calyces appears black (hypoechoic).

KUB

- Needs preparation
- Detects stones (size & location)
- Mot useful in case of radiolucent (uric acid), small stones (<3-4mm) or when the stones pass through the ureter as it lies over the sacrum
- The ability of KUB X-ray to visualize stones is dependent on the amount of overlying bowel gas

سنوات 5)

Abdominalx-ray	KUB
Low concentration of radiation	Higher concentration of radiation
No bowel preparation (Visualbowel gas)	Needs bowel preparation (Invisible bowel gas)
Symphysis pubis cannot be seen	Symphysis pubis is seen
Done in erectposition	Donein supine position

KUB

- **What is the name of this radiological study ?**
  - KUB
- **How to track the course of the ureter ?**
  - Along the tips of transverse processes of lumber vertebrae
- **Mention 3 differences between this study and abdominal x ray:**

Abdominal x-ray	KUB
Low concentration of radiation	Higher concentration of radiation
No bowel preparation (Visual bowel gas)	Needs bowel preparation (Invisible bowel gas)
Symphysis pubis cannot be seen	Symphysis pubis is seen
Done in erectposition	Done in supine position

- Q6: KUB:

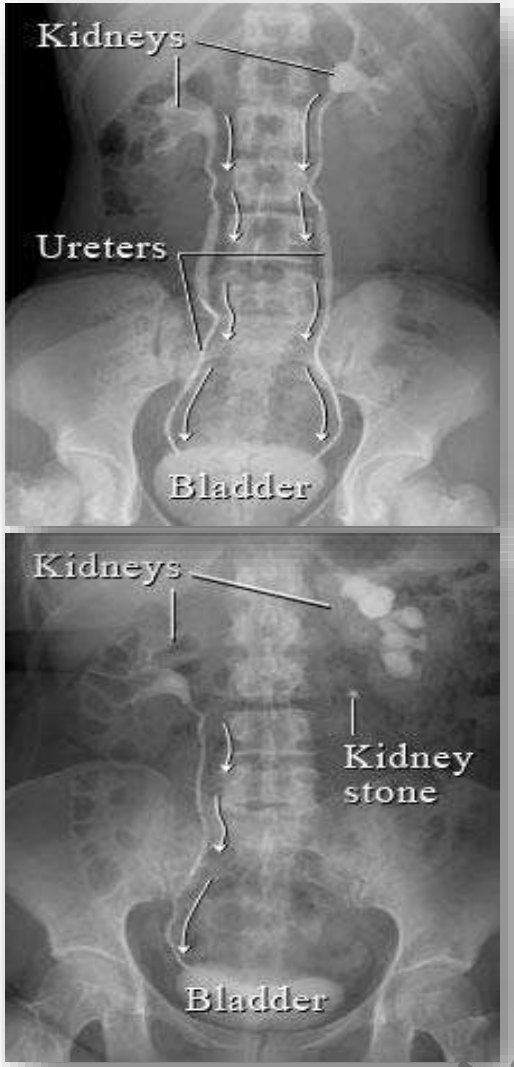
1.what is the diagnosis: bilateral staghorn stone
2. what is the causative agent: ureas producing bacteria especially pseudomonas

3.why ESWL not recommended?? : because it will break it into smaller stones causing more obstruction in ureter

4.two managment for this condition: 1. PCNL,2- open surgery

Intravenous pyelography (IVP)/(IVU)

- A controlfilmisobtainedbeforecontrastisgiven
- **Technique**:
  - Intravascular contrast is administered followed by a series of X-rays of the kidneys, ureters, and bladder over the following 30 minutes or so, to image their anatomy and pathology, and to give some indication of renal function
- Films and “phases” of IVP:
  - **Plain film**: Thisisused tolook for calcification overlying the region of the kidneys, ureters, and bladder
  - o**Nephrogram phase**: This is the first phase of IVP; film is taken immediately following intravenous administration of contrast
  - o**Pyelogram phase**: As the contrast passes along the renal tubule (into the distal tubule) it is concentrated , As a consequence, the contrast medium is concentrated in the pelvicalyceal system, thus this pyelogram phase is much denser than the nephrogramphase



Name 3 radiological abnormalities seen in this IVP

1. A left nonfunctioning kidney (no contrast excretion)
2. Right hydronephrosis
3. Filling defect in the bladder

Voiding cystourethrography (VCUG)

- Also knownasmicturating cystourethrogram (MCUG)
- **Uses**:
  1. Identify vesicoureteral reflux,
  2. Presenceandsiteofobstructioninthe outlet of bladder and within the urethra particularly in patients with neuropathic bladder problems

Voiding cystourethrography
showing bilateralureteric reflux

Q2:

1. What is the study: MCUG
2. What is the grade of VUR : Grade 3
3. What is the effect of UTI on this condition: infected urine reflexes up to ureter and kidney and causes upgrading of the VUR and results in renal scaring and renal failure

4. Mention 2 secondary causes of VUR:
urethral stricture,posterior urethral valve,neurogenic bladder

Other urological contrast studies

❖Cystography:

- **Technique**:This study consists of retrograde filling of the bladder, via a catheter, with contrast

o**Uses**: Identify vesicocolic and vesicovaginalfistulaeandbladderrupture (extraperitonealand intraperitoneal)

Cystographyshowedacommunication between the bowel and bladder

❖Urethrography:

- **Technique**: Retrograde filling of the urethra with contrast

o**Uses**: the site and length of urethral strictures, and the presence, extent, and site of urethral injury

Urethrogram showing a bulbar urethral stricture

CT scan urological uses

❖**Renal**:

1. Investigation of renal masses
2. Staging of renal cancer (establishes local, nodal, and distant spread)
3. Assessment of stone size and location (Without contrast).
4. Detection and localization of site of intrarenal and perirenal collections of pus (pyonephrosis, perinephric abscess)
5. Staging (grading) of renal trauma
6. Determination of cause of hydronephrosis

❖**Ureters**:

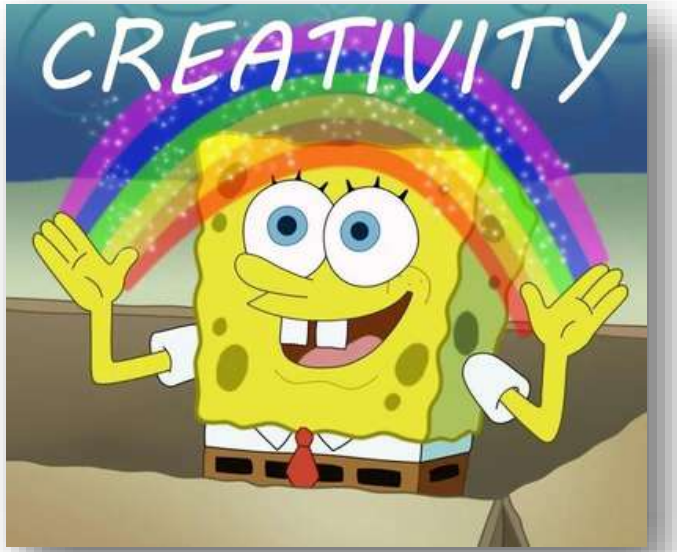
❖ ○ Locatesand measures size of ureteric stones

Bladder:

○ Bladdercancer staging (establishes local, nodal, and distant spread)

Mention 5 advantage of using CT in renal ureteric colic

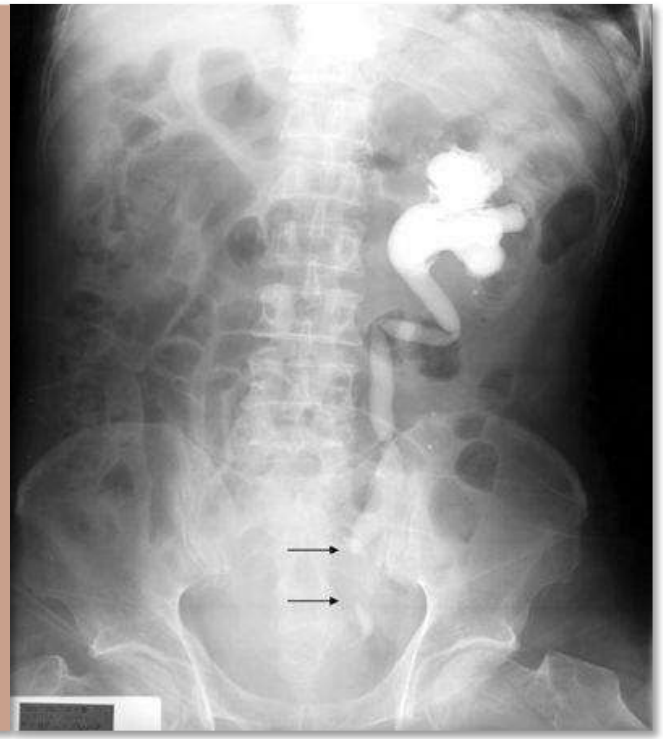
1. It’s a noninvasive procedure
2. Rapid and easy procedure
3. Locates and measures size of ureteric stones
4. Some radiolucent stones can be seen on CT
5. Detection of hydronephrosis



الإلإجابات من عندي☺ اهبدلكأي حاجة وسلك نفسك

Combined X-ray and CT scan questions are common

Retrograde pyelography on left collecting system shows moderate hydronephrosis and hydroureter with a tortuous change of ureter. The **arrows** indicate the site compressed by the prosthetic reservoir



Axial CT
showing left ureteral stone

❖Ureter on KUB:

- **Upper ureter**: from the Renal pelvis to the upper boney pelvis
- **Middle ureter**: from the Upper boney pelvis to the lower border of the lower boney pelvis
- **Lower ureter**: from the Lower boney pelvis to the Vesico-ureteral junction

MRI urological uses

- Staging of pelviccancer(bladderandprostatecancer) staging
- Localization of undescended testes
- Identification of ureteric stones, where ionizing radiation is best avoided (e.g., pregnant women with flank pain)

Transverse

MRI images demonstrating **undescended testis** (arrows) within the pelvis

شرح

DMSA Scan

- Tc-99m DMSA (2,3 dimercaptosuccinicacid)isa technetium radiopharmaceutical

used in renal imaging to evaluate renal structure and morphology, particularly in pediatric imaging for detection of scarring and pyelonephritis.

2(سنوات)

- **Indications**: (Mention 2 indications) (Mention 5 uses of DMSA scan)

1. Detection and/or evaluation of a **renal scar**, especially in patients having vesicoureteric reflux (VUR)
2. Small or absent kidney
3. Ectopic kidneys
4. Evaluation of an occult duplex system
5. Characterization of certain renal masses
6. Evaluation of systemic hypertension especially young hypertensive and in cases of suspected vasculitis.
7. It is sometimes used as a test for the diagnosis of acute pyelonephritis

02:
What is the study. MCUG
What is the grade of VUR : Grade 2
What is the effect of UTI on this condition:
infected urine reflexes up to ureter and kidney and causes upgrading of the VUR and results in renal scaring and renal failure
4. Mention 2 secondary causes of VUR:
urethral stricture, posterior urethral valve,neurogenic bladder

Station

Mention 5 microscopic findings in
Pus cells Crystals
Casts Epithelial cells

Station

-year old male with history of smoking
with ultrasound of bladder showing mass
within the bladder

1 The best Diagnostic test?
2 most common tumor?
3 mention 3 risk factors in this patient?
4Is it ok to do suprapubic catheterization for the patient ?(explain why)

Answers:

1 Cystoscopy with biopsy
Transitional Cell Carcinoma 3- Male, old age, smoker

Urinary catheterization

ركزوا على الألأحمر معظم الباقي شرح

Catheterization

❖**Definition**: Flexible tubefordrainingurinefromthe bladder

❖**Indications**:

- **Diagnostic**:
  1. Urinesamples in pediatrics
  2. Post-residual urinevolume
  3. Monitor urine output hourly
  4. Contrast push (VCUG in VUR)
  5. Ascending urethrogram
- **Therapeutic**:
  1. Bypassobstruction (Stricture, Cancer, BPH)
  2. Intravesical instillationof chemotherapy or Immunotherapy
  3. Postradical prostatectomy
  4. Functional incontinence
  5. Neurogenic bladder
  6. Post-optical urethrostomy (Urethral stricture)
  7. Bladder injury

Catheterization

❖**Complications**:

1. Urinary tract infections
2. Trauma
3. Hematuria
4. Incontinence (If used for prolonged periods)
5. Bladder cancer (If used for prolonged periods)
6. Bladder stone due to crystallization (If used for prolonged periods
7. Patulous urethra (Dilated urethra)
8. Acquired Hypospadias in males
9. Urethral stricture (Due to injury , infection ,Obstructed periurethral glands)

Catheterization

❖**Types of catheters**:(classificationaccordingtothe site)

- External (condom) catheter
  - Consists of a softplastic or rubber sheath, tubing, and a collection bag for the urine
  - The sheath is placed over the penis and the collection bag is attached to the leg
  - Collectsurine when there is noneed for catheter insertion
- Intermittent (Robinson's) catheter
- Indwelling
  - Urethral catheter
  - Suprapubic catheter

oDouble J catheter (stents)

Classification of catheters

1. **According tothe size:**
   - FR(French)orCH(charriere). It's number equal to the size (6-30 FR)
   - 1mm = 3FR
2. **According to the material:**
   - Latex, rubber, silicone, PVC
   - Latex, rubber often chosen for short-term drainage; more risk for UTI
   - Silicone catheters are indicated when there is rubber/latex sensitivity or allergy and are particularly suited for patients requiring a longer period of indwelling time
3. **According to the coating:**
   - Variouscoatingsonurethralcatheters have been applied in an attempt to reduce urethral trauma and infection risks.

Classification of catheters

(سنوات 1)

4. According tothe number ofways:

- One-way (Robinson's catheter)
- Two-way
- Three-way

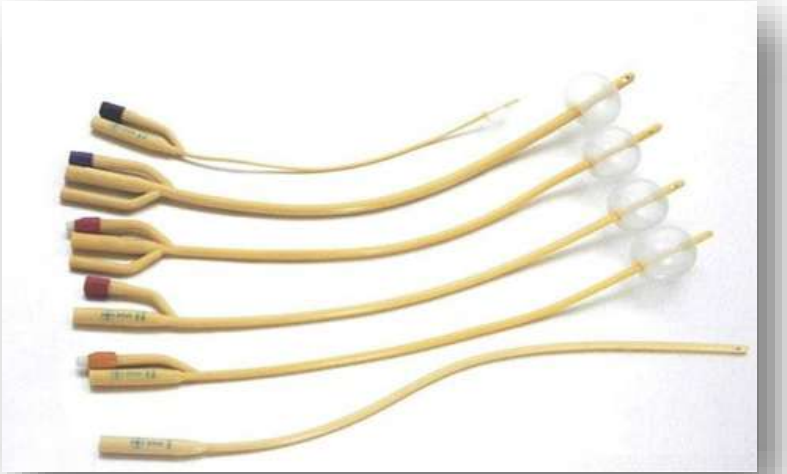
5. According to the tip shape:

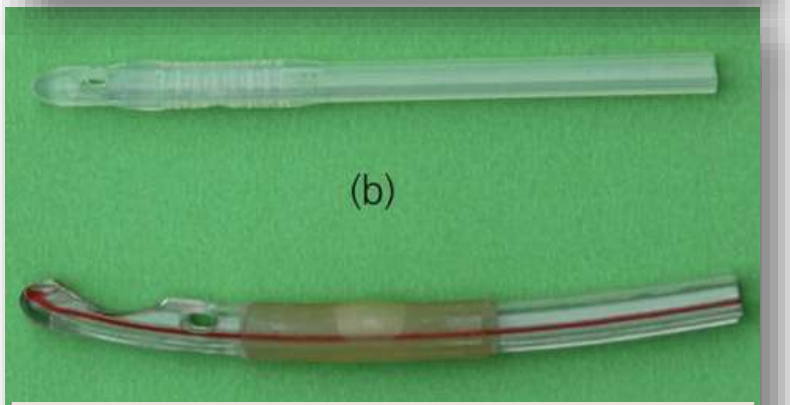
- Most catheters are designed with a blunt straight tip that is blind ending.

oCatheters with curved tips or with an end hole havespecific utilityin certain clinical scenarios

6. According to the duration of use:

- Intermittent catheter (Robinson'scatheter)
- Indwelling catheter





Hematuria catheter has a wide opening near the tip to allow improve drainage of blood clots and debris.

Intermittent (Robinson's) catheter

- **Definition**:A thin,flexibletubethatapersontemporarilyinsertsinto their bladder through the urethra.
- Used for Drainage or Instillation of drugs
- Onceapersonhasemptied theirbladder, they need to remove the catheter. It is necessary to remove the old catheter and insert a new one several times per day to empty the bladder, a healthcare provider will teach the person how to do this correctly.
- **Indications**:
  1. Neurogenic bladder
  2. Chronic retention
  3. Female after gynecological surgery
  4. Post-void residual volume measurement
- **Complications**: UTIs, Hematuria, Bladder stones, Urethral strictures

Indwelling catheters

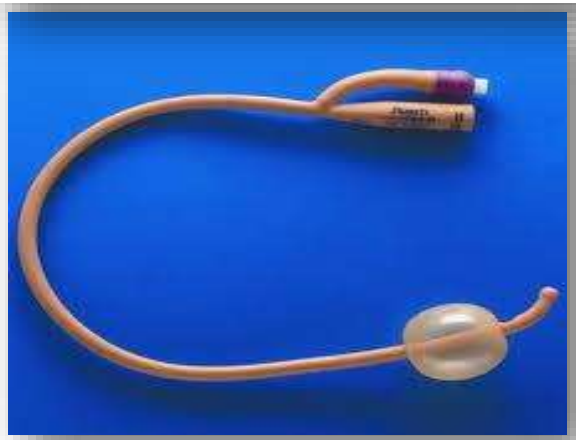
- An indwelling catheteris similartoan intermittent catheter but remains in place for a period of days or weeks.
- One end of the indwelling catheter has a deflated balloon attached. Ahealthcare provider will insert this end into the bladder and then inflate the balloon with sterile water to hold the catheter in place.
- There are two main types of indwelling catheter :

1. **Urethral catheter (Foley'scatheter):**flexibletubethatispassedthroughthe urethra and into the bladder.
2. **Suprapubic catheter**.

Two-Way Foley's Catheter

- The tube hastwoseparatedchannels,runningdownits length
- Onelumenisopenatbothendsandallowsurinetodrain out into a collection bag.
- The other lumen has a valve on the outside end and connects to a balloon at the tip; the balloon is inflated withsterilesalinewhenitliesinsidethebladder,inorder

to stop it from slipping out



- **Indications of two-ways catheter**:
  1. Sterile urine sample
  2. Urodynamic studies
  3. Immobilized/comatose pts
  4. Bladder drainage in urine retention

5(سنوات)

Two-Way Foley's Catheter

3(سنوات)

What type ofcatheter is this?

- Two-way Foley's catheter

3(سنوات)

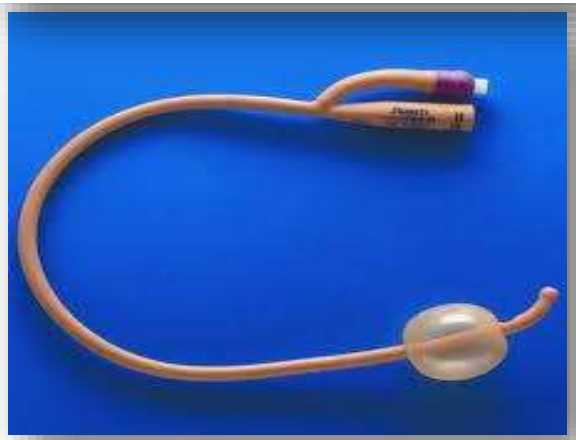
Mention 3 indications for two-way catheter ?

1. Acute & chronic retention
2. Sterile urine sample taking
3. Immobile/Comatose patient
4. Administration of drugs
5. Urodynamic study

1(سنوات)

Contraindications of catheterization

- Urethralinjuries,Urethralinfection,Pelvic fracture.



Three-Way Foley's Catheter

- Has a third channel(in addition totheballoon inflation and drainage channels) that allows fluid to be run into the bladder at the same time as it is drained from the bladder.
- It's used For simultaneous irrigation in severe gross hematuria which prevents clot formation that can end with bladder distention and subsequent perforation.

- **Indications of three-ways catheter :**
  1. Afterbladder/prostatesurgerytowashout blood
  2. andto preventclotformation
  3. Gross hematuria
  4. Endoscopic procedures
  5. Bladder insufficiency

Three-Way Foley's Catheter

(5 سنوات)
What type ofcatheteristhis?

- Three-way Foley's catheter

(1 سنوات)
This type is used commonly in which operation ?

- TURP

(3 سنوات)
Indications of three-way catheter

1. Post Prostatic or bladder surgery
2. TURB
3. Hematuria
4. Bladder infection

(2 سنوات)
Contraindications of catheterization

- Urethralinjuries,Urethralinfection,Pelvic fracture.

Three-Way Foley’s Catheter

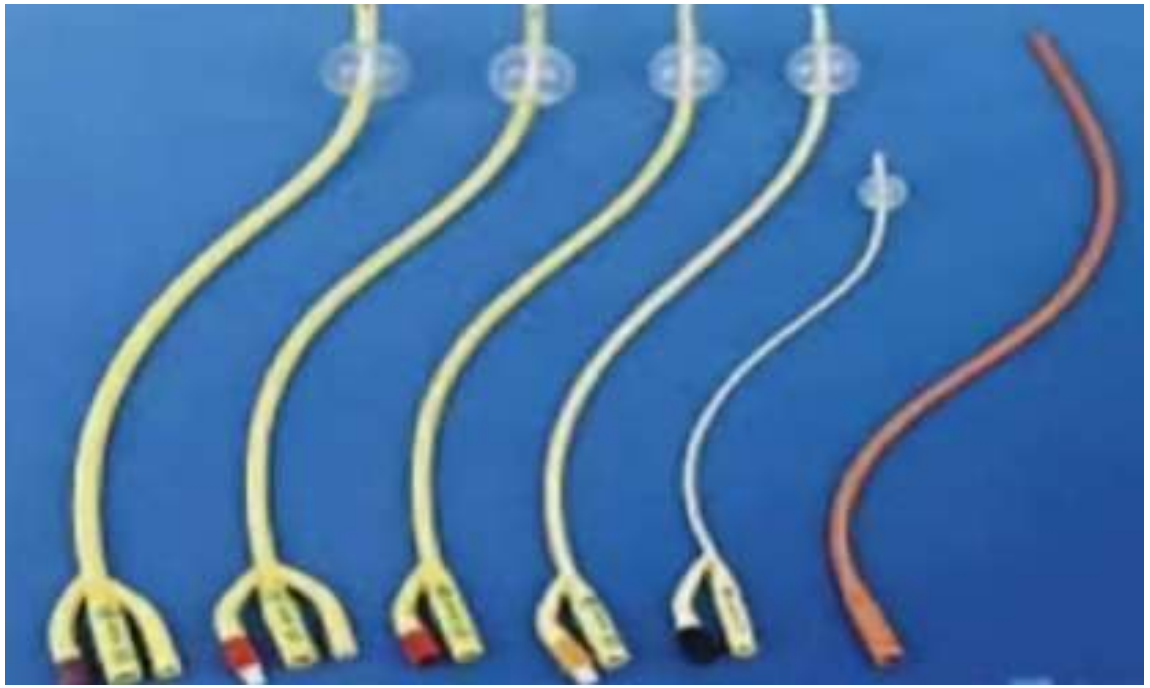
- **What type ofcatheteristhis?**
  - Three-way Foley's catheter
- **Why do we use it in prostate cancer ?**
  - For irrigation (in bleeding)
- **Whatisthebestsolutiontouse in this catheter ?**
  - Sterile water or normal saline

Foley's (Urethral) Catheters

- **Contraindications**: (2 & 3 ways)
  - **Urethral injuries** (absolutecontraindication), occur in patients with multisystem injuries and pelvic factures. (If this is suspected, one must perform a genital and rectal exam first, only the urologist have the right of 1 trial, as a GP NEVER do it on your own)
- **Complications**: (2 & 3 ways)
  - Tissue trauma
  - Infection. After 48 hours of catheterization, most catheters are colonized with bacteria, thus leading to possible bacteruria
  - oRenal inflammation, nephrocystolithiasis, and pyelonephritis if left in for prolonged periods
- **Steps to do if the balloon isn't deflating**:
  - Cutthevalve → Moreinflation → useofguide wire→ U/S guided balloon puncture

1. Mention types of folyes cath. Of A,C & D

- A: One way
- B: Two ways
- C: Three ways



2. Two absolute contraindication.

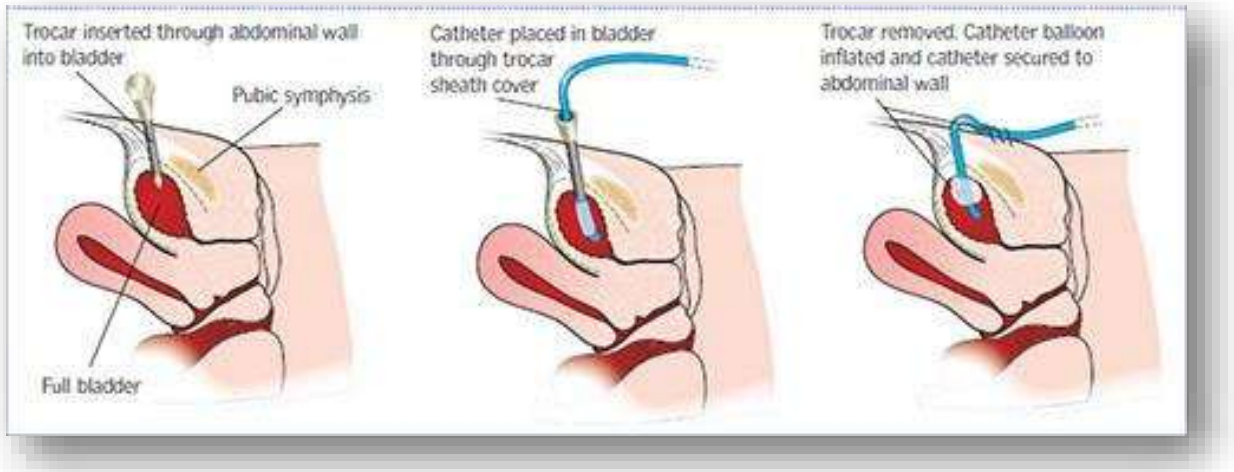
Urethral injuries, Urethral infection, Pelvic fracture

3. prolonged Complications:

1. Incontinence
2. Bladder cancer
3. Bladder stone

Suprapubic catheter

- Suprapubic catheteris a type ofindwelling catheter
- The suprapubic catheter is inserted into the bladder through a surgical incision made in the abdominal wall, right above the pubic bone
- **Suprapubic aspiration**: procedure in which a needle is inserted into the bladder above the symphysis pubis to drain urine
- use a portable ultrasound device to identify the structures in the abdomen so the needle is not placed in bowel or other organs
- Successful placement of the suprapubic: urine begins to flow into the connected syringe



Suprapubic catheter

Indications:

1. Anychild (regardless of age) who is unable to void on request, who requires a urine
2. specimen for the diagnosis or exclusion of UTI.
3. Suprapubic aspirates are the gold standard for obtaining urine specimens for culture. It is a simple, safe, rapid and effective technique.
4. Failed urethral catheterization in urinary retention

Urethral injuries

Contraindications:

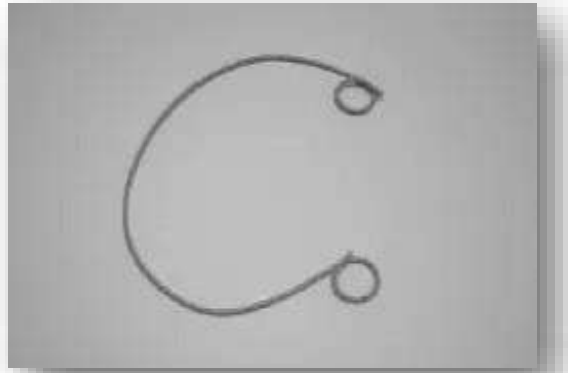
1. Abdominal distension
2. Massive organomegaly
3. Bleeding diathesis
4. Bladder tumors
5. Infection at site of aspiration
6. Patients with lower midline incisions

Complications:

1. Macroscopichematuria (infrequent, not usually clinically significant)
2. Bladder hematoma (rare)
3. Bladder hemorrhage (very rare)
4. Intestinal perforation (rare. not usually clinically significant)
5. Anaerobic bacteremia or abscess formation (very rare)

Double J catheter

- A thin, hollow tube placedinsidetheureterduringsurgerytoensure drainage of urine from the kidney into the bladder.
- J shaped curls are present at both ends to hold the tube in place and prevent migration.

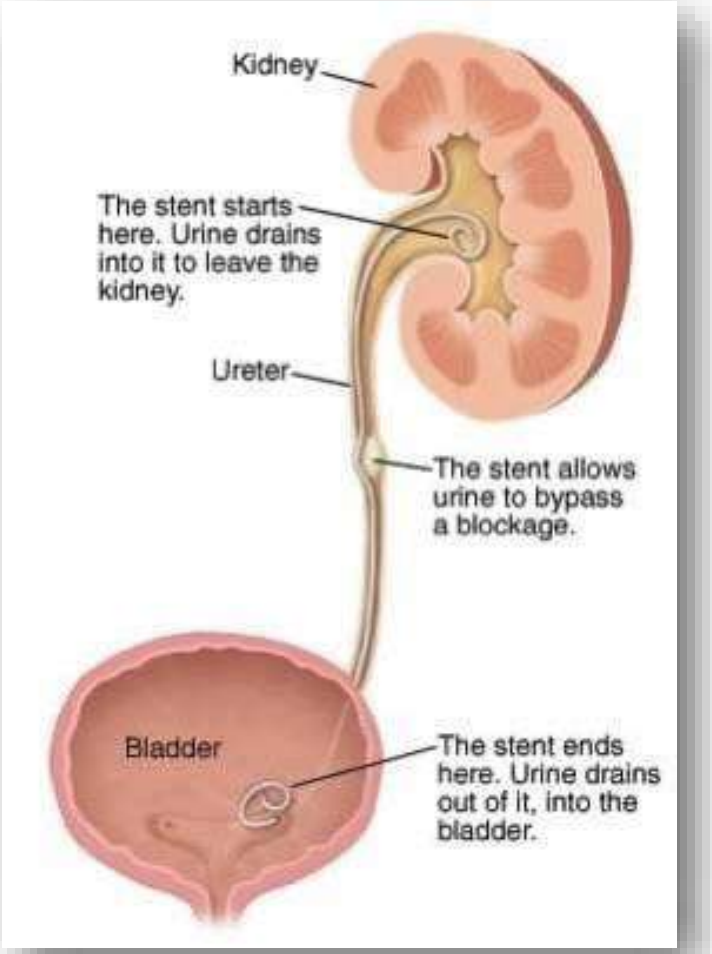


- **Indications**:
  1. Ureteral Obstruction
  2. post major surgeries , Ureteral injury
  3. Ureteral strictures
  4. To identify ureter during major surgeries
  5. To decrease ureteric pain (pain resistance to analgesia)
  6. Post intervention to the ureter due to Oedema
  7. Before Extra corporal shockwave lithotripsy to prevent obstruction from stones more than 2 cm
  8. Treatment of PUJ (junction between renal pelvis and ureter) obstruction
  9. Renal failure due to obstruction

Double J catheter

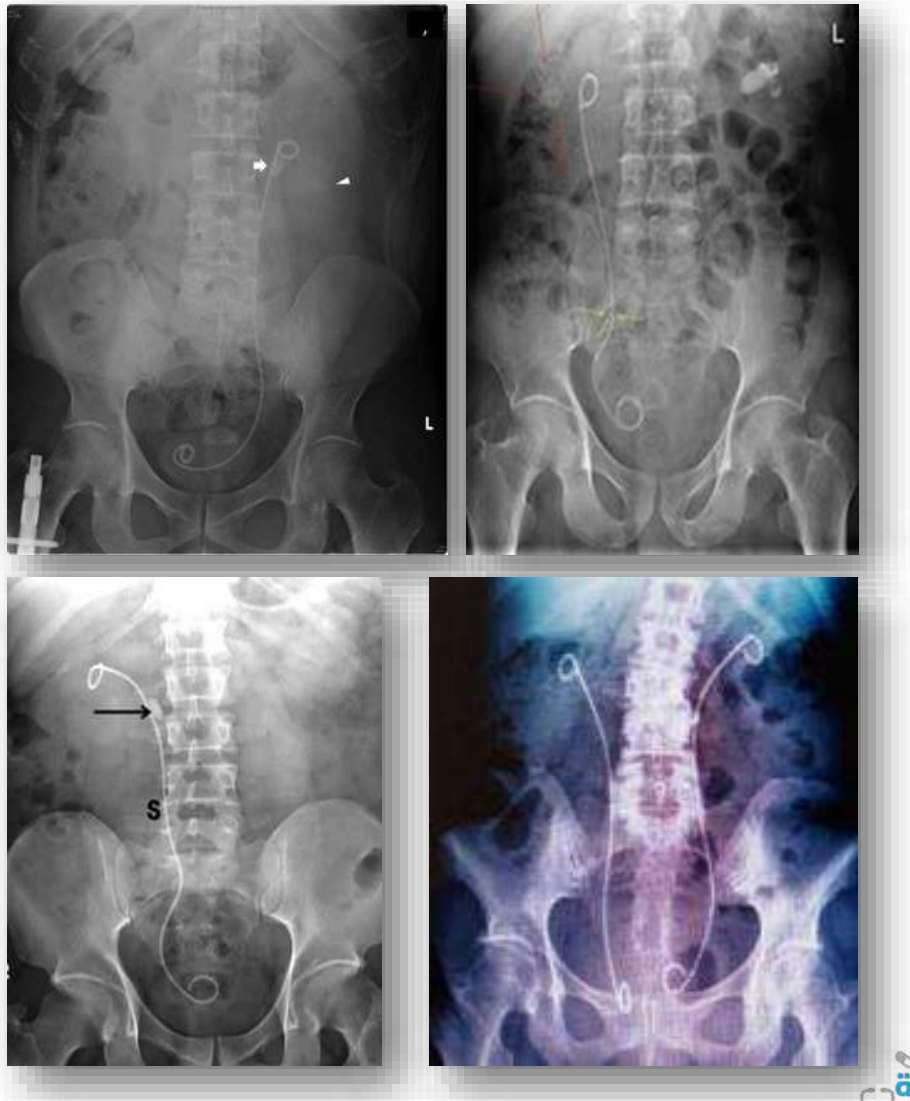
❖Complications:

- Stentsymptoms (suprapubic pain, lower urinary tract symptoms (frequency, urgency), hematuria, inability to work).
- Crustation & stones formation >3 months
- Ureter perforation during insertion
- Prolapse or migration
- Hematuria
- Infection
- Reflux



Double J catheter (stent)

- **Name of this study:** KUB
- **Name of this procedure ?**
  - Double J catheter
- **The ways of insertions**
  1. Cystouretroscopy with retrograde insertion
  2. Percutaneousanterograde ureteral stenting
- **Mention 4 Indications**:
  1. Obstructive nephropathy
  2. Prophylactic pre-ESWL
  3. Post-traumatic ureteroscopy
  4. Following endopyelotomy
  5. Postrenal transplant
  6. To identify ureter during major surgeries

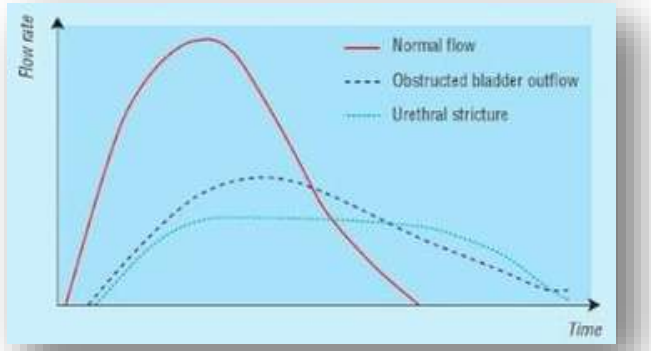


Urethral stricture

- Have the same presentationofBPH
- **Causes**:
  1. Instrumentation (most common)
  2. Congenital causes
  3. Inflammation
  4. Malignancies
  5. Trauma

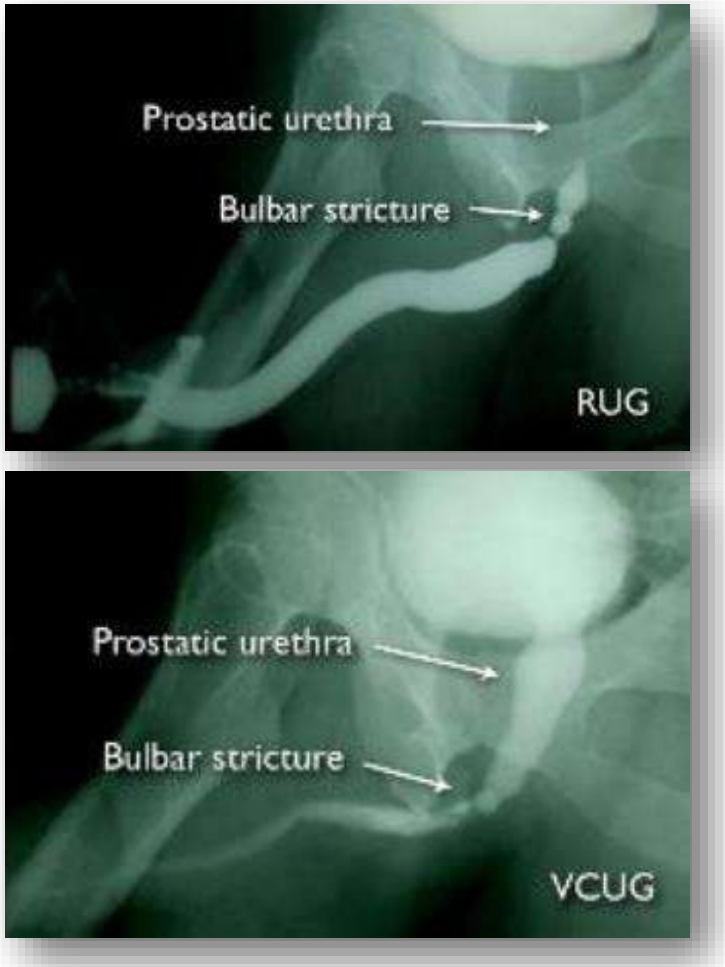
Urethrogram showing a bulbar urethral stricture

- **Treatment**:
  - OpticalUrethrostomy(Cystoscopy)ifshort stricture
  - Urethroplastyifsevere-long stricture
- **Urine flowmetry**:
  - **In BPH**: Bell shaped
  - **In Urethral stricture**: Box shaped



Urethral stricture

- **Identify the partsofthe urethrapointwith the arrow**
- **What is your diagnosis ?**
  - Urethral stricture
- **Mention 3 causes of this condition**:
  1. Congenital
  2. Iatrogenic
  3. Infection
  4. Trauma
  5. Tumor
  6. Stone



Urethral stricture –Case scenario

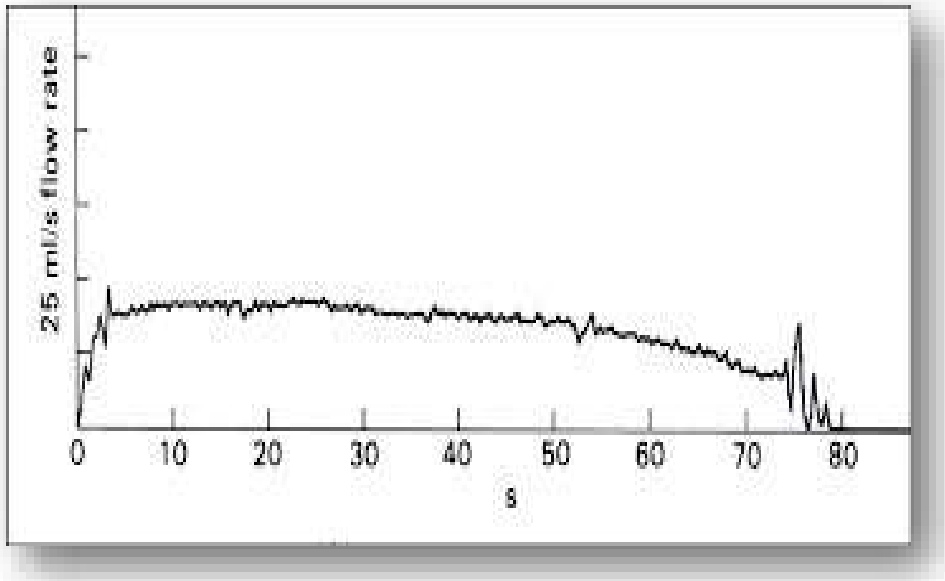
➢25 years oldmalepatient, havehistoryofcar accidentandmultiplefractures 3 years ago presented with obstructive urinary symptoms, uroflowmetry showed box shaped graphy

❖**What is your diagnosis ?**

❖ ○ Urethral stricture

Mention 3causes of this condition:

1. Congenital
2. Iatrogenic
3. Infection
4. Trauma
5. Tumor
6. Stone



Box shaped = Urethral stricture

one of the following not an indication of folyes cath:

A) renal failure due to obstruction

B)chronic retention

c) acute retention

d) administration of drug

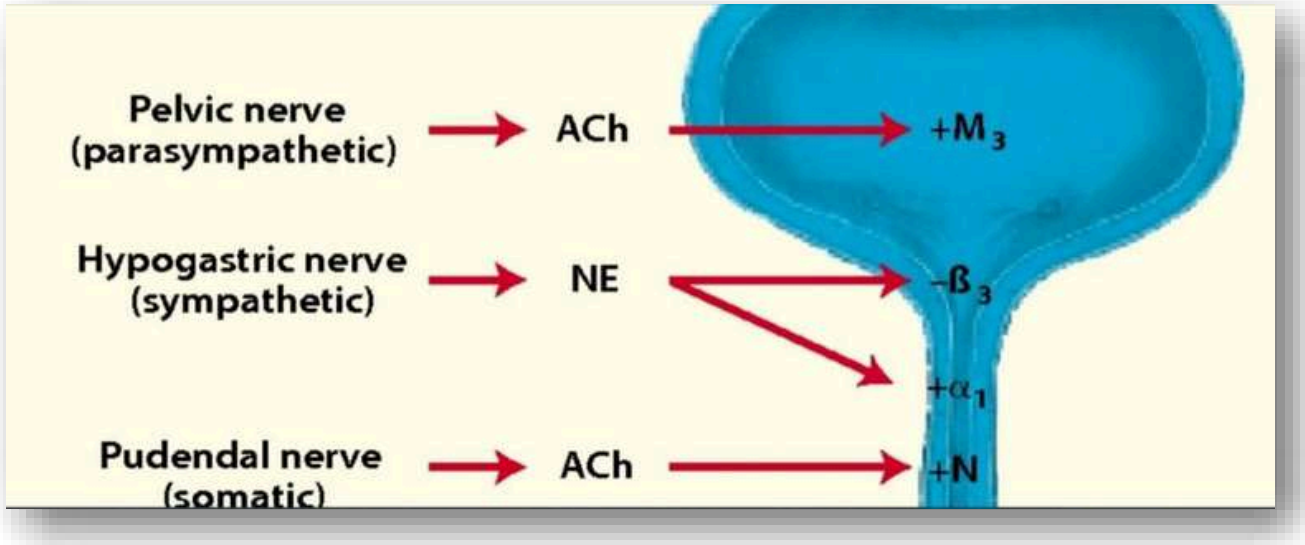
E) urine sample taking

Answer :A

Neurogenic Bladder

Autonomic nerve supply of urinary bladder

- Sympathetic → Hypogastric nerve (T12-L2)
  - Relaxationofdetrusormusclepromotingretention
- Parasympathetic →Pelvic nerve (S2-S4)
  - M2receptors(Morecommonandfunctioninmodulation of bladder function)
  - M3 receptors (Less common but responsible for contraction)
- Somatic ⟶ Pudendal nerve



Micturition reflex –Centers

- The micturitionreflexdescribes the processof urination
- This is integrated via cortical, pontine, and spinal centers that act to inhibit urination until the bladder has been sufficiently distended, then promote voiding once that threshold has been reached
- **The sacral micturition center** is responsible for bladder contraction during the initiation of urination. Located in S2-S4 level; PS fibers travel from here within the pelvic nerves and stimulate M3 receptors in bladder wall (stimulating contraction of detrusor)
- **The pontine micturition center** coordinates relaxation of the external urethral sphincter with bladder contraction during voiding. This is located inthe pontine reticular formation; the pons is able tomanage continence and voiding via **the pontine storage center** and **the pontine micturition center** respectively
- **The medial frontal micturition center** in the cerebral cortex regulates the pontine and sacral micturition centers (Voluntary control)

Micturition reflex –In action

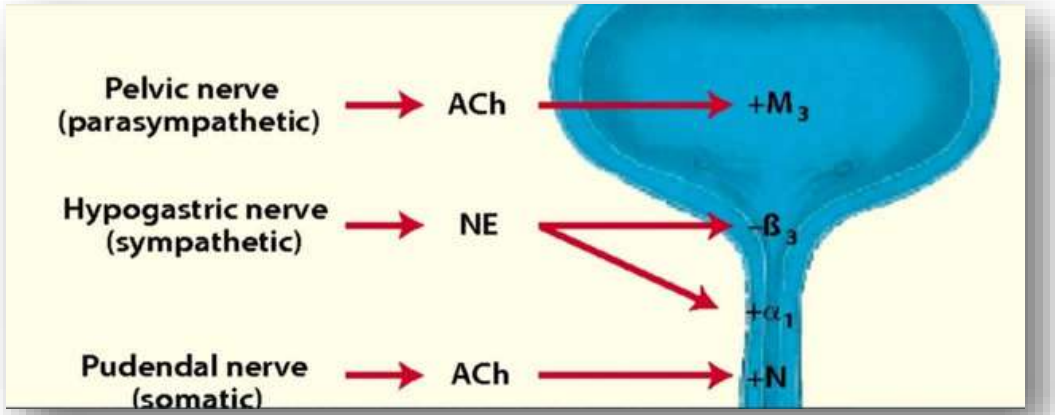
- When the bladder isstillnot fullenough→no signalfrom stretch receptors is sent to the spinal, pontine → thus are inhibited by the storage center → decreased parasympathetic, increased sympathetic
- When the bladder is full → stretch receptors send stimulatory signal to the spinal, pontine and medial frontal micturition centers
- When the spinal and pontine micturition centers receives the signal → increase parasympathetic, decrease sympathetic, and decrease motor nerve stimulation (Micturition reflex)
- Medial frontal micturition center (voluntary control) can decide either to empty the bladder or to hold in the urine
  - If you decide to empty→the medial frontal micturition center stimulate the pontine micturition center allowing themicturition reflex to happen
  - If you decide to hold on→the medial frontal micturition center stimulate the pontine storage center inhibiting the micturition reflex from happening

Lesions causing neurogenic bladder

1. Lesions**above thepontine** (ex.ACAstrokes) ⟶ cut the communication between the medial frontal micturition center and the pontine micturition center → patient can't voluntarily control urination → when the bladder is full the micturition reflex will simultaneously occur → urgency incontinence + storage symptoms (frequency, nocturia)
2. Lesions **beneath the pontine**but above the sacral micturition center → bladder contraction occur without sphincter relaxation → voiding symptoms (weak stream, retention, hesitancy, dribbling)
3. Lesions **at the level of the sacral micturition central** or **to the lower neurons**→ bladder can't contract → Weak bladder

Autonomic drugs that affect the bladder

DRUGS	MECHANISM	APPLICATIONS
❶ **Muscarinic antagonists** (eg, oxybutynin)	⊖ M_3 receptor → relaxation of detrusor smooth muscle → ↓ detrusor overactivity	Urgency incontinence
❶ **Muscarinic agonists** (eg, bethanechol)	⊕ M_3 receptor → contraction of detrusor smooth muscle → ↑ bladder emptying	Urinary retention
❷ **Sympathomimetics** (eg, mirabegron)	⊕ β_3 receptor → relaxation of detrusor smooth muscle → ↑ bladder capacity	Urgency incontinence
❸ **α_1-blockers** (eg, tamsulosin)	⊖ α_1-receptor → relaxation of smooth muscle (bladder neck, prostate) → ↓ urinary obstruction	BPH



شرح

Summery

- Lesions **above the pontine**(ex.ACAstrokes):
  - **Typeofincontinence**:Urgency incontinence
  - **Bladder & sphincter function**: Normal function (intact micturition reflex)
  - **Treatment**:Antimuscarinics(ex. oxybutynin),βAgonists(ex.mirabegron)
- Lesions **beneath the pontine**but above the sacral micturition center:
  - Commonly seen in **multiple sclerosis** and **spinal cord injury**
  - **Type of incontinence**: Overflow incontinence
  - **Bladder & sphincter function**: Simultaneous contractions of the detrusor muscle and involuntary activation of the urethral sphincter (spastic neurogenic bladder)
  - **Treatment**: α1-blockers (ex. tamsulosin)
- Lesions **at the level of the sacral micturition central** or **to the lower neurons**:
  - **Typeof incontinence**:Overflow incontinence
  - **Bladder & sphincter function**: Hypoactive bladder and weak sphincter (flaccid neurogenic bladder)
  - **Treatment**: Muscarinic agonists (bethanechol)

Neurogenic Bladder –Case scenario 1

➢Patientwithspinal injury&quadriplegiacannotpassurine&hasurinary incontinence

- **Diagnosis**: Spinal shock
- **Type of incontinence**:
  - overflow incontinence (bladder is hypoactive)

Predict bladder & sphincter function after 3 months

  - Bladderbecomeshyperactive+detrusorsphincterdyssynergia (DSD)

- **Define the neurogenic bladder**:
  - A term used to describe lower urinary tract dysfunction resulting from a neurologic disease or process

Neurogenic Bladder –Case scenario 2

➢Patient present after car accident with incontinence:

❖**Type of incontinence**:

- overflow incontinence (bladder is hypoactive)

❖**Underlying causes of the incontinence**

❖
- Spinal cord injury

Bladder function after 3 months

- Overfunction

❖Compliance describes the relationship between volume& pressure

❖The spinal shock following severe injury to the spinal cord lasts 3 months
During this period, the bladder is hypoactive (flaccid)

Neurogenic Bladder –Case scenario 3

➢A hemiparalytic femalepatient present to theclinicafter 6 months ofher offending event complaining of inability to hold urine and sudden urgencies to void immediately

- **Type of incontinence**:
  - Urgency incontinence
- **Bladder & sphincter function**:
  - Normalfunction(intactmicturition reflex)
- **Treatment**:
  - Antimuscarinics (ex. oxybutynin), β3 Agonists (ex. mirabegron)

MCQ –Tumescence is mediated by

- Thoracic sympathetic
- Pelvic sympathetic
- Lumbar parasympathetic
- Pelvic parasympathetic
- Sacral somatic

Mention the diagnostic procedure of

Hyperactive bladder : cystometry

Station 3

What the diagnosis of these?

A. Hypospadias

B. hydrocele

C. Varicocele

D. 2 way Foleys catheter

2. mention one diagnostic and one therapeutic indication of picture D?

-drain urine in urinary retention

-measure urine output

Fill in the blanks

1-Urge incontinence is due to detrusor hyperactivity

2-Stress incontinence is due to increased intra abdominal pressure

3-Female with incontinence best test to do is cystometry

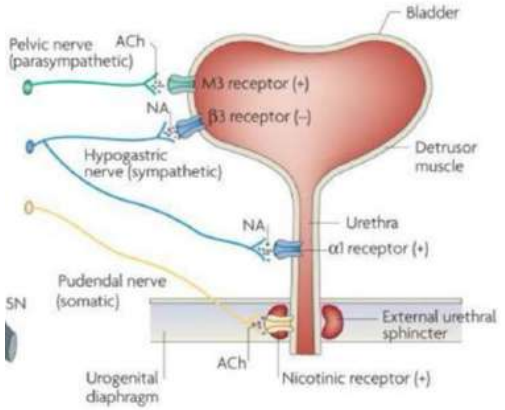
4-External urethral sphincter injury leads to what type of incontinence stress incontinence

5-Overflow incontinence is caused by detrusor hypoactivity which is treated with muscarinic agonists+catheter

Station 4 – Neurogenic Bladder (Physiology)

Q1. Color-coded lines:

- Green line → Parasympathetic (M3 receptor)
- Blue line → Sympathetic
- Yellow line → Somatic (Pudendal nerve)



Q2. Effect of parasympathetic:
➡️ Bladder contraction (detrusor contraction via M3) → promotes urination

Q3. Effect of sympathetic:
➡️ Bladder relaxation (β3 receptors) + Internal sphincter contraction (α1) → urine storage

Q4. Effect of somatic:
➡️ External sphincter contraction (voluntary control)

Renal Trauma

Urological Trauma

Indications for CT with IV contrastin renal injury

1. Gross hematuria
2. Microscopic(>5 RBCs per high-powered field) or dipstick hematuria in a hypotensive patient (systolic blood pressure of <90 mmHg recorded at any time since the injury) in hemodynamic non-stable patients.
3. History of rapid deceleration with evidence of multisystem trauma (fall from a height, high-speed motor vehicle accident).
4. Penetrating chest and abdominal wounds (knives, bullets) with any degree of hematuria or suspicion of renal injury based on wound location
5. Pediatrics with microscopic hematuria.

Hematuria after trauma is the most important indicator for UT injury

Staging of the renal injury

- **Grade I**: Contusionornon-expandingsubcapsularhematoma, no laceration
- **Grade II**: Non-expanding perirenal hematoma, cortical laceration <1cm deep without urinary extravasation (cortex only)
- **Grade III**: Cortical laceration >1cmdeep without urinary extravasation (extending through the cortex and into renal medulla)
- **Grade IV**: Laceration through corticomedullary junction into collecting system. Or vascular, segmental renal artery or vein injury with contained hematoma or partial vessel laceration or vessel thrombosis
- **Grade V**: Shattered kidney or renal pedicle avulsion

Management summary of renal injury

- **Grade1+ 2 +3(Notreachingthepelvicalycealsystem)**:Conservative
- **Grade4**:50%aretreatedconservatively(Ifhemodynamicstable)and50% are treated surgically
- **Grade 5**: Surgical exploration

- **Indications for surgical management include**:
  1. Penetrating trauma
  2. Exploration for associated injuries
  3. Expanding pulsatile retroperitoneal hematoma during laparotomy
  4. Grade IV injuries in hemodynamically unstable patient
  5. Grade V injuries

Renal trauma –Case scenario

➢Patient with renaltrauma,gross hematuria,CTscanwith1.6cm parenchymal laceration with no urine extravasation.

❖**What was the indication for CT in this case ?**

- Gross hematuria

❖**What is the stage of the renal injury?**

- Grade 3 (>1cm)

❖**What is your management ?**

- Followup,bed rest,resuscitation,noneedfor surgery

❖**Mention 2 indications for surgery ?**

1. Exploration forassociatedinjuries
2. Expanding pulsatile retroperitoneal hematoma during laparotomy
3. Penetrating trauma
4. Hemodynamic instability

Renal trauma –Case scenario 2

➢Patient with renaltrauma,grosshematuria,CTscanwith1.6cm parenchymal laceration with no urine extravasation.

❖**Define grade 3 renal trauma**

- **GradeIII**: Corticallaceration>1cmdeep withouturinaryextravasation (extending throughthecortexandinto renalmedulla)

❖**Mention 2 findings in the history of this patient that indicate renal bleeding ?**

- Gross hematuria, hemodynamic instability

❖**What is the first line of investigations ?**

- CT scan with contrast

Station 1 : fill the following black by the correct answer from the column

1. the part of the urethra that usually injured by straddle injury **bulbar urethra**
2. Imaging study of urethral trauma **urethrogram**
3. Main indicator of renal injury **hematuria**
4. **grade 2 renal injury** Injury in cortex less than 1 cm

-)

a) investigation foe urethral injury ____

b) contraindication for prostatitis ____

c)extravasation in renal injury is grade _____

d) management for patient with prostatic cancer and his life expectancy < 5 years is ____

e) penetrating injury in bladder needs ____

key word (massage, stage 2, retrograde urethrogram, stage 4, CT, watchful waiting, open and repair)

Ureteral trauma

شرح

Ureteral injury

- **Most common cause**:iatrogenic
- **Urinalysis**:
  - Hematuria (is the most important indicator urinary tract injury)
- **Imaging**:
  - CTscan(1stchoice), IVP (2ndchoice)
  - Retrograde pyelography, invasive; preceded by Cystoscopy to fill the contrast in the ureteric orifice
  - oAntegrade ureterography, in patients with Nephrostomy

Grade	Description of Injury
I	Contusion or hematoma
II	< 50% transection
III	> 50% transection
IV	Complete transection with < 2 cm devascularization
V	Avulsion with > 2 cm devascularization

- **Management**:
  - **Grade 1 (Contusion)**:
    - Mild: Ureteral stenting
    - Severe:Resection and anastomosis
  - **Grade 2,3**:
    - PrimaryclosureorResection and anastomosis
  - **Grade 4,5**:
    - Resection and anastomosis

Ureteral injury

❖**Complete transection Managements**:

1. Ureteroureterostomy
2. Ureteropyelostomy (If complete transection injury to upper ureter = Near pelvis)
3. Ureterocalicostomy (If there was damage to the upper ureter and it cannot be anastomosed with the renal pelvis)
4. Transureteroureterostomy (End to side anastomosis in Mid ureter injury)
5. Ureteroneocystostomy
6. Vesicopsoas hitch (Fixation of the bladder with psoas fascia)
7. Boari bladder flap

o5 + 6 + 7 are used in Lower Ureter injury

2Station

- **Stone at** Bladder

a- name the procedure for removing stones in the ureter:

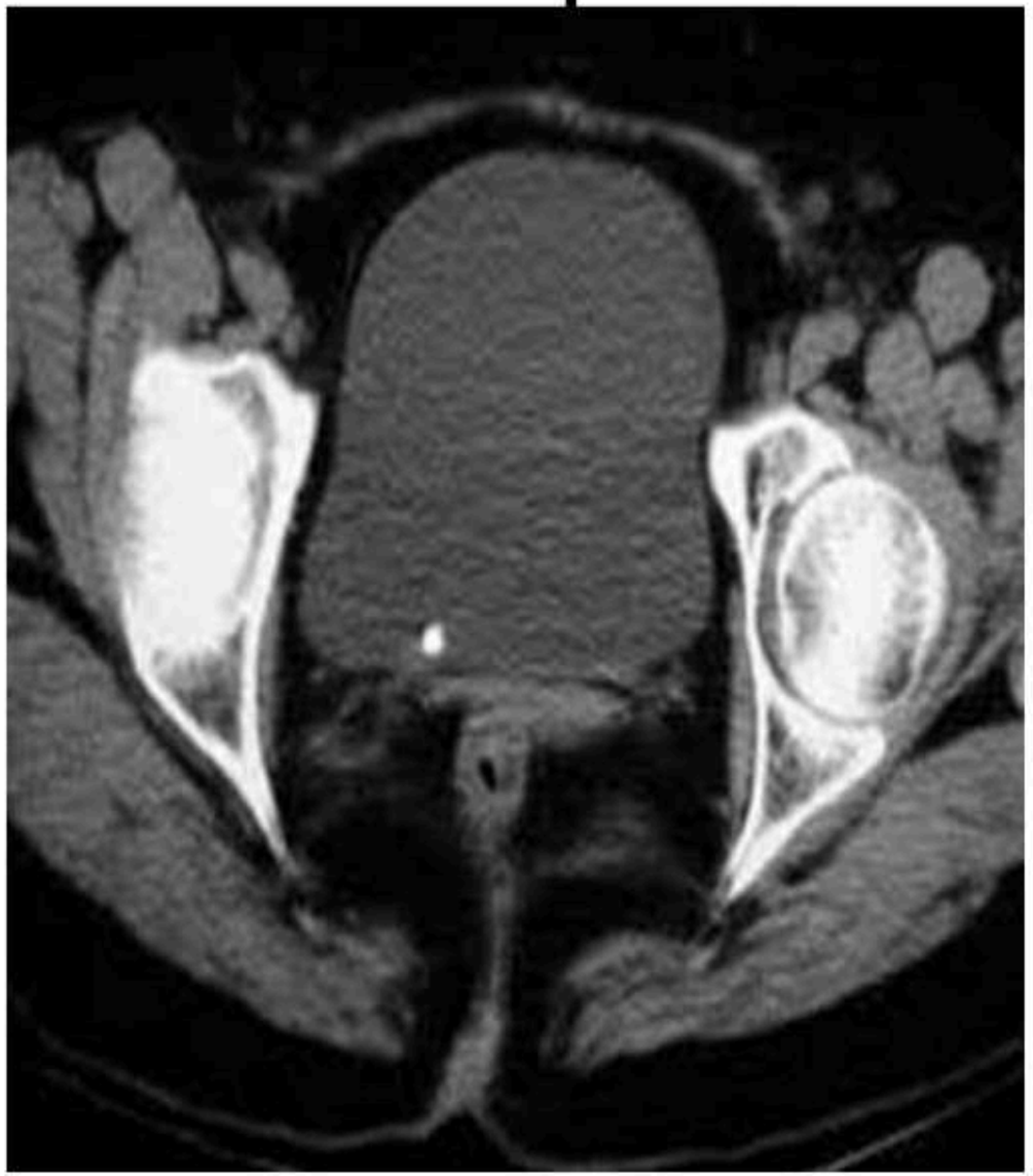
Cystoscopy transurethral

B- mention 2 complications of this procedure:

Infection

Hematuria

Ureteric injury



Bladder trauma

Bladder injury

- **Causes**: Blunt, penetrating,iatrogenictrauma(Cystoscopy/TURPT)
- Laboratory studies and Imaging studies:
  - Macro/Microscopic hematuria (95%)
  - **Cystography (Contrast)**: standard diagnostic procedure; most accurate.
    - How to know the site of extravasation?
      - **Intraperitoneal**: Contrast appears around the bowel
      - **Extraperitoneal**: Contrast appears around the bladder
  - **CT scan**: method of choice for evaluation of blunt or penetrating abdominal / pelvic injury

Bladder injury

Type	Description
1	Bladder contusion
2	Intraperitoneal rupture (dome is most weak part of the bladder)
3	Interstitial bladder injury
4	Extraperitoneal rupture
4a	Simple
4b	Complex
5	Combined injury

Treatment of bladder injury

- Emergency treatment of shock and hemorrhage
- Surgical treatment:
  - **Blunt injury**:
    - Ifitoccurs through the posterior lateral wall:
      - Extraperitoneal leakage of urine
      - Treated by conservative management (Foley's catheter for 1-3 weeks).
    - If it occurs through the dome(Anterior):
      - Intraperitoneal leakage of urine.
      - Treated bylaparotomyforSuturing.
  - **Penetrating injury:** surgical exploration and repair
  - The perivesical hematoma: shouldbeleftundisturbed to avoid introducing bacteria (Multiple abscesses)

Bladder trauma –Case scenario 1

- Femalepatient RTApresented to ER complaining of abdominal pain, stable vital signs x-ray shows dilated bowel
- **What is your diagnosis ?**
  - Intraperitoneal rupture of bladder
- **What is the grade of the trauma ?**
  - Grade 2
- **Treatment**: Open laparotomy

Bladder trauma –Case scenario 2

➢Scubadivingpresented to ERcomplainingof abdominal pain, stable vital signs x-ray shows dilated bowel and air fluid level

❖**What is your diagnosis ?**

- Intraperitoneal rupture of bladder

❖**What is the grade of the trauma ?**

- Grade 2

❖ **Treatment**: Open laparotomy

Bladder trauma –Case scenario 3

➢Car accidentwithrightileumfracturehematuria75ccwithpictureof retrograde pyelogram

What is your diagnosis?

- Intraperitoneal rupture of bladder

❖**What is the grade of the trauma ?**

- Grade 2

❖**What is the first investigation you should ?**

- Cystography

❖**Treatment**: Open laparotomy

Bladder trauma –Essay

- **What arethetypesof bladderinjury?**
  - Penetrating and blunt
- **What the most specific radiological investigation ?**
  - Cystogram
- **Whatisthemost common urethral injury ?**
  - Fossa naviculars

Urethral trauma

Urethral injury

❖**Male urethra anatomy**:

1. **The posterior urethra**: Prostatic urethra and membranous urethra
2. **The anterior urethra**: Penile urethra and bulbar urethra

1. **Posterior urethral injury**:
   - Membranous urethrainjury in pelvic fractures.
2. **Anterior urethral injury**:
   - Bulbar urethra injury in Straddle injury
   - Penile urethra injury is usually due to iatrogenic injury from catheterization or manipulation

➢**Note**: In retrograde urethrography, Foley's catheter is introduced at the fossa navicularis for contrast push but never introduce further in any urethral injury

Signs and symptoms of urethral trauma

1. Pain with voiding orinability to void
2. Blood at meatus Blood at vaginal introitus
3. Perineal, scrotal, labial, penile ecchymosis and edema
4. Abnormal location of prostate on DRE
   high riding prostate or may appear to be absent
5. Blood on DRE or vaginal examination
6. Hematuriaalthoughnotspecificbuthematuriaonafirst voided specimen may indicate injury
7. Hematoma or swelling

Management of urethral injury

❖Anterior urethral injury

- **Blunt trauma**:
  - **Partial tears**: suprapubic cystostomy to divert urine away from site of injury, and this is maintained for 4 weeks to allow healing
  - **Complete tear**: end to end anastomosis
- **Open injury**:
  - Surgicalexploration and repair

❖Posterior urethral injury

- **Partialtear**:cystostomy
- **Complete tear**: urethroplasty later on

➢Urine diversion in both patterns of injury (Suprapubic catheter) should be done

➢**Last modality of treatment**: Buccal-mucosal graft

Urethral injury- mini-osce

1. Which part more liable to injury by pelvic fracture:

   - **Membranous urethra (because it's fixed and passes through urogenital diaphragm).**

2. Imaging study for urethral trauma:

   - **Retrograde urethrogram (RUG)**

Station 5 – Urinary Tract Trauma

Q1. Partial transection of ureter:

- Diagnosis: CT scan or IVP
- Treatment: Primary closure over a stent

Q2. Blunt injury to bladder (posterolateral wall, extraperitoneal):

- Diagnosis: Cystography
- Treatment: Conservative – Foley's catheter for 1–3 weeks

Q3. Which part of the urethra is affected in pelvic fracture?
➡️ Membranous urethra

Q4. Definition of Grade 2 renal injury:
➡️ Non-expanding perirenal hematoma, cortical laceration <1 cm depth without urinary extravasation

Urethral injury –Case scenario 1

- **Which study do we use in this case ?**
  - Retrograde urethrography

Why not use foleys catheter ?

- Risk for complications

Station 7
RTA case

1. Diagnosis ? Urethral injury
2. Image ? Urethrography
3. If patient has retention what the management ?

Suprapubic aspiration

4. Treatment ? Urethroplasty

Station 8
Hx (hydrouretronephrosis with single kidney)

1. Next step ? MCUG
2. Diagnosis ? VUR
3. Management if there is retention ?

Insertion of double j

Station 8
Hx (hydrouretronephrosis with single kidney)

1. Next step ? MCUG
2. Diagnosis ? VUR
3. Management if there is retention ?

Insertion of double j

Urinary tract infection

Urinary tract infection

- **Most common pathogen ofUTI**:*E.coli*
- **Most common mode of infection**: Ascendingfrom the periurethral, vaginal and fecal flora
- **Upper tract infection:**
  - Pyelonephritis (acute/chronic) mostly diagnosed clinically, Ureteritis
  - **Symptoms**:
    1. Symptoms of lower UTI
    2. Fever,Flank pain,CVA tenderness, Fatigue/malaise, Nausea and vomiting
- **Lower tract infection:**
  - Cystitis,urethritis,and prostatitis
  - **Symptoms**:
    - Storagesymptoms(dysuria,urinary urgency, frequency), hematuria, suprapubic tenderness

Urinary tract infection

❖Symptomatic UTI:

- There'ssigns and symptoms of UTI and laboratory testing confirm the diagnosis
- **Urinalysis:** 5-15 WBC per high-power
- **Urine culture**: 1 x 106cfu/ml
- ✓**Isolated**: 5-6 months between attacks
- ✓**Recurrent**: More than 2 infections within 6 months or more than 3 within 12 months (define)

5(سنوات)

- ✓**Reinfection**: Infection by a different bacteria
- ✓**Bacterial persistence**: infection by the same organism from a focus within the urinarytract

❖Asymptomatic UTI:

- Thereisnosymptoms, but the urinalysis and culture are positive; treatment only in case of pregnancy and immunodeficiency

Urinary tract infection

- **Uncomplicated UTI**:
  - Inhealthypatientswith normal urinary tract anatomy
- **Complicated UTI**:
  - **Occurs**:
    1. In immunocompromised
    2. When there is anatomic abnormalities
    3. When infected by multi-drug resistant bacteria

    Note: Any UTI in males is considered complicated UTI
  - **Results in**:
    - **Functional**: renal failure, neurogenic bladder, VUR
    - **Structural**: stricture, BPH, anatomic malformation

Prostatitis

Overview of clinical features of bacterial prostatitis and chronic pelvic pain syndrome			
	Acute bacterial prostatitis	**Chronic bacterial prostatitis**	**Chronic pelvic pain syndrome (CPPS)**
Constitutional symptoms	• Spiking fevers, chills • Malaise	• Commonly absent • Low-grade fever in some patients	• Commonly absent

Genitourinary tract symptoms	• Acute bladder irritation
	  ◦ Acute dysuria
	  ◦ Frequency
	  ◦ Urgency
	• Cloudy urine
		• Chronic bladder irritation
		  ◦ Dysuria
		  ◦ Frequency
		  ◦ Urgency
		• Erectile dysfunction
		• Possibly bloody semen
			• Possibly erectile dysfunction
			• Painful ejaculation
			• Bloody semen
			• May have symptoms of bladder irritation

Genitourinary pain	• Severe
	  ◦ Lower back
	  ◦ Perineal
	  ◦ Pelvic
	  ◦ With defecation
		• Mild	• Moderate, diffuse
			  ◦ Lower abdomen
			  ◦ Lower back
			  ◦ Perineum
			  ◦ Scrotum
			  ◦ Penis

Prostate	• Tender, boggy • Warm, swollen	• Often normal • May be enlarged and tender	• Usually normal • May be slightly tender

✓ **Category 1**: Acute bacterial prostatitis

✓ **Category 2**: Chronic bacterial prostatitis

✓ **Category 3**: Chronic pelvic pain syndrome

✓ **Category4**:Asymptomatic inflammatory prostatitis

UTIs –Case scenario 1

➢Newly marriedfemalewithfever,frequency, urgency, dysuria. (Note: UTIs more common in females)

❖**What is your diagnosis ?**

❖ ○ Acute cystitis

Simple diagnostic tests to assure your diagnosis:

○ Urine analysis, urine culture and sensitivity, CBC

❖**Treatment (Name & duration)**:

○ **1st line**: TMP-SMX

○ **2nd line**: Fluoroquinolone

○ **Duration**: 1-3 days

Diagnosis	Choice of antibiotics	Duration of therapy
Cystitis	1st: TMP-SMX 2nd: Fluoroquinolone	1–3 days
Pyelonephritis	1st: Gluoroquinolone 2nd: 2nd-generation cephalosporin 3rd: Aminopenicillin/BLI	7–10 days
Complicated UTI[a]	1st: Fluoroquinolone 2nd: Aminopenicillin/BLI 3rd: 3rd-generation cephalosporin Aminoglycosides	Afebrile: 2 weeks Febrile: continue for additional 3–5 days after last fever (minimum 2 weeks)
Prostatitis	1st: Fluoroquinolone 2nd: 2nd-generation cephalosporin 3rd: 3rd-generation cephalosporin	Acute: 2 weeks Chronic: 4–6 weeks
Epididymitis	1st: Fluoroquinolone 2nd: 2nd-generation cephalosporin *or* 1st: Doxycycline 2nd: Macrolide	14 days
Urethritis[b]	1st: IM ceftriaxone + azithromycin 2nd: Doxycycline	Single dose 7 days

UTIs –Case scenario 2

➢33 years old married femalewithrecurrentdysuria , urgency and hematuria with mild fever

- **What is your diagnosis ?**
  - Recurrent acute cystitis
- **Whatarethe risk factors in this patient ?**
  - Married
  - Female

UTIs –Essay

- **What are the clinicalsigns&symptomsofacute pyelonephritis:**
  - Fever andchills
  - Loin pain
  - Costovertebral angle tenderness
- **Whatisthe best confirmatory test ?**
  - Culture
- **What is it called when we start treatment before conformation of the diagnosis ?**
  - oEmpirical therapy

UTIs –match

Question:
Match each condition with the correct clinical association.

Explanation	Match	Condition
Presents with fever, flank pain, and pyuria — confirmed mainly by clinical findings and urine culture.	**C. Diagnosed clinically**	1️⃣ **Acute Pyelonephritis**
Gas-forming infection of renal parenchyma, strongly associated with uncontrolled diabetes mellitus.	**B. Diabetes**	2️⃣ **Emphysematous Pyelonephritis**
Chronic granulomatous inflammation often secondary to infected obstructing calculi.	**A. Urolithiasis**	3️⃣ **Xanthogranulomatous Pyelonephritis**
Occurs in presence of obstruction, stones, catheter, or congenital anomaly.	**E. Abnormal urinary tract anatomy**	4️⃣ **Complicated UTI**
Infection in otherwise healthy urinary tract (typically in healthy adult females).	**D. Normal urinary tract anatomy**	5️⃣ **Uncomplicated UTI**

QS

Fever 38.5, tacycardia, loin pain and Costovertebral angle tenderness There are RBCs & 18000 WBC in Urine analysis

1) Diagnosis?

Pyelonephritis

2) Management ?

1st Gluroquinolone

2nd second generation cephalosporin

3rd Aminopenicillin

For 7 to - 10 days

Station 4: 35 year old female with UTI 3 times within 6 month

1. Diagnosis : **recurrent UTI**
2. Cause :
3. Management :

pyelonephritis case with DM (6

A) diagnose

B) most common organism

C) managment

Ur olithiasis

Urolithiasis

- **Classification of stonesaccordingtoX-rayopacity**
  - **Radio-opaque**: Calciumoxalate,Calciumphosphate
  - **Radio-faint**: Cystine, Struvite (Ammonium magnesium phosphate)
  - **Radio-lucent**: Uricacid
- **Classification of stones according to the size**
  - Single,solitary stone
  - Staghorn(large occupying the renal pelvis); most common due to struvite
- **Urinalysis**:
  - **Nonspecific findings**: Gross or microscopic hematuria
  - **Findings suggestive of stone composition**:
    - Alkalineurine(pH>7.5–8)suggestsstruvitestones associated with urease-producing
    - organisms

    Acidic urine (pH < 4.5–5.5) may indicate uric acid stones

Define

- **Calcium Stones**: (most common) Composedofeither Calcium oxalate or phosphate. Radio-dense (i.e., visible of abdominal radiograph) Occurs secondary tohypercalciuria (more common) and hyperoxaluria
- **Uric Acid Stones**: (2nd most common) Radiolucent (cannot be seen on abdominal radiograph) Causes Associated with Hyperuricemia. (gout)
- **Struvite Stones**: Radio-dense (magnesium ammonium phosphate) Causes Often seen in patients with recurrent UTI's due to urease producing organisms (such as Proteus and Klebsiella)
- **Cystine stones**: (rare) radio-lucent Seen in patients with Cystinuria (autosomal recessive)

سنوات قديم
- Absorption of Ca mainly in duodenum (**T**/F question)

سنوات قديم
- Stone formation may be a genetic cause (**T**/F question)

سنوات قديم
- Gallbladder stone have an increased risk factor for renal stone (**T**/F question)

شرح

Imaging –CT scan for urolithiasis

- **Best diagnostictestsfor**
  - سنوات 9(**Kidneystone**: CTwithoutcontrast
  - 1(سنوات) **Pelviureteric junctionobstruction**:CTwithout contrast
- **Indications of CT scan for urolithiasis**:
  - First-line for non-pregnant patients

Findings:

- Calculussize,location,density,and degree of obstruction
- Hydronephrosis and/or hydroureter
- Perinephric fat stranding as a result of increased lymphatic pressure

Imaging –Renal U/S

❖Mention 2 findings:

- Dilated renal pelvis (hydronephrosis)
- Hyperechoicsignalwithacousticshadow (renal stone)

❖U/S findings in urolithiasis:

- Obstructive uropathy (e.g., hydronephrosis)
- Stone: hyperechoic signal with acoustic shadowing
- Twinkle artifact: intense multicolored signal behind a stone seen when using **color doppler technique**
- oAbsence of ureteral jet when using **colordoppler technique**

❖Indication of U/S in urolithiasis:

- Suspectednephrolithiasisinpatients for whom radiation exposure should be minimized

What is the management of urolithiasis ?

1. Medical

1. Analgesia: 1stline: NSAIDs, 2nd line: Opioids
2. Antiemetics
3. IV fluid for dehydration
4. Expulsive therapy (First-line: Tamsulosin)
5. Provide antibiotic treatment ifurinalysis indicates a UTI

2. Interventional management

- **Infected stones**: Ureteralstenting or percutaneous nephrostomy
- **Ureteral stones**: Mid or distal ureter stones: Ureterorenoscopy(1stline), or ESWL (<10mm)
- **Renal stones>20mm OR lower renal pole stones > 10 mm**: percutaneous nephrolithotomy (PCNL)

سنواتقديم))

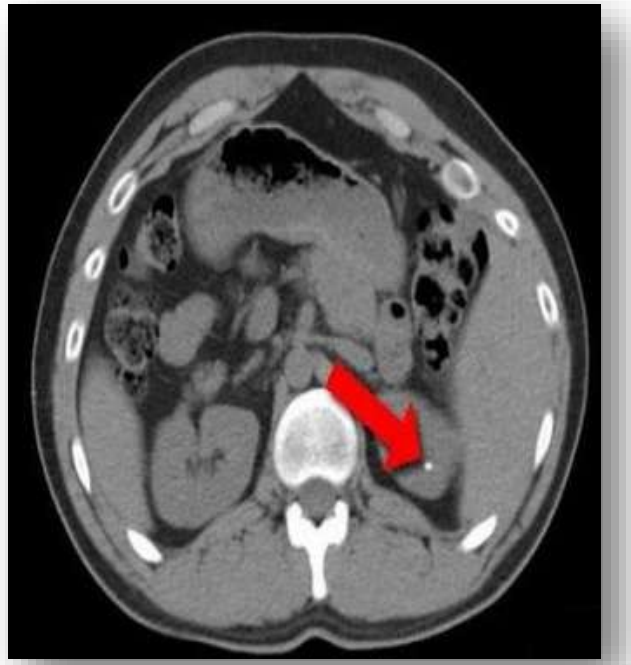
The most appropriate method of treatment of

- **8mm diameter mid ureteric stone**: ESWL (shock wave lithotripsy)
- **13mm stone in the mid renal calyx**:ureteroscopy(intracorporal)

سنوات قديم)1(

- **What is your management ?**

1. Medical (NSAIDs → opioid → CCBs →antiemetic →Alpha blocker)
2. Shock-wave lithotripsy (SWL)
3. Ureteroscopy.
4. Percutaneous nephrolithotomy (PCNL).
5. Open Stone surgery



KUB indicate a stone in the left ureter

- **WhatisthedifferencebetweentheKUBandnormalabdominal Xray ?**

  الجواب في أول سيكشن)شكلك أول ما قرأت السؤالوماعرفتتجاوبهشكلواحدعرفانهبكرةطابل(

- **What's the composition of the stone**
  - Calcium oxalate
- **What's the best management for it**
  - Medical (I.V fluid, NSAIDs, alpha blocker)

KUB

➢Patient with ureteric debris/stonesandrecurrent UTIs

❖What are the findings ?

- Radiopaque stone
- Double J stent

❖What are the indications of Double J stent ?

1. Obstructive nephropathy
2. Prophylactic pre-ESWL
3. Post-traumatic ureteroscopy
4. Following endopyelotomy
5. Post renal transplant
6. To identify ureter during major surgeries

Hydronephrosis –IVP

- **What is the nameoftheradiological abnormality shown ?**
  - Hydronephrosis
- **Mention 5 causes of this abnormality**
  1. BPH
  2. Pregnancy
  3. Kidney stones
  4. Neurogenic bladder
  5. Narrowing of the ureters

Urolithiasis –Case scenario 1

➢49 years oldmalepatient hasgout, presented toERwithsevere left renal colic, the presented x-ray study does not show radio-opaque shadow. with further investigation found to have left ureteric stone.

1. **Gold standard for diagnosis of stones ?**
   - CT scan without contrast
2. **What is the likely stone type for this patient ?**
   - Uric acid stone
3. **What isthe important causative factor ?**
   - Acidic urine due to high serum uric acid levels (gout)
4. **Mention 1 endoscopic method used for stones?**
   - Percutaneous nephrolithotomy

Urolithiasis –Case scenario 1

➢49 years oldmalepatient hasgout, presented toERwithsevere left renal colic, the presented x-ray study does not show radio-opaque shadow. with further investigation found to have left ureteric stone.

5.Mention 4 indication of endoscopic intervention(JJstent)ornephrostomy for this patient ?

1. Singlekidney
2. Bilateral obstruction
3. Obstructive nephropathy
4. Obstructive pyelonephritis
5. Intractable pain

Urolithiasis –Case scenario 2

➢A 37 yearsold businessmanpresentedwithflankpain, highfever and chills. He has been started on gout medication since2 months

- **What isthemostprobablediagnosis ?**
  - Uric acid stone

What investigations you would like to order ?

- CTscanwithoutcontrast,Urinalysis, CBC,KFT,Uricacid blood test

- **What is the medical treatment ?**
  - Analgesia: 1st line: NSAIDs, 2nd line: Opioids
    Antiemetics
  - IV fluid for dehydration
  - Medical expulsive therapy (First-line: Tamsulosin)
  - Provide antibiotic treatment if urinalysis indicates a UTI

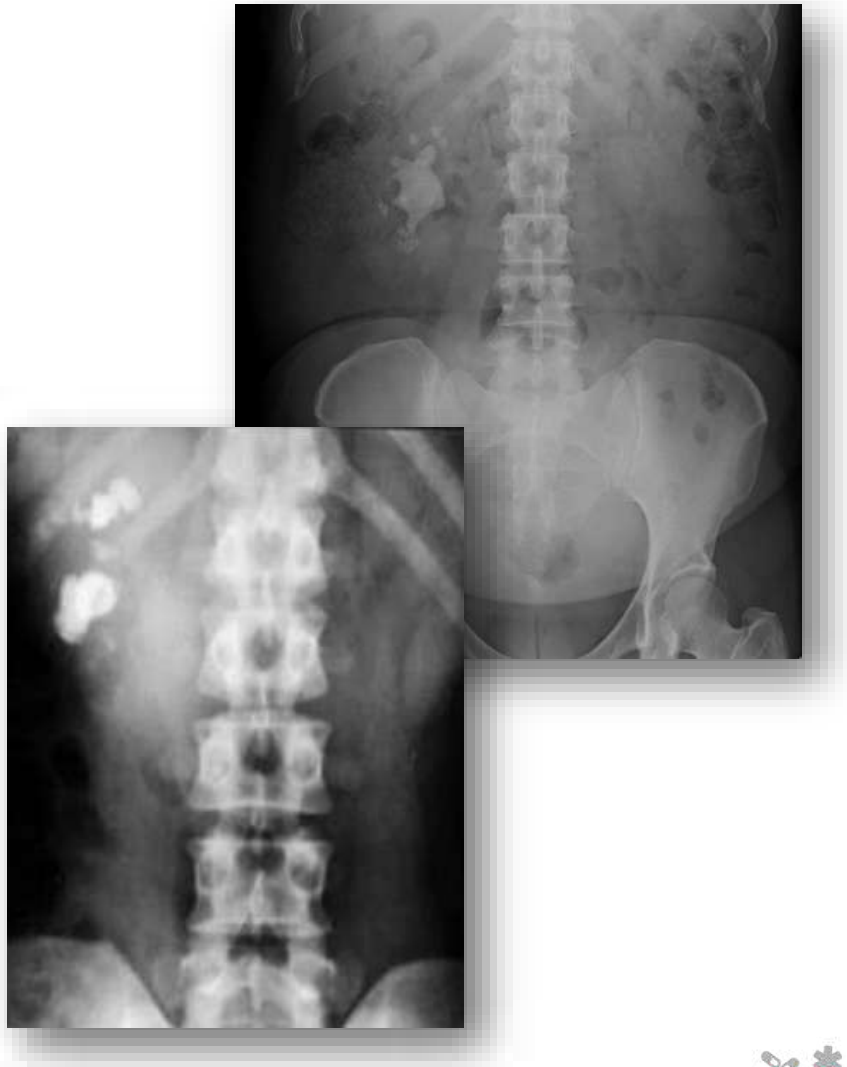
- **Ifthestoneisinthebladder,whatisthemedicaltreatment ?**
  - Potassium citrate

Urolithiasis –Case scenario 3

➢This is KUBof a37 years oldfemalepatient witha history of loin pain and recurrent UTI. The patients has 2 kids

- **Whatis the most probable etiology for her condition ?**
  - UTIwithureaseproducingbacteria (proteus, pseudomonas, Klebsiella)
- **What is the composition of this pathology ?**
  - Magnesium ammonium phosphate
- **What is the most appropriate method of management ?**

oPercutaneous nephrolithotomy



Urolithiasis –Case scenario 4

➢68 years oldmalepatient with BPHcametotheER with back pain, abdominal pain, fever, tachycardia, creatinine 0.8

❖**Whatdoyousee in the X-ray, in the CT**

- CT scan: Hydronephrosis
- X-ray: Ureteric stone

❖**What is your management?**

- Double j insertion(patientnotstable need emergent drainage)

❖**What is the diagnosis ?**

- Urosepsis (fever, tachycardia)

Urolithiasis –Case scenario 5

➢Lady withloinpain&historyofstoneformation(hasbeenremoved)

❖**Indications for admission**

- Intractable pain
- Toxemia suggesting infection
- Bilateral urine flow obstruction
- Solitatorykidney & renal failure

Urolithiasis –Case scenario 6

➢Stone atVUJ:

- **Whatisthename of the procedure for removing stones in the ureter ?**
  - Flexible ureteroscopy
- **Mention 2 complications of this procedure:**
  - Infection
  - Hematuria
  - Uretericinjury

Urolithiasis –. mini-osce

- ✅ Triamterene → Drug-induced stone
- ✅ Uric acid → Acidic urine
- ✅ Struvite → Urease-producing organism
- ✅ Cystine → Autosomal recessive disorder
- ✅ Calcium oxalate → Radiopaque stone

Q5: mention findings on microscopie evaluation of urine:

Casts,crystals, pus cells, epithelial cells , RBC

- **Q6: KUB:**

1. what is the diagnosis:

bilateral staghor stone

2. what is the causative agent:

ureas producing bacteria especially pseudomo

3. why ESWL not recommended??

because it will break it into smaller stones cousing more dotruction in ureten

4. two managment for this condition:

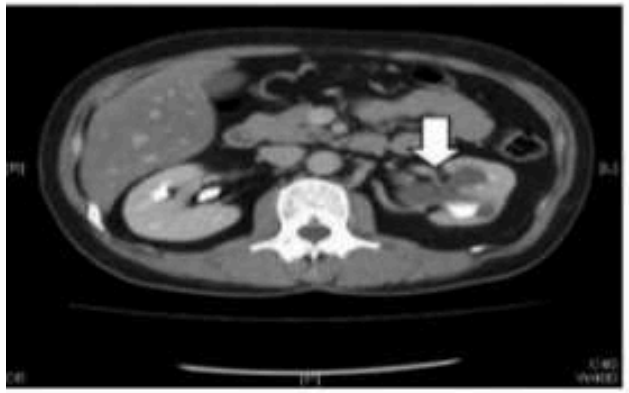
1. PCNL, 2- open surgery

- Ultrasound picture showing hydronephrosis , elevated Creatinen, single kidney, acute pain

- What's next step in diagnosis?
- 3 causes of admission?
- Treatment ?

1-CT-without contrast
2-A-refractory pain B-single kideny
C-not responed to single analgesia
D-obstructed nephropathy
3-double j

Station 6



A

B

Kub

Fever 38.5 , tacycardia, loin pain , There are RBCs & 18000 WBC in Urine analysis PH of urine 4.3

1.Describe findings A,B on CT images?

A: hydronephrosis

B:stone in the left ureter

2. Type of stone?

Uric acid stone (kub(على مبينة كانت ما الحصوة

3.What is your management?

Double j insertion

76 y old Male came to ER complaining of severe retractable flank pain WITH previous history of gout , after his doctor investigate… the pt had a severe hydronephrosis with stone In VUJ , what's the best management?

1***** الصوره ما العلاقه

A)cystoscopy with jj Stent

B) urethrostone with stone aspiration ☑

C) IVF with analgesia

d)ESWL كان معه عباره بتخليه استثناء

2*****

Type of stone :

A) uric acid stone☑

B) calcium oxylate

C) sturvite stone

D) fatty material

E) non of above

- **Stone at VUJ:**

a- name the procedure for removing stones in the ureter:

Flexible uretroscopy

B- most common type :

Calcium oxalate+phosphate

C-name of the tool put between renal pelvis and bladder :

Double j catheter

Station 3 – Urolithiasis

(Obstructive Pyelonephritis)

Patient presented to ER with flank pain, high fever, chills, and hypotension.

Q1. CT scan – Describe picture.
➡ Right-sided hydronephrosis (engorged kidney)

Q2. What is the first step in management?
➡ Urgent decompression – Double J stent or percutaneous nephrostomy

Q3. Complications of this condition:
➡ Hydronephrosis, renal scarring, renal failure

Q4. Treatment:
➡ Urgent drainage + IV antibiotics (broad spectrum, e.g., piperacillin-tazobactam or carbapenem if septic)

Station 4 – Urolithiasis

Ultrasound shows hydronephrosis.
X-ray shows no stones.
CT shows a renal stone.
Labs: Normal except for low urine pH and microscopic hematuria (>3 RBCs) in an elderly patient.

1. What is the abnormality on ultrasound? → Hydronephrosis
2. What is the most probable stone? → Uric acid stone (radiolucent, acidic urine)
3. What is the management?
    - Increase hydration
    - Alkalinize urine (potassium citrate or sodium bicarbonate)
    - Allopurinol if hyperuricemia present

Pediatric urology

Vesicoureteral reflux

شرح

Vesicoureteral reflux

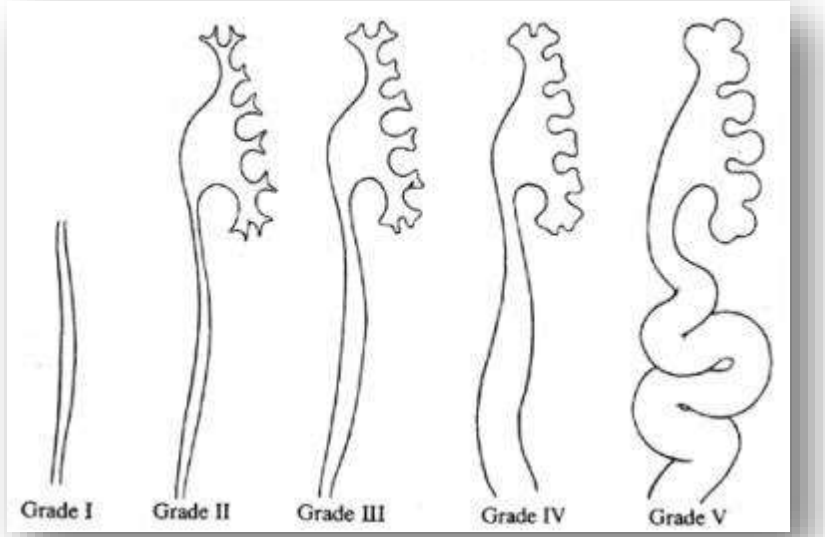
- **Definition**: Abnormal backflowofurinefrombladder to kidney that can cause the ureters and kidney to swell

)سنوات 1(

- **Best diagnostic tests for**:
  - **Vesicoureteralreflux (VUR):**MCUG
  - **Posterior urethral valve**: MCUG
  - **Detectandmonitor renalscarring**:DMSAscan
- **Benefits of Continuous low-dose antibiotic prophylaxis**
  - Lowers the occurrence of a subsequent UTI
  - Lowers the risk of renal scarring and damage
  - Lowers the upgrading of VUR

Vesicoureteral Reflux Grading

- **Grade I**: Urineflow back into onorbothof the uretersbut doesn't reach the kidney (urine reflux into non-dilated ureters)
- **Grade II**: Flow back up to the kidney but doesn't cause dilatation of renal pelvis
- **Grade III**: Mild to moderate dilatation of the ureter, renal pelvis and calyces with minimal blunting at fornices
- **Grade IV**: Moderate to severe dilatation of the ureter, renal pelvis and calyces with mild tortuosity
- **Grade V**: Severe dilatation with severe tortuosity, blunting renal fornices, cortical thinning and ballooning



Vesicoureteral reflux (VUR)

1.Name of this diagnosticstudy:

oMicturating cystourethrogram (MCUG)

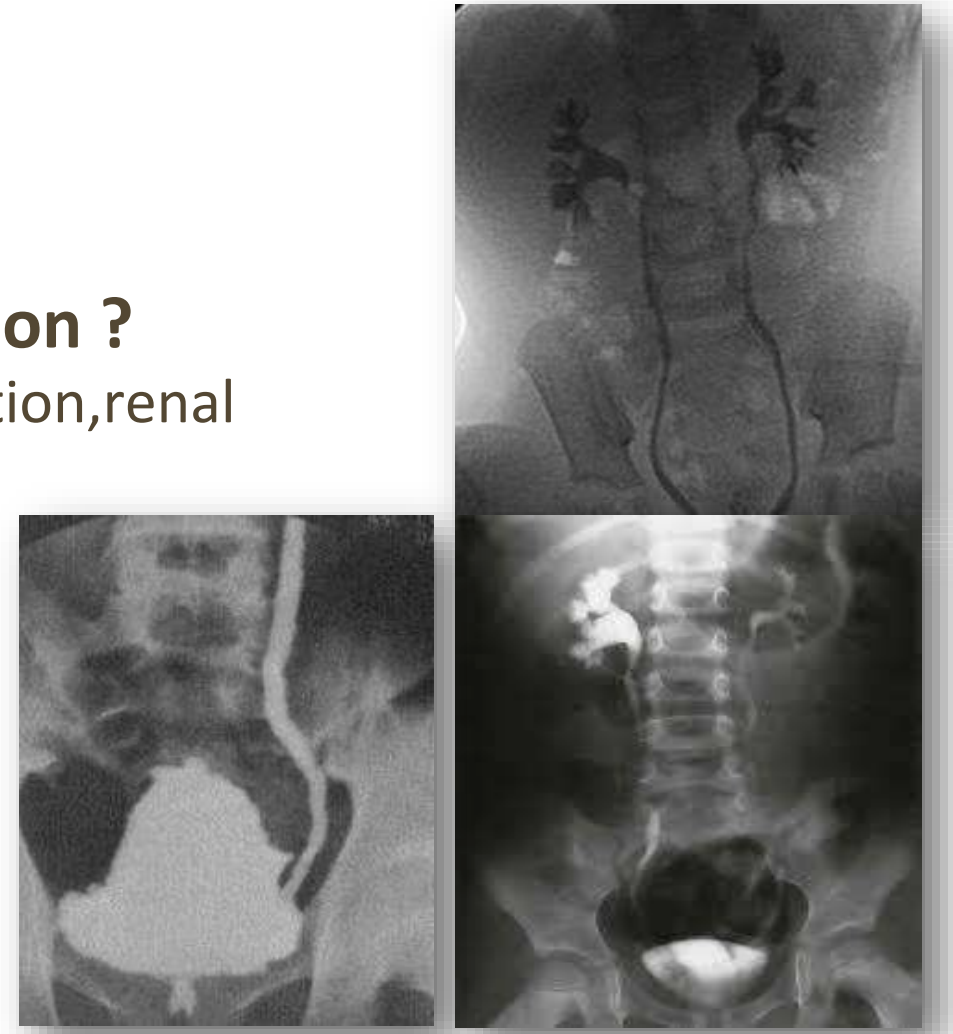
2. Grade: Grade 3

3.What is the effect of UTI on this condition ?

- Refluxofinfectedurinewillupgradethiscondition,renal failure and scar

4.Mention 3 secondary causes of VUR:

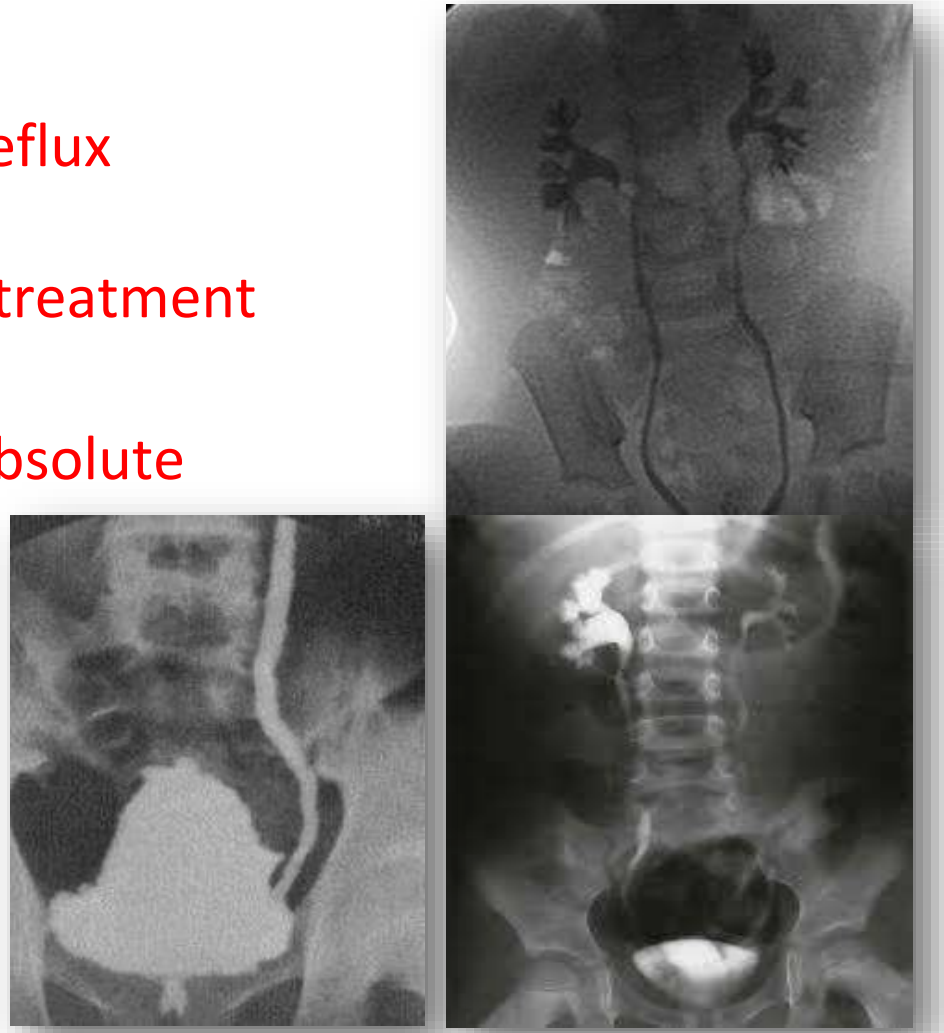
- Posterior urethral valve
- Urethral stricture
- Neurogenic bladder
- Detrusor sphincter dyssynergia (DSD)
- Acute cystitis



Vesicoureteral reflux (VUR)

5. Indications of surgery in VUR

1. If itisnotpossibletokeep urinesterile and reflux persists
2. If acute pyelonephritis not responding to treatment
3. If increased renal damage
4. High grade reflux (grade IV or V –not an absolute indication)

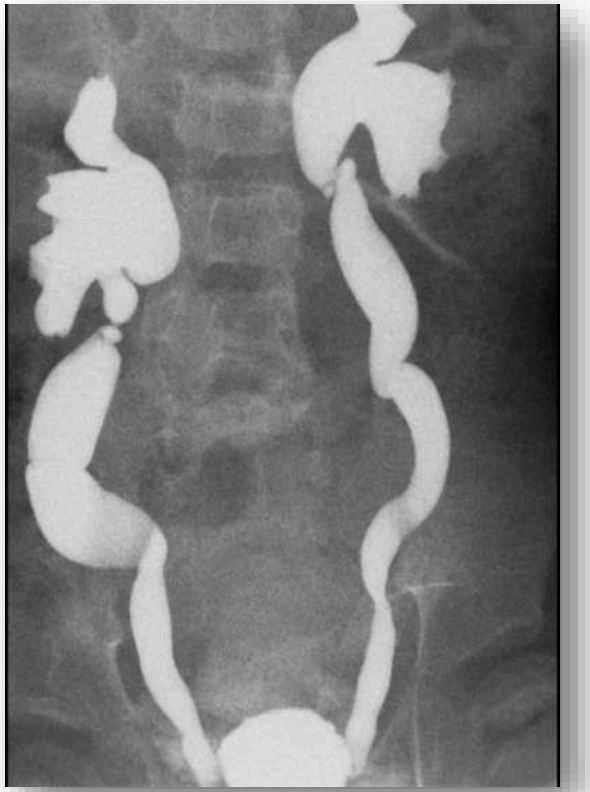


IV pyelogram

- **Findings**:
  - Bilateralhydroureteronephrosis with lose of papillary impression and ureter dilation
- **Grade**: Grade 5
- **Besttesttoseerenal scar**
  - DMSA
- **You need to see urethra to role out what ?**
  - Urethral stricture

Mention 2 complications on the kidneys:

- Renal scaring, Renal failure



IV pyelogram

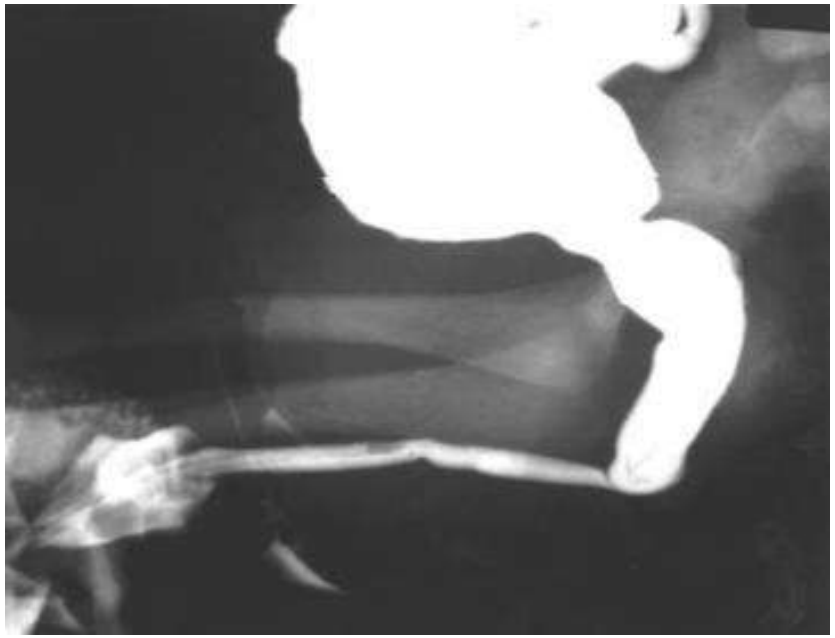
- **Diagnosis**:
  - Vesicoureteral Reflux
- **Best test to see renal scar**
  - DMSA
- **If the mother told you that this problem was diagnosed antenatally on her routine vest to the gynecologist, what should you also look for?**
  - Hypertension, Failure to thrive

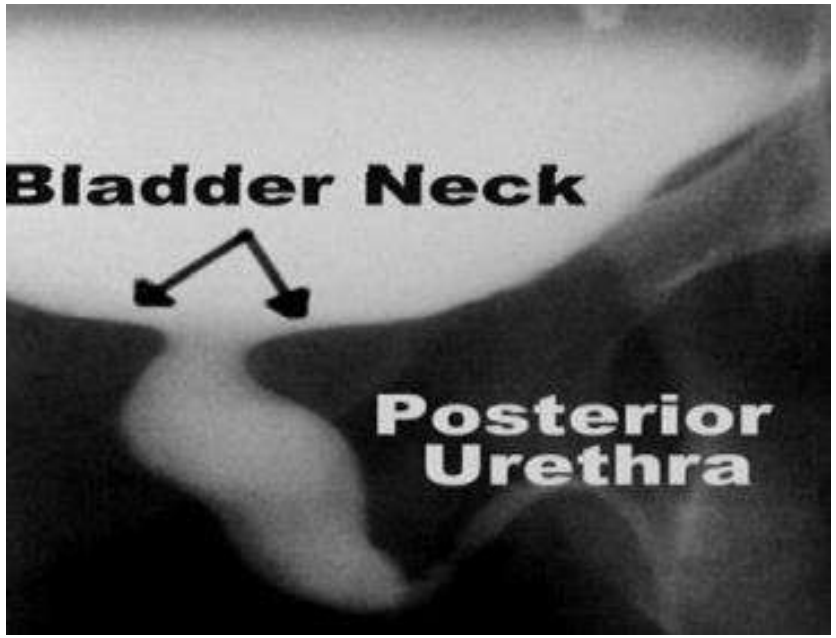
Vesicoureteral reflux –Case scenario 1

➢VCUG showing bilateral VUR, the baby was diagnosed with antenatal hydronephrosis

❖**What else should you suspect in him?**

- Hypertension, Failure to thrive





5 y old male came with reccuRent UTI with sever hydronephrosis , according to this image, what's the grade of reflux:

1***

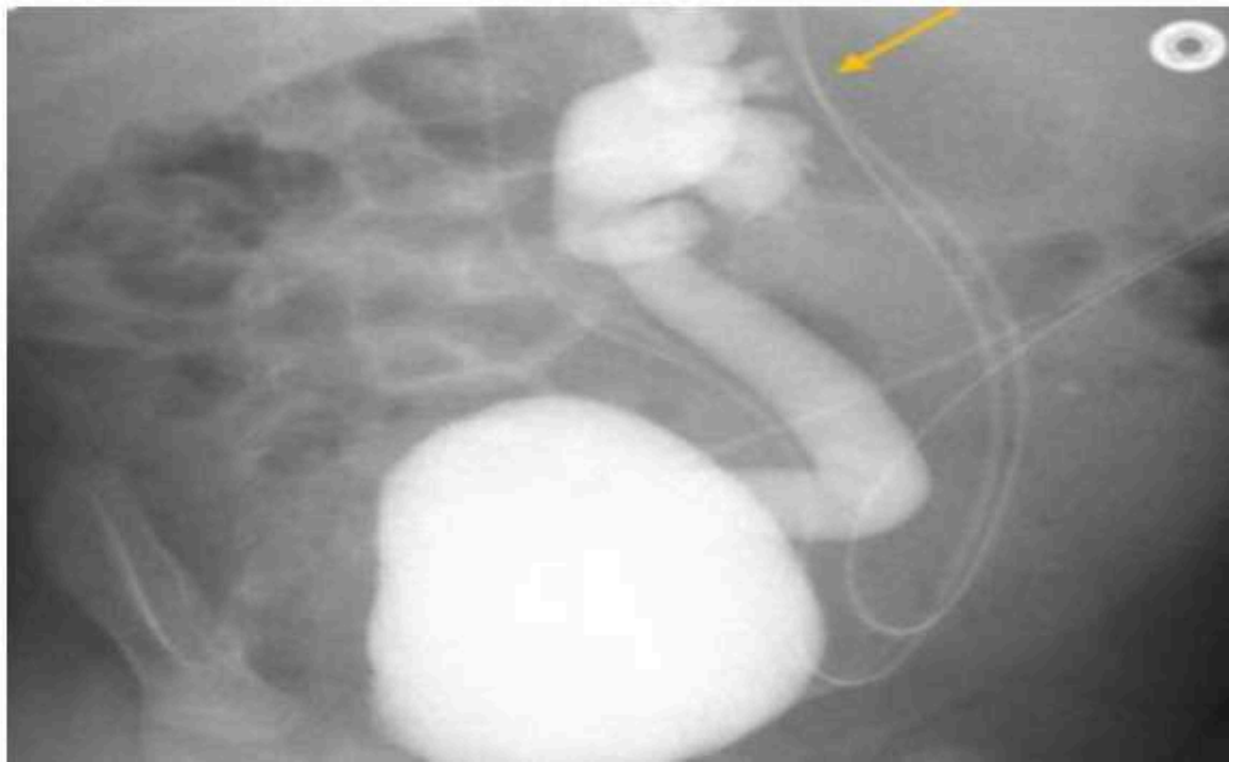
A)grade 1

B)grade 2

C) grade 3

D)grade 5☑

E)grade 4



p 61

2****

According to the previous questions, the best image modality to diagnose is :

A) MCUG☑

B)US

C)CT WITHOUT CONTRAST

3***

The benefits of giving low dose antibiotics is : a)dec risk of renal scaring b)Dec risk of upgrade reflex c) prevent farther complications

D) all of above☑

E) non of above

What’s your diagnose? Answer:hypospadus

Hypospadias & Epispadias

Essay

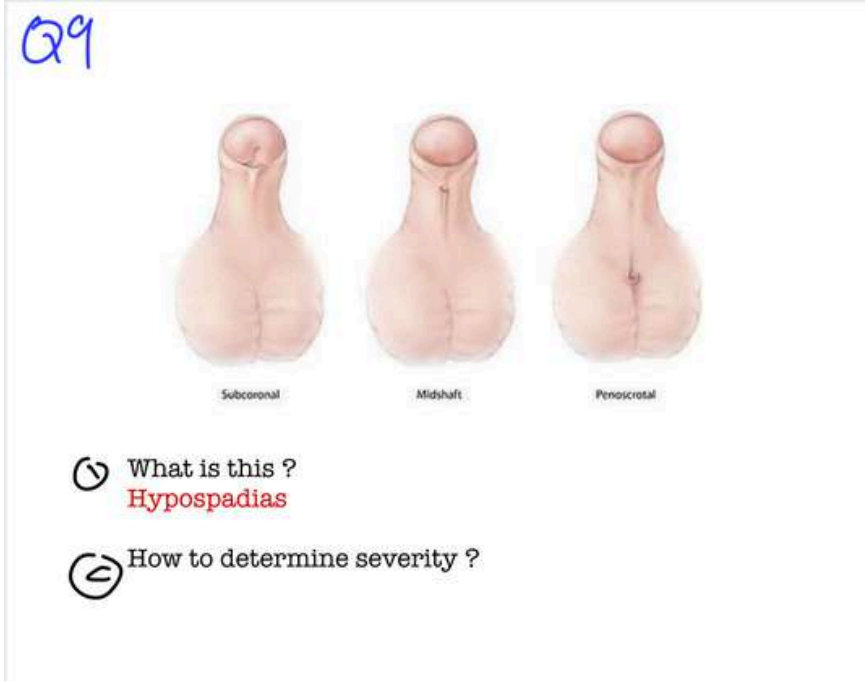
❖Define:

4(سنوات)

- **Hypospadias**: Congenital deformity in which the opening of the urethra occurs on the underside (ventral) part of penis, any where from the glans to the perineum

إضافي

- o**Epispadias**: An embryonic malformation typically characterized by an exposed urethra on the dorsal penis (in males) or between the labia and the clitoris (in females)



Hypospadias

- **Name this anomaly**: Hypospadias
- **Whatassociatedconditionyouwould look for ?**
  - Cryptorchidism
- **Anatomical locations of this lesion**
  - Anterior: Glandular, coronal, subcoronal
  - Middle: Proximal penile, midshaft, distal penile
  - Posterior:Penoscrotal, scrotal, perineal
- **Embryology**:
  - Failure of urethral folds and foreskin to fuse on ventral penis at the end of the 3rdmonth

Hypospadias

- **What is your diagnosis?**
  - Hypospadias
- **Mention three associated pathologies**
  - hoodedforeskin,chordee,anddeviationofraphe
- **Whentopreform surgery ?**
  - At 1-year-old

- **What is your diagnosis?**
  - Hypospadias

A) pic of posterior urethral valve -2

Spot diagnose and mx

B) pic of grade 4 VUR

Cr yptorchidism

Essay

❖Define:

4(سنوات)

- **Undescended testes**: A failure of one or both testicles to descend to their natural position in the scrotum.

1(سنوات)

❖Mention 3 differential diagnosis for empty right scrotum:

- Retractileright testis
- Undescended right testis
- Ectopic right testis
- Absent right testis

❖Themost common location for undescended testis is prepubicand the age at which the operation should be performed is 1 year.

Essay

2(سنوات)

❖Mention 5 complications ofundescended testis

- 40-foldhigher relativerisk ofcancer
- Reduced fertility
- Increased risk of testicular torsion
- Increased risk of direct inguinal hernias
- Increased risk of trauma

Cryptorchidism

- **What is the name ofthiscondition ?**
  - Cryptorchidism

What is the procedure performed, and when ?

oBilateral orchidopexy, after 1 year

- **Mention 5 complications associated with the condition**:
  - Hypofertility or infertility, cancer, torsion, trauma,inguinal hernia
- **Investigation**:
  - Chromosomeanalysis and hormone test

Renal tumors

شرح

Renal cysts

2(سنوات)

- Mention 5 criteria for simplerenalcystonUS
  1. absenceof internalechoes
  2. posterior enhancement
  3. round/oval shape and
  4. sharp, thin posterior walls
  5. clear fluid /no septate no calcification

1(سنوات)

- **Most appropriate method of diagnosis**: Ultrasound
- **Treatment**:
  - Notreatmentisusuallyrecommended,followupmightberecommendedin some cases (class IIF, III, IV cysts)
  - If the cyst cause hydronephrosis: Aspiration and sclerosing by 95% alcohol, open laparoscopic excision maybe required if symptomatic or recurrent
  - Atypical cyst: PNA of content for analysis → Excisetheextrarenalportionof the cyst or partial nephrectomy maybe considered

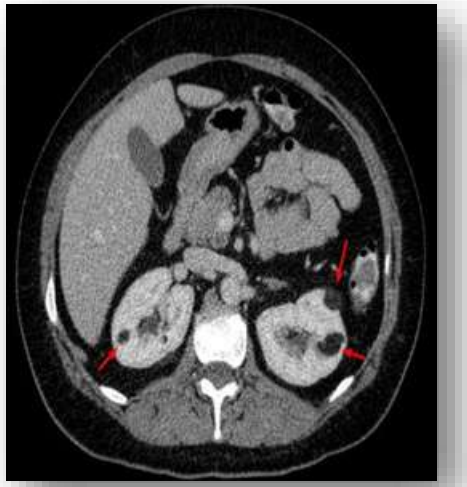
Benign renal tumors

- **Renal adenoma**:
  - Morecommonin males
  - **Symptoms**: Usually, asymptomatic
  - **Treatment**:**<4cm**: Partial nephrectomy, **> 4cm**: nephrectomy
- **Oncocytoma**:
  - More common in males
  - **Symptoms**: Painless hematuria, abdominal mass, flank pain (mimic RCC)
  - **Treatment**: Often resected in order to exclude RCC
- **Angiomyolipoma**:
  - **Associated with** tuberous sclerosis
  - **Symptoms**: Usually, asymptomatic
  - **Treatment**: Surgical resection of the tumor is indicated for angiomyolipomas that measure > 4 cm in diameter

CT scan show Bilateral renal mass

4(سنوات)

❖Mention 5 differential diagnosis for benign renal mass



1. Renaladenoma(mostcommonbenigntumor)
2. Oncocytoma
3. Angiomyolipoma

Rare

4. Leiomyoma
5. Hemangioma
6. Schwannoma

1(سنوات)

❖Mention 5 syndromes associated with benign renal tumor

أتوقع السؤال غلط لألأنه إجابات الألأرشيف كانت المرتبطة ب (malignant)

1. Tuberoussclerosis
2. Wunderlich's syndrome
3. Von Hippel-Lindau syndrome (renal cysts)
4. Autosomal recessive polycystic kidney disease (renal cysts)
5. Autosomal dominant polycystic kidney disease (renal cysts)

شرح

Renal cell carcinoma (RCC)

- **Risk factors**:Age(50-70),Men, Smoking,obesity,HTN, CKD, long term dialysis, family history, asbestos and cadmium exposure, Painkillers

سنوات قديم

- **Symptoms**: Hematuria, Flank pain, palpable renal mass, constitutional symptoms

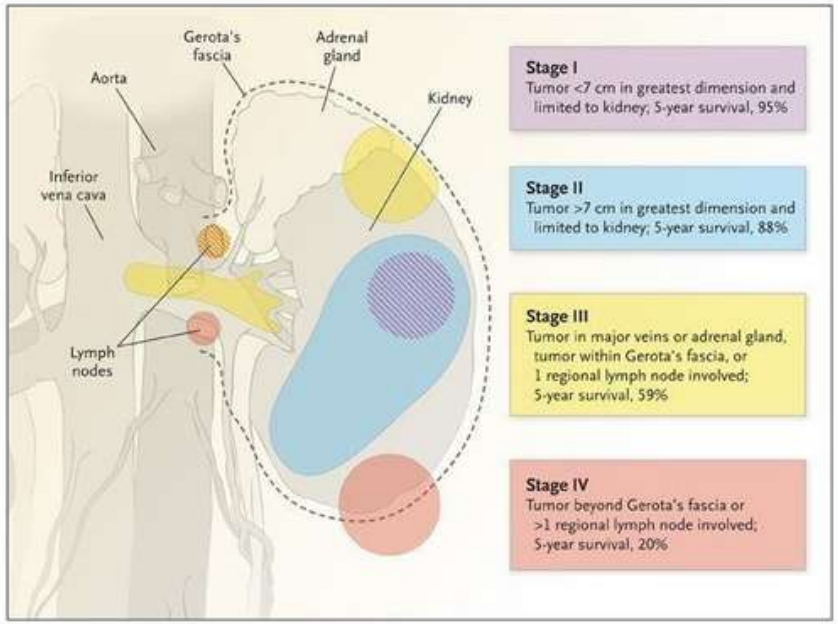
- **Treatment**:
  - **Partial nephrectomy**:
    - **Absolute indications**: patients with a T1a renal mass, a solitary kidney, bilateral masses, familial RCC, preexisting chronic kidney disease, or proteinuria
    - **Relative indications**: patients who are young and/or have a longer life expectancy,multifocal masses,or comorbidities thatimpact renalfunction
  - **Radicalnephrectomy**:Preferred in patients with increased oncological risk

سنوات قديم

- **Defineradicalnephrectomy**: remove kidney +/-LN +/-perinephric fat + upper half of ipsilateral ureter

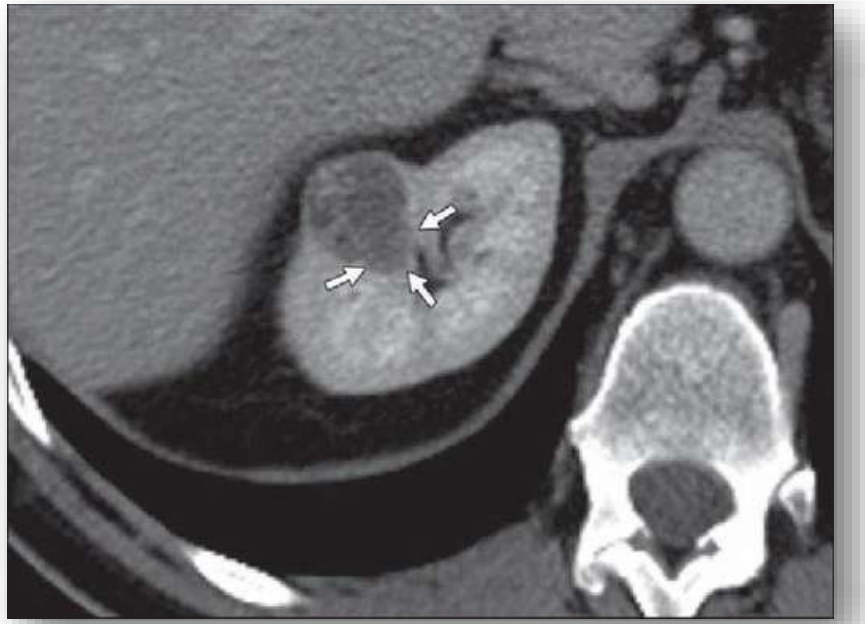
T staging of renal cell carcinoma

Tx	Primary tumor cannot be assessed
T0	No evidence of primary tumor
T1	Tumor <7 cm, limited to the kidney
T1a	Tumor is 4 cm or less, limited to kidney
T1b	Tumor >4 cm but <7 cm, limited to kidney
T2	Tumor >7 cm, limited to the kidney
T3	Tumor extends outside the kidney, but not beyond Gerota's (perinephric) fascia
T3a	Tumor invades adrenal gland or perinephric fat
T3b	Tumor grossly extends into renal vein or subdiaphragmatic IVC
T3c	Tumor grossly extends into supradiaphragmatic IVC or heart; invades wall of vena cava
T4	Tumor invades beyond Gerota's fascia



Renal cell carcinoma (RCC)

- **Spot diagnosis**:
  - Renal cell carcinoma
- **Management**:
  - Partialnephrectomy (<4 cm)
- **Whatisthegoldstandard investigation ?**
  - CT with contrast
- **What is the gold standard treatment ?**
  (in renal tumors in general)
  Radical nephrectomy



Renal tumors –Case scenario 1

➢70yearsold malepatientcame with rightflankpain,palpablemassand hematuria, on CT scan mass of 2 cm appear

- **Mention 3 syndrome may associate with this mass**
  - VonHippel lindausyndrome
  - Tuberous sclerosis
  - Birt-Hogg-Dube syndrome
  - Hereditary leiomyomatosisand renal cancer syndrome (HLRCC)
  - Hereditary papillary renalcell carcinoma(HPRCC)
- **The most appropriate management**
  - Partialnephrectomy (Tumor is T1a(<4cm))
- **Most commonly this tumor metastasis to**
  - Lung

Indicates renal cell carcinoma

4(سنوات)

Renal tumors –Case scenario 2

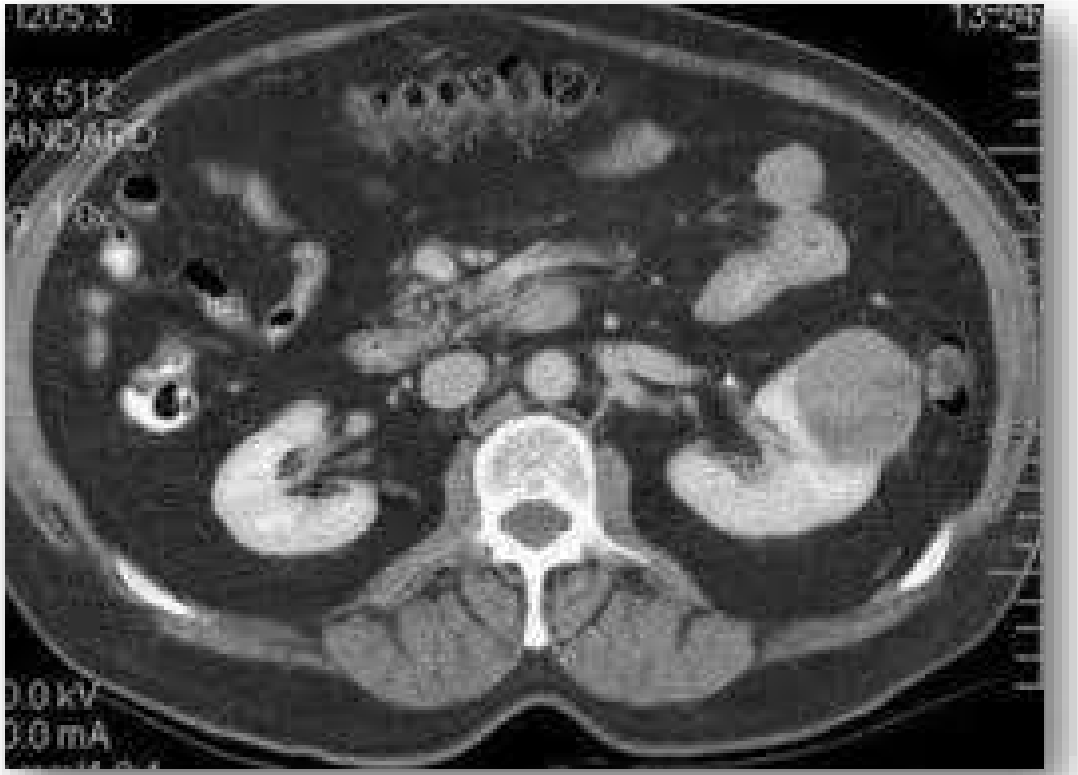
➢55yearsoldmalesmokercomplaining of left loin pain & hematuria, CT with contrast was done

❖**Describe what's you see?**

oHypodense area in the left kidney (with internal heterogenesity)

❖**What's the gold standard management?**

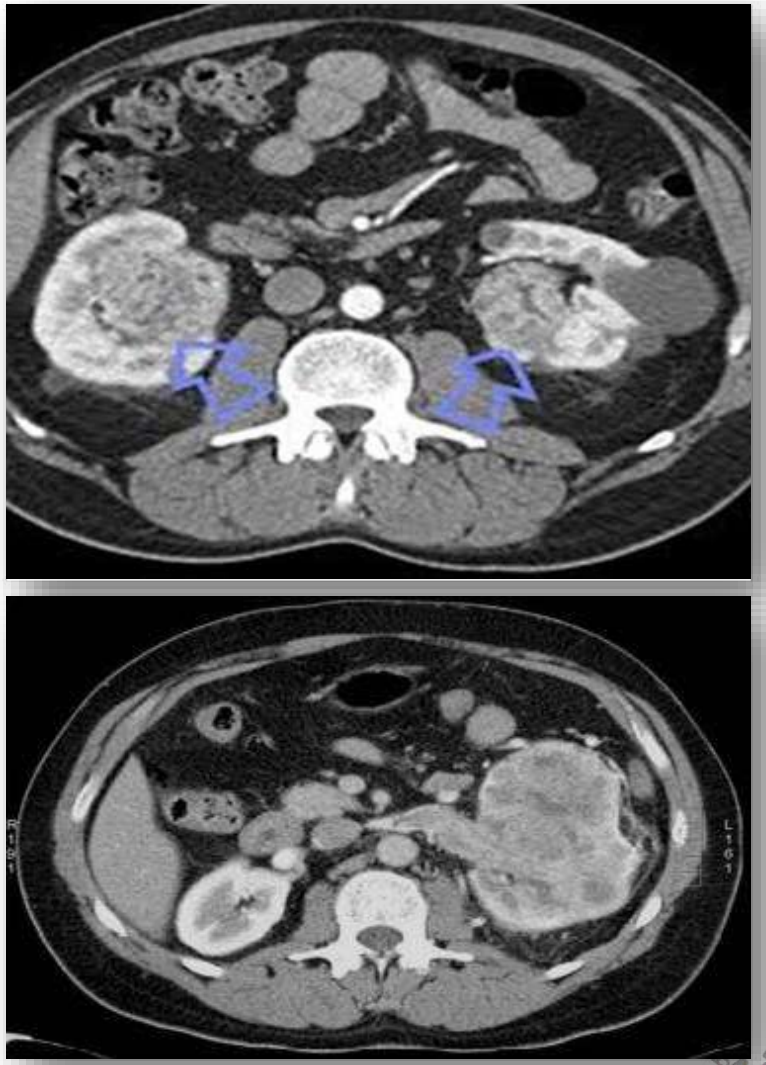
oPartial nephrectomy



Mention the diagnostic procedure of Renal mass : CT / biopsy

Renal tumors –Case scenario 3

- **Diagnosis**: Renal cell carcinoma
- **Mention 3 clinical presentations**
  - Flankpain
  - Palpable mass
  - Gross hematuria
  - Constitutional symptoms
- **What investigations should you preform to check for metastasis ?**
  - Chest xray Bone scan CT scan (archieve answer was cystoscopy)
  -



Renal tumors –Case scenario 4

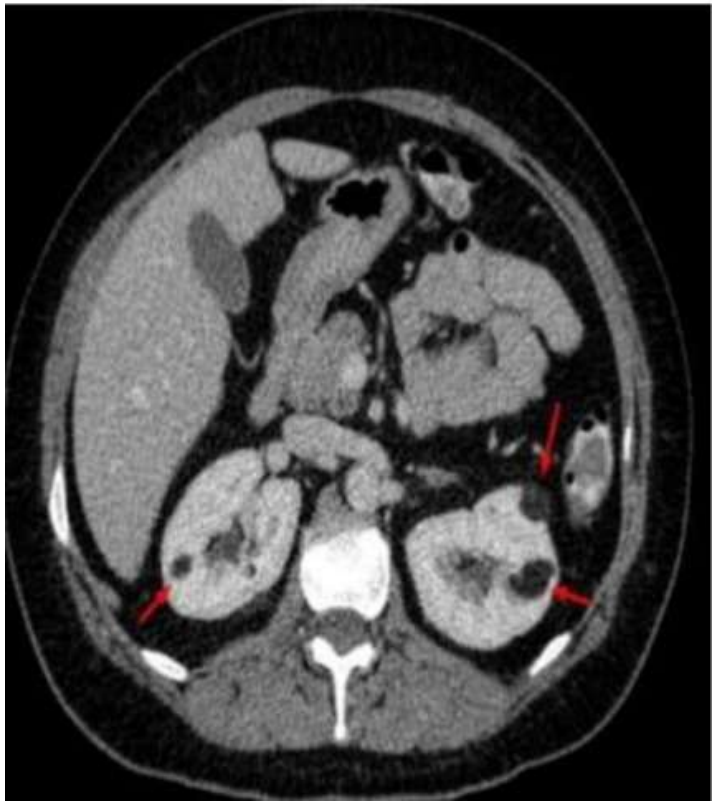
❖A CT scan shows a bilateral renal mass.

Mention 5 DDX for

benign renal masses?

Mention the best imaging for it?????

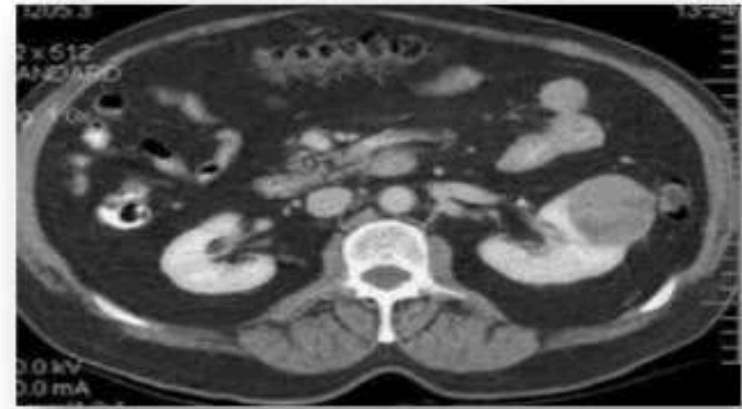
ct without contrast



1. angiomyolipoma
2. renal adenoma
3. oncocytoma
4. leiomyoma
5. Hemangioma
6. schwannoma

Station 7

Pt came with prostate enlarged and this is his CT



** الفكره في الهستوري
** ما فيه اعراض ال RCC
التشخيص cyst of the kidney

Describe what's you see?

Hypodense area in the left kidney (cystic lesion)

Most common symptom?

-Usually ASYMPTOMATIC.
-Dull aching PAIN in the loin due to stretch of renal capsule.
-A SWELLING may be felt in the loin

What's the gold standard management?

No treatment is usually recommended, follow up might be recommended in some cases (class IIF, III, IV cysts)


Bladder cancer

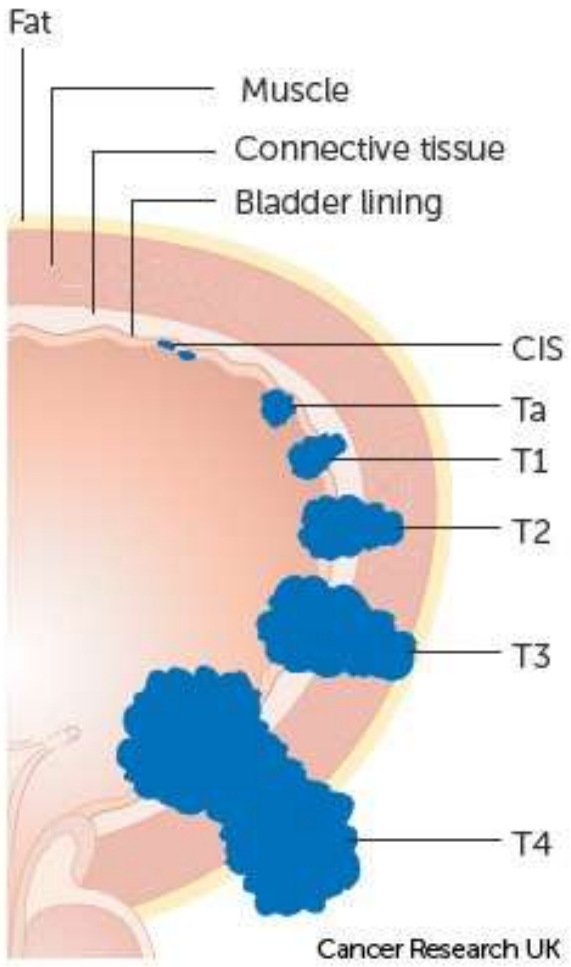
شرح

Bladder cancer

- **Risk factors**: Age, Men(**3:1, M:F**), Smoking(highestrisk factor; سنوات طويلة), Previous cancer treatment, Exposure to certain chemicals, Chronic bladder inflammation, Family history of bladder cancer
- **Most common types**:
  - Transitional cell carcinoma (90%)
  - Squamous cell carcinoma (8%)
    - **Riskfactors**:Smoking,Bladderstones,Catheters,Schistosomahaematobium infection (have better prognosis than non-bilharzial SCC)
  - Adenocarcinoma (2%)
    - **Presentation**:Supraumbilical mass, Supraumbilical mucous or bloody discharge
- **Clinically**: Frequency, urgency, dysuria, pelvic pain, painless midstream intermittent gross hematuria
- **Diagnoses**: Cystoscopyand biopsy mainly then TNM used to determine amount of spread

Write the "T" stage of bladder cancer

Tx	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Ta	Noninvasive papillary carcinoma
Tis	Carcinoma in situ
T1	Tumor invades subepithelial connective tissue
T2	Tumor invades muscularis propria (detrusor): T2a inner half; T2b outer half
T3	Tumor invades beyond muscularis propria into perivesical fat: T3a = microscopic; T3b = macroscopic (extravesical mass)
T4a	Tumor invades any of prostate, uterus, vagina, bowel
T4b	Tumor invades pelvic or abdominal wall



شرح

Bladder cancer –Treatment

- T1 and T2:
  A. TURBT
     - **Complications (uncommon)**: bleeding, sepsis, bladder perforation, incomplete resection, and urethral stricture
     - Second resection within 2-6 should be undertaken if:
       - first resection was incomplete
       - whenthepathologistreports that the resected specimen contains no muscularis propria
       - if a high-grade, but apparently non-invasive, T1 tumor has been reported since perhaps 10% (3–25%) of these G3pT1 tumors are under-staged T2 tumors
     - Intheabsenceofsecondresectionindicationsreviewcystoscopyisperformedat 3 months subsequent cystoscopies are performed under local anesthetic at 9 months and thereafter annually for 5y
  B. Transurethral cystodiathermy or laser are accepted, quicker and less morbid
- T3: Cystectomy
- T4: Chemotherapy & radiotherapy

شرح

Bladder cancer –Treatment

سنوات قديم

- **Define radicalcystectomy:** Removebladder+prostaticurethra + distal ureter + regional LN

- **Intravesical therapy of bladder cancer**:
  - **Intravesical chemotherapy**:
    For low non-invasive bladder cancer after TURT within 6 hours then induction and maintenance
    Decrease risk of recurrence
  - **Intravesical BCG immunotherapy**:
    For high grade bladder cancer after TURT and for carcinoma in situ
    Not done immediately after TURT or if there's hematuria or immunosuppression
    Decrease risk of recurrence and progression

Bladder cancer –Case scenario 1

➢Patient55 yearsolduseindwellingcatheterforperiodoftimecame with hematuria

❖**What is your diagnosis?**

- SCCduetochronicirritation from cath.

❖**What is the most appropriate method of treatment of solitary, exophytic T1 transitional cell carcinoma of the bladder ?**

- TURBT

Cystoscopy show a superficial papillary tumor

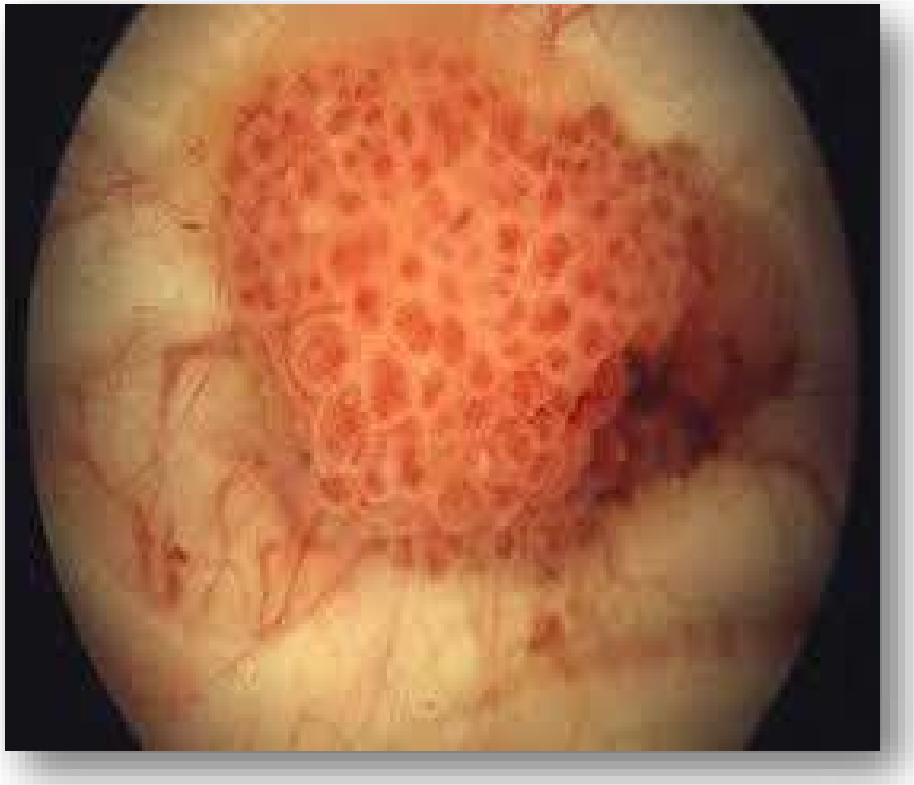
- **What is your diagnosis?**
  - Transitional cell carcinoma

  What is the Beset treatment ?
  - TURBT
- **Whendoyourepeat cystoscopy ?**

  oAfter 3 months

During cystoscopy, this lesion has been seen

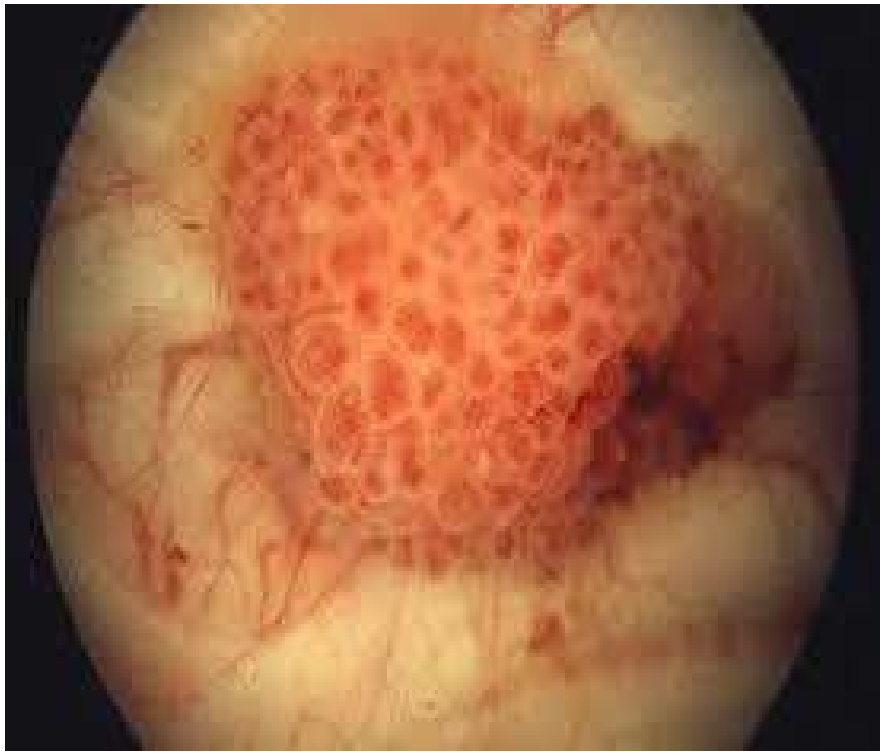
- **Best diagnosticmethod**:
  - Cystoscopy
- **What is your diagnosis ?**
  - Transitional cell carcinoma
- **Treatment**:
  - According to the stage
    - **T1**, **T2**: TURBT, transurethral cystodiathermy, or laser
    - **T3**: cystectomy
    - **T4**: chemoradiotherapy



Bladder cancer

- **What is the main symptomofbladder cancer ?**
  - **Gross**Hematuria
- **What is the type of hemorrhage in bladder cancer ?**
  - **Gross** Hematuria
- **What is the main treatment ?**
  - TURB
- **When is it considered superficial ?**
  - If it doesn’t reach to muscularis propria
- **When is it considered invasive ?**
  - When it invades to muscularis propria
- **What is the best diagnostic tool ?**
  - Cystoscopy

Bladder cancer



1. What is spot diagnosis ?

Transitional cell carcinoma

2. When we give intravesical chemotherapy and what the purpose of it ?

after TURT within 6 hours and for Decrease risk of recurrence

3. If this tumor was invasive of whole bladder what the management ?

Cystectomy

4. Risk factor ?

From history was old age , smoker and male

5.What do you think should be written in the TURBT pathology report?

invades the muscularis propria??

Bladder cancer –Case scenario 2

➢70y oldmale patient,smoker, presented tourology cliniccomplainingofpainless intermittent gross hematuria and urinary retention. On U/S: 33 cm urinary mass was found if the mass was shown to be malignant

1. **Best diagnostic test:** Cystoscopy
2. **Most common tumor**: Transitional cell carcinoma
3. **What is your diagnosis ?** Transitional cell carcinoma
4. **What information in the history raises the possibility of a bladder cancer?** Smoking, Male, Old age
5. **Is it ok to do suprapubic catheterization for the patient ? Why?**
   - oNo, this tumor can spread by implantation around catheter or skin wound

Bladder cancer –Case scenario 2

➢70y oldmale patient,smoker, presented tourology cliniccomplainingofpainless intermittent gross hematuria and urinary retention. On U/S: 33 cm urinary mass was found if the mass was shown to be malignant

6. **Treatment**:

oAccording to the stage

- **T1**,**T2**:TURBT,transurethral cystodiathermy, or laser
- **T3**: cystectomy
- **T4**: chemoradiotherapy

Ultrasound –filling defect

❖Mention 5differentialdiagnosis

1. stone
2. blood clot
3. polyp
4. fungal ball
5. focalcystitis
6. neoplasm

IVU –filling defect

- **Describe the radiologicalabnormalityseen**
  - Bladder Filling Defect on the left side
- **Mention 5 differential diagnosis**
  - Blood clot, Stone, Neoplasm, Polyp, focal cystitis
- **Ifthepatientisachronicsmokerandlongperiods on bladder catheter, what is the most common form of bladder cancer ?**
  - Squamous cell carcinoma

Bladder cancer –Case scenario 3

➢A 50-year-old malepatientpresented with hematuriaand bladder filling defect on radiology, He has been a worker in a chemical factory for 25 years

❖**Whatisthemainfindinginthis IVP ?**

- Radiolucentfillingdefectprojectingintothe lumen of the bladder
- Bilateral hydronephrosis

❖**What is your diagnosis ?**

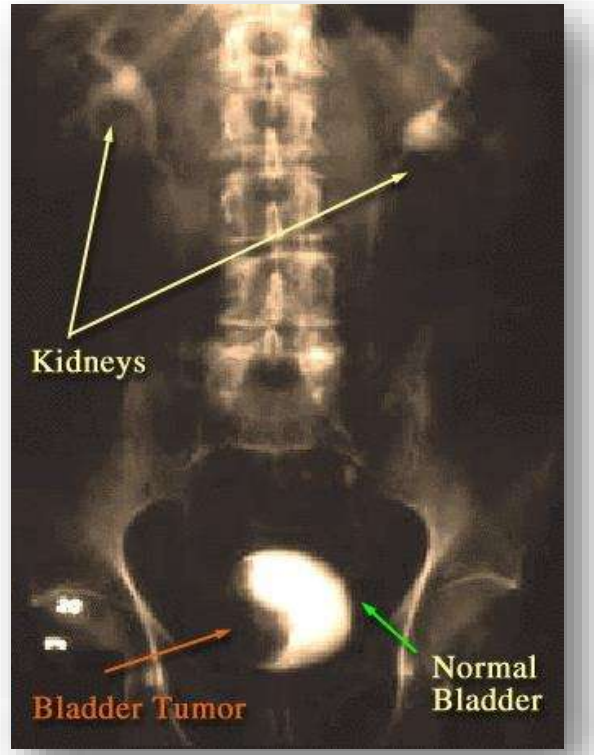
- Transitional cell carcinoma

❖**Whatisthebestdiagnostic study to do ?**

- Cystoscopy

❖**If this patient was found to have a low-grade bladder tumor, what is the management ?**

- TURBT (transurethral resection of bladder tumor)



Bladder cancer –Case scenario 4

➢55y oldmale patient,smoker, presented tourology clinic complainingof painless intermittent gross hematuria and urinary retention. On CT scan a 38 mm polypoid enhancing mass is noted at urinary bladder base, without extravesical extension or regional lymphadenopathy. The prostate gland is enlarged

- **What is your next step management ?**
  - Cystoscopy
- **Ifyou know that the mass was malignant and the biopsy shows high grade tumor invading the lamina propria, what is the management ?**
  - TURB

مش نفس الصورة

Q4

Source: John L. Probert:
Urology: An Aides of Investigation and Diagnosis
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Station 7: 60 year old male with mass in bladder

1. Diagnosis : **bladder ca**
2. Risk factors : **smoking , old age , male**
3. What is the next step for management ?
4. Why ask for Histopathology:

history of Bladder ca

70y old male patient , smoker , presented to urology clinic complaining of painless intermittent gross hematuria and urinary retention on U / S : 33 cm urinary mass was found , if the mass was shown to malignant

: bladder cancer (3

A) type of hematuria

B) stage if tumoir invades the perivesical microscopically : T3a

(1)

Most common type ?
Transitional cell carcinoma

(2) ?gold stander diagnosis-
Cystoscopy

(3) ??mangment
According to the stage
T1, T2: TURBT, transurethral • cystodiathermy, or laser
T3: cystectomy •
T4: chemoradiotherapy •

54 y old male came with this histological finding, accordingly what's the histological type of this tumor : 1****

A) adenocarcinoma

B)squamous cell carcinoma

C) transitional cell carcinoma ☑

D) non of above

2***

The most important risk factor is:

A) age ☑

B)male

C)smoking

The indication of Intravasical chemotherapy is:

A) decrease the risk of recurrence ☑

B) decrease the risk of progression

C) decrease the risk of progression and recurrence

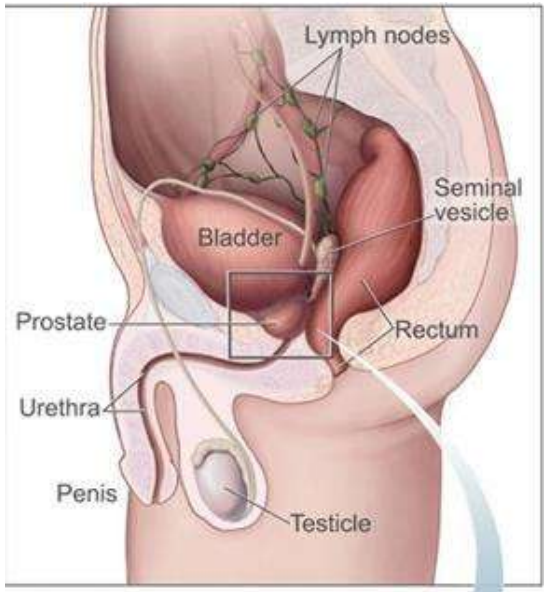
D)post surgery intervention

E)non of above

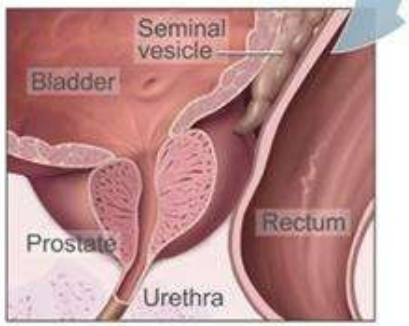
Benign prostatic hyperplasia

Anatomical relations (what are the boundaries ?)

- The prostate has
  - **Abase**,whichlies **superiorly**against the bladder neck
  - o**An apex**, which lies **inferiorly**against the urogenital diaphragm
- **Anterior**to the prostate is the symphysis pubis
- **Posteriorly**, the prostate is separated from the rectum by the Denonvilliers' fascia
- **Posterosuperior**to the prostate lies the posterior part of the bladder, seminal vesicle, vasa deferens and ureters
- The prostate is closely related to theinternal sphincter, supramembranous external sphincter, levator ani.



This shows the prostate and nearby organs.



This shows the inside of the prostate, urethra, rectum, and bladder.

Blood and innervation

Arterial

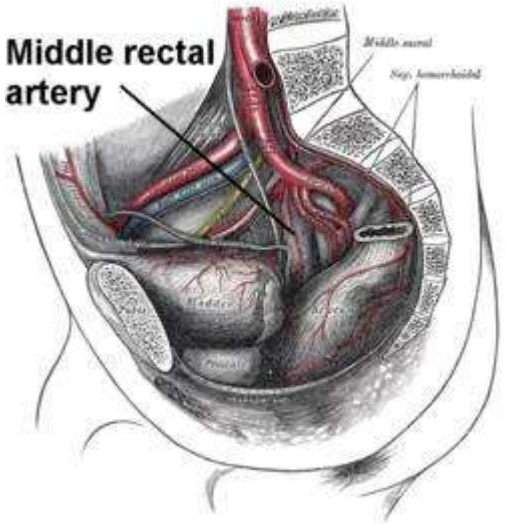
- Abdominal Aorta ⟶ Internal iliacartery ⟶ middlerectus& inferiorvesicalarteries ⟶ both givebranches to the prostate

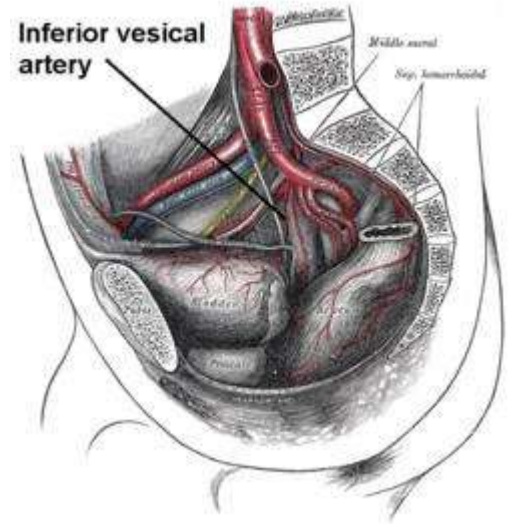
Venous

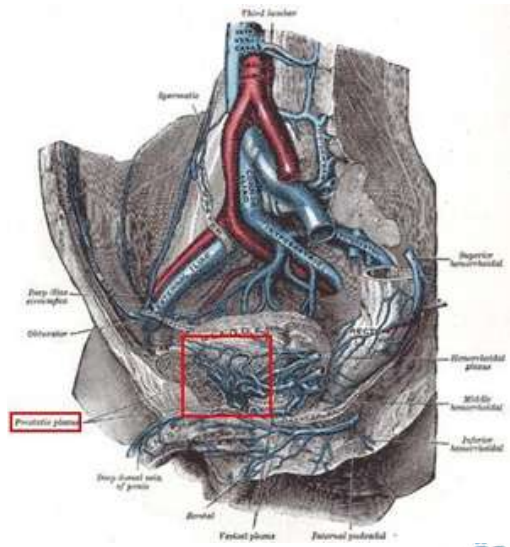
- Aprostaticvenousplexusdrains intotheinternal iliac veins

Nervous

- Inferior hypogastric plexus ⟶ prostatic plexus (sympathetic)

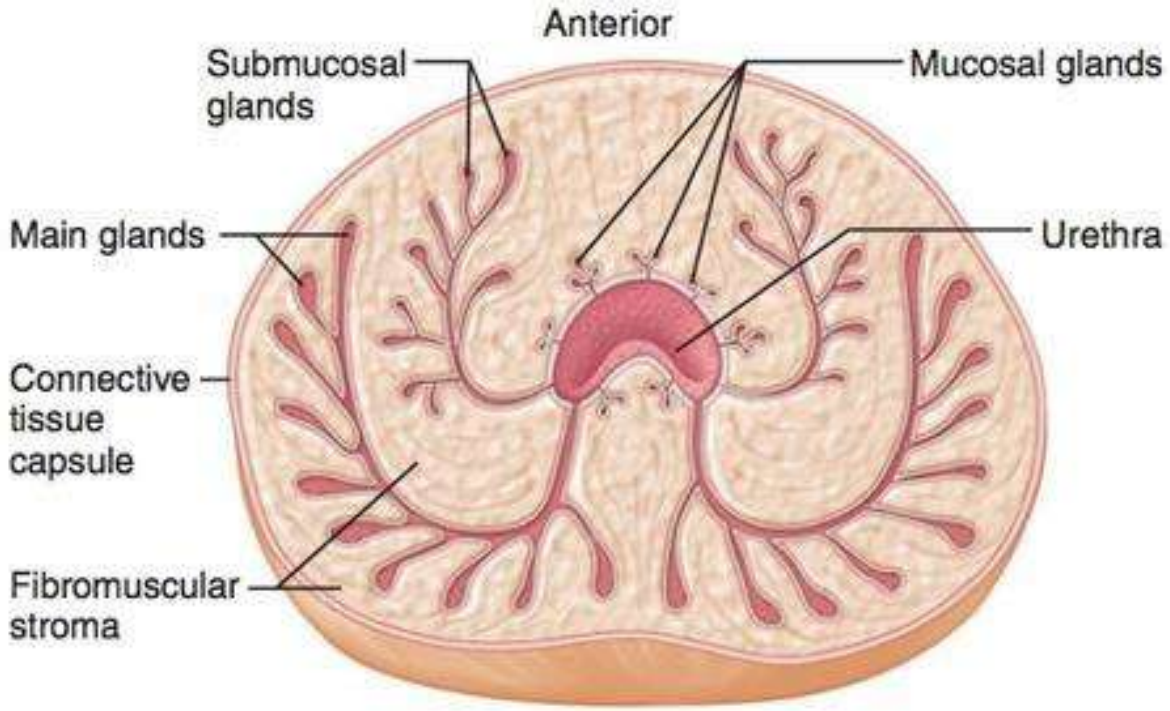






Structure of the prostate

- The three elements oftheprostateare the glands, muscles and stroma
- All the elements can enlarge and shrink at different times of life
- In old age hypertrophy of one orall three elements in the transition zone around the periurethral area gives rise to the nodules of benign prostatic enlargement



PSA (prostate specific antigen)

2(سنوات)

❖Definition & function:

- A glycoprotein enzyme produced by prostatic epithelial cells.
- Its function is to liquefy the ejaculate, enabling fertilization

❖Ranges:

1(سنوات)

- **0-4ng/ml**: Normal range, in most normal males <2.6ng/ml
- **4-10ng/ml**: Gray zone;might be BPH,mightbecancer → Order PSA kinetics
- **>10ng/ml**: Highly suggestive of prostate cancer

PSA kinetics

- **Free to total PSA ratio**
  - o<18%ratio>>suggestion of cancer or other differentials (prostatitis)
  - ○ >18% ratio>> suggest benign cause
- **PSA Density = Serum PSA / Prostate volume**
  - o>18%density>>suggestionofcancer
  - ○ <18%density>>suggestionofbenigncause
- **PSA velocity**
  - ○ Changeof>0.75ng/ml/year associated with increaserisk of cancer

PSA doubling time

- ○ Usedinstagingand follow up of prostate cancer

PSA –Essay

3(سنوات)

❖Mention 5 causes of increasedPSA:

In Females it increases in hyperandrogenic state

1. Getting older
2. BPH
3. Prostate cancer
4. Acute prostatitis
5. UTI
6. Ejaculation
7. DRE (Prostatic massage)
8. Biopsy
9. Instrumentation, TURP, and any surgeries of the prostate

2(سنوات)

❖What are the normal values of PSA in BPH patients

- TotalPSA>1.5ng/mL,butnotmorethan10ng/mL,with↑ free PSA/total PSA ratio

PSA –Case scenario

➢Routine PSA examinationyieldsPSAlevelof8ng/ml

❖**Whatarethecauseof increased PSA levels ?**

1. Getting older
2. BPH
3. Prostate cancer
4. Acute prostatitis
5. UTI
6. Ejaculation
7. DRE (Prostatic massage)
8. Biopsy
9. Instrumentation, TURP, and any surgeries of the prostate

BPH –Essay

1(سنوات)

❖Mechanism of prostaticenlargementcausing bladder outlet obstruction

- Acombination of hormonal factors, stem cell proliferation and genetic susceptibility →glandular and stromal hyperplasia in the transition zone → formation of smooth, elastic, firm hyperplastic nodule →slit-like prostatic urethral compression →bladder outlet obstruction → obstructivesymptoms of BPH

2(سنوات)

❖Mention 5 symptom of mild BPH

1. Hesitancy
2. Poor stream
3. Straining to urinate
4. Incomplete voiding
5. Frequency
6. Urgency

BPH medical treatment

1.Alpha 1 adrenergicantagonists(Tamsulosin,Doxazosin)

- Relax bladder neck muscle and prostate muscle fibers
- S.E >> Orthostatic hypotension

2. 5-alpha reductase inhibitor (Finasteride)

- Shrink/Reduce thesize of prostateby inhibitingconversion of testosterone into DHT and thus suppressing prostate growth
- S.E>>Decrease libido and ejaculation dysfunction

3. Anti-cholinergic

oBladder muscle relaxant

4. PDE5 inhibitor (Tadalafil)

❖ Lifestyle and home messages (limit caffeine and alcohol, bladder training and schedule bathroom visits, healthy diets and exercise)

شرح

مهم

Preferred first-line options

Indications		Preferred agent
LUTS predominantly caused by BOO	Small prostate (< 40 mL) and/or serum PSA < 1.5 ng/mL	Alpha blocker
	Large prostate (> 40 mL) and/or serum PSA > 1.5 ng/mL	5-alpha reductase inhibitors (5-ARIs)
	Severe symptoms or an inadequate response to monotherapy	Combination therapy: alpha blocker PLUS a 5-ARI
LUTS predominantly caused by OAB		Antimuscarinic (see also "Urge incontinence")
LUTS caused by mixed BOO and OAB		An alpha blocker PLUS an antimuscarinic
LUTS associated with erectile dysfunction		Phosphodiesterase 5 inhibitor

- **LUTS**: Lower urinary tract symptoms
- **BOO**: Bladder outlet obstruction
- **OAB**: Overactive bladder

Preferred first-line options –Matching

- **Patient with prostate 35mg and bothersome symptoms**: α blocker
- **Patientwithprostate40mgwithlowerurinarytractsymptoms**:αblocker
- **Patient with prostate 80mg without lower urinary tract symptoms**: watchful waiting; active surveillance
- **Patient with prostate 100mg with large bladder stone**: Open prostatectomy; Transvesical prostatectomy

- **In the prostate gland**:
  - The most common location of BPH is transitional zone
  - The most common location for a prostatic cancer is peripheral zone

BPH –Case scenario 1

➢68years old malepatientwithBPHcametotheERwith back pain, abdominal pain and he didn't pass urine since morning.

❖**Diagnosis**:

- Urinary retention.

❖**What clinical exam do you do to support the diagnosis?**

- Palpatesuprapubicareatodetermineifthereisurineretentionor anuria.

❖**Investigations:**

❖
- PSA, urinalysis, creatinine

First step in the management?

- Foley's catheterization.

BPH –Case scenario 2

➢60years old malepatientwith BPH andsuprapubicmass presented toyour clinic with complete absence in urine

❖**Type of urinary incontinence** ?

- Overflow incontinence

❖**First management ?**

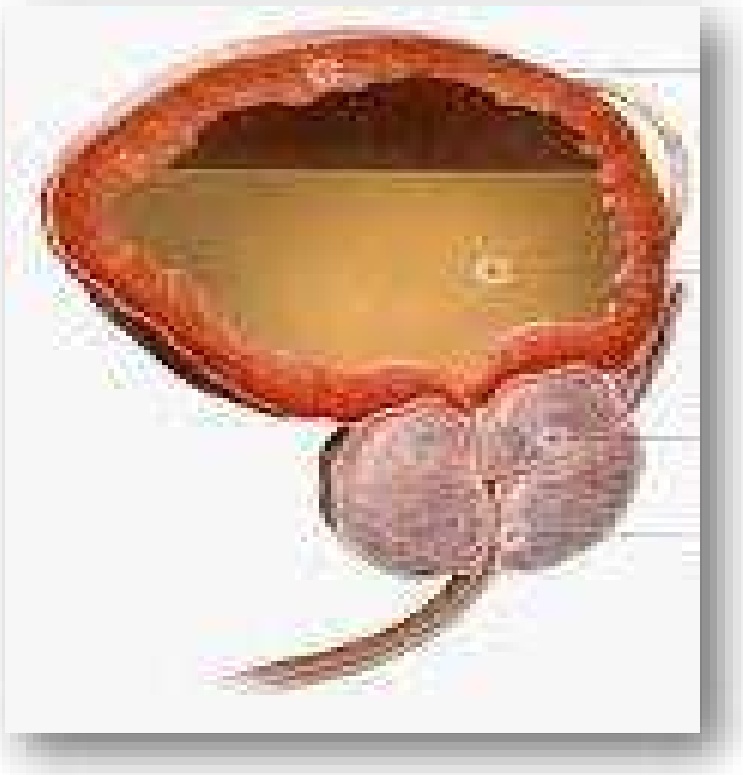
- Foley's catheterization.

❖Mention 4 BPH complications other than overflow incontinence:

1. Retention
2. Hydronephrosis
3. Renal insufficiency
4. Infection
5. Gross hematuria
6. Bladder stone

BPH –Case scenario 3

➢80 years old malepatient camewithacuteurine retention, according to the photo



❖**What is your management**

- o Bladder drainage by foley's catheter
- oCombination therapy: αblocker + 5-αreductase inhibitor

❖**Mention 4 indication for TURP**

1. Failureof medicaltreatment
2. Recurrent UTI
3. Refractory urinary retention
4. Recurrent gross hematuria
5. Bladder stones
6. Large bladder diverticula
7. Hydronephrosis
8. Renal insufficiency

BPH –Case scenario 4

➢60 years old malepatientwith80mgprostateandvoiding and obstructive symptoms

❖**Type of incontinence**:

- Overflow incontinence

❖**Whatis the most likely diagnosis** ?

- BPH

❖**Medical treatment**:

- Finasteride

BPH –Case scenario 5

➢History of 65 years old man with longstanding lowerback pain and with no urine pass since morning

❖**What clinical exam do you do to support the diagnosis?**

- Palpate suprapubic area to determine if there is urine retention or anuria.

❖**First management ?**

- Foley's catheterization.

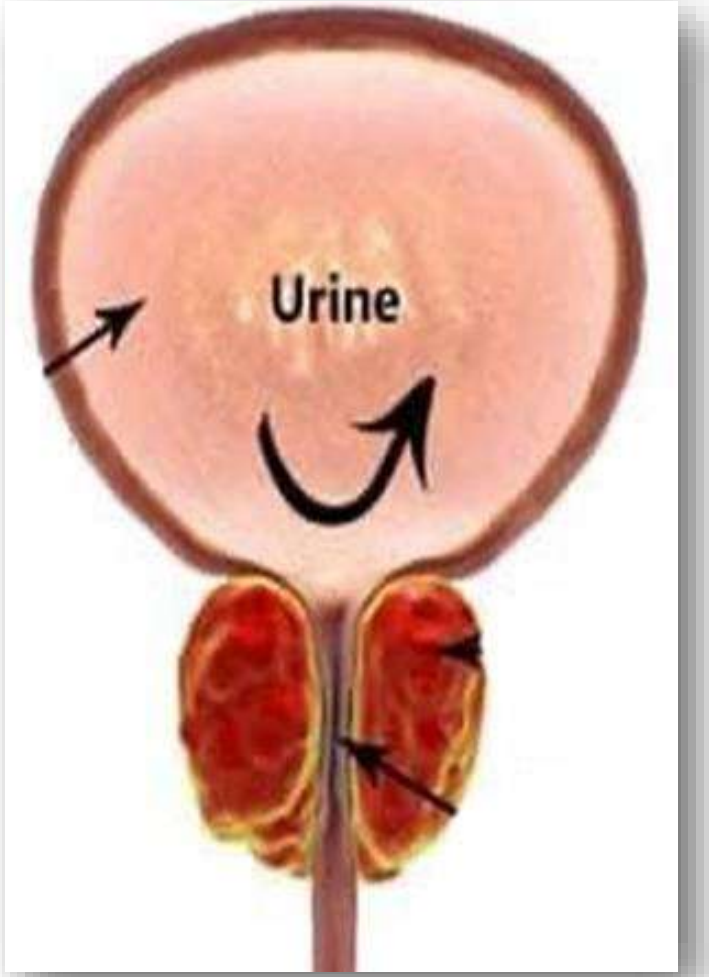
BPH –Case scenario 6

➢60 years old malepatientwith80mgprostateandvoiding and obstructive symptoms

- **Type of incontinence**:
  - Overflow incontinence
- **Whatis the most likely diagnosis ?**
  - BPH
- **Medical treatment**:
  - Finasteride

Patient complain of urinary retention

- **Diagnosis**: BPH
- **Management**:
  - **Small prostate or PSA <1.5**: αblocker
  - **Large prostate or PSA >1.5**: 5-αreductase
  - **Severe symptoms or failure of monotherapy**: combinationtherapy (αblocker&5-αreductase)
- **Mention 5 Indications for surgery**
  1. Failureof medical treatment
  2. Recurrent UTI
  3. Refractory urinary retention
  4. Recurrent gross hematuria
  5. Bladder stones



Patient complain of urinary retention

Q1 this pic is ? BPH

Q2 most common location ?trasnitional zone

Q3 mention 2 indication for open surgery ?

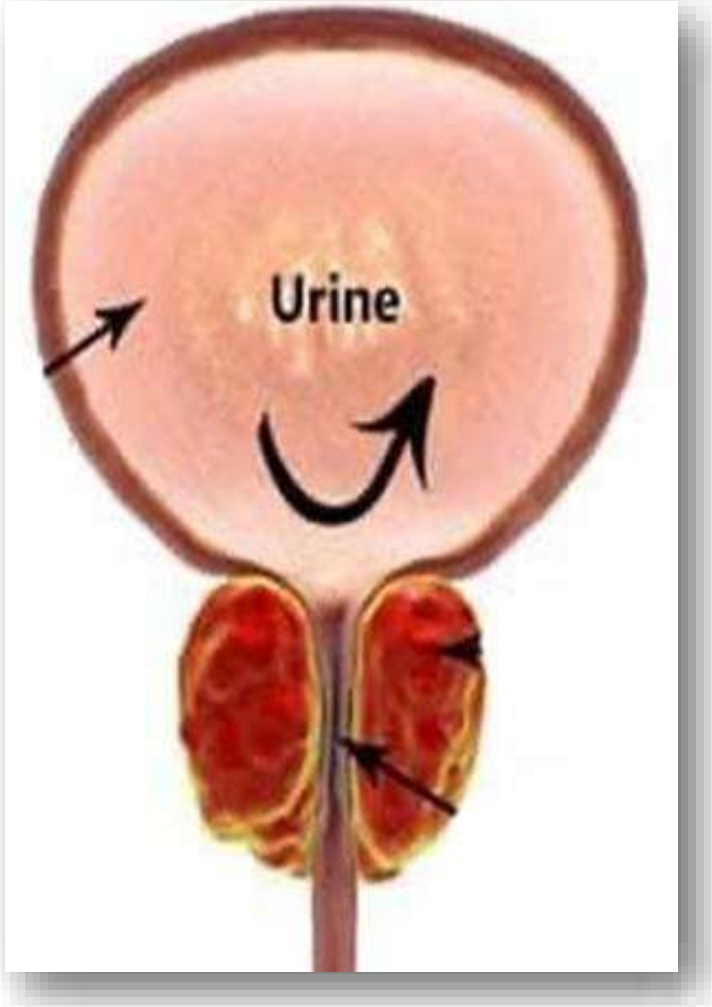
1. Large prostate > 60 g
2. Long urethra
3. Urethral stricture

Q4 syndrome as a complication after TURP ?

Transurethral Resection Syndrome

Q5 what type of incontinence occurs after radical prostatectomy ?

Stres incontinence

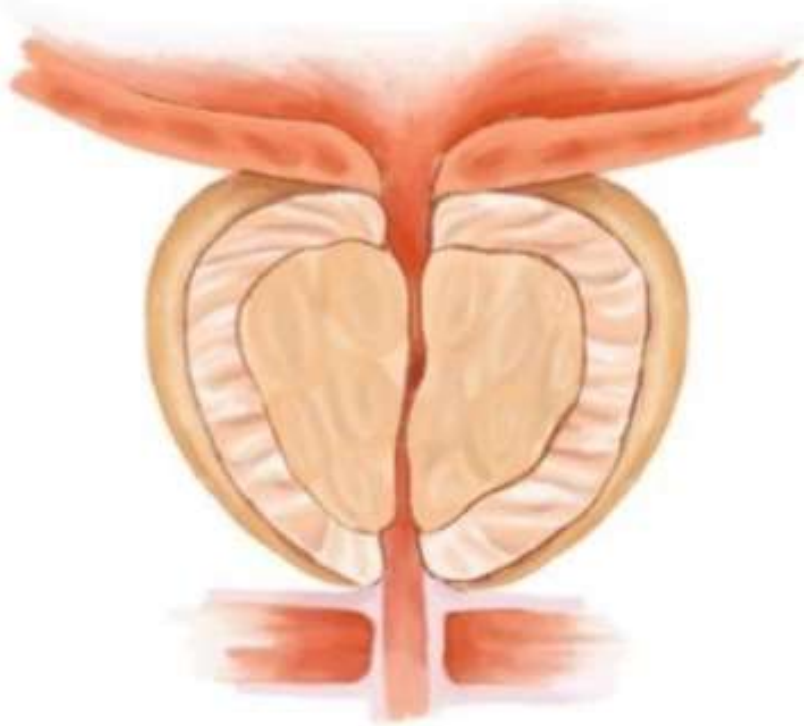


1. Mention 3 mild symptoms of this ?

-frequency -hesitancy –urgency ……

2. Most common endoscopic procedure ?

TURP



3. Write 3 indication of surgery ?

1.Refractory urinary retention

2.Recurrent UTI

3.Recurrent gross hematuria

4. Write 3 reasons why we do open surgery ?

1. Large prostate (>60 g)

2. Long urethra

3. Urethral stricture

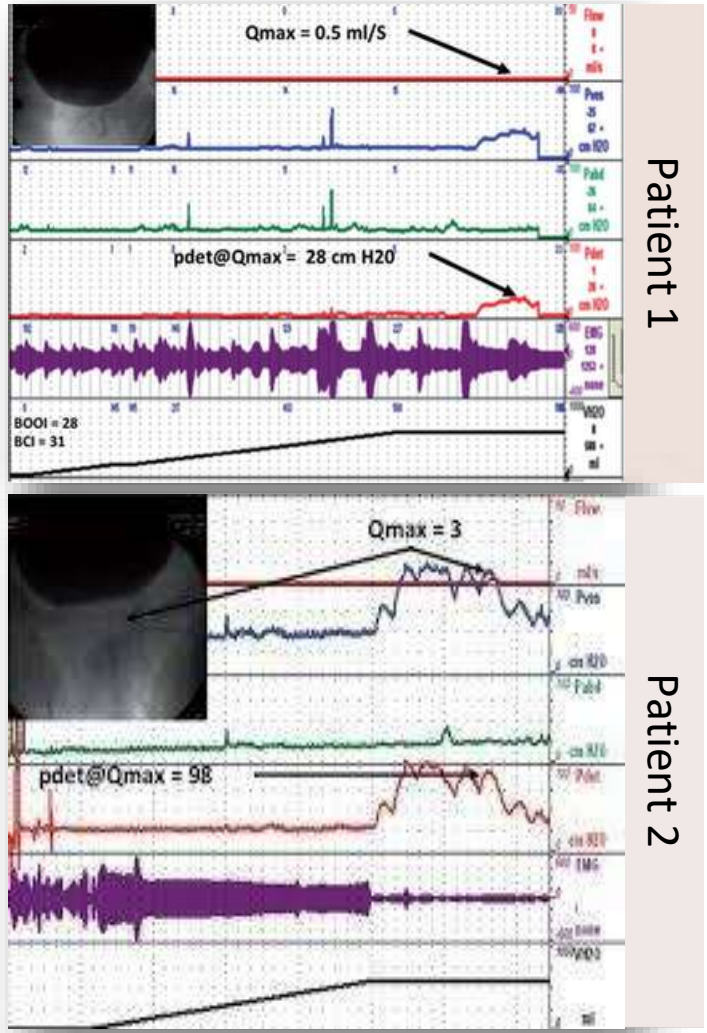
Urodynamic study for 2 patients with urine incontinence

1.Mechanism of prostatic enlargement causing bladder outlet obstruction

- Acombination of hormonalfactors, stem cell proliferation and genetic susceptibility → glandular and stromal hyperplasia in the transition zone →formation of smooth, elastic, firm hyperplastic nodule →slit-like prostatic urethral compression →bladder outlet obstruction → obstructive symptomsof BPH

2.Mention 4 indications of surgery in BPH

1. Failureof medicaltreatment
2. Recurrent UTI
3. Refractory urinary retention
4. Recurrent gross hematuria



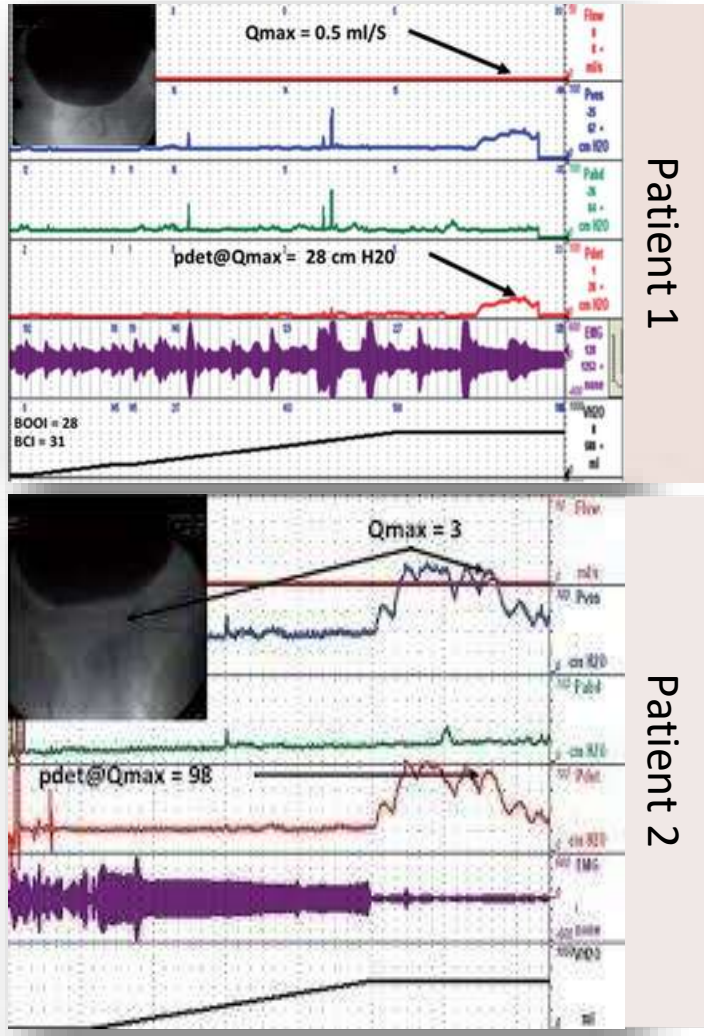
Urodynamic study for 2 patients with urine incontinence

3.Which one have bladder underactivity ?

oPatient 1

4.Which patient would have better response for medication ?

○ Patient 2



8(سنوات)

Indication of surgery in BPH

5(سنوات)

❖Mention 4indicationofsurgery in BPH

1. Failure of medical treatment
2. Recurrent UTI
3. Refractory urinary retention
4. Recurrent gross hematuria
5. Bladder stones
6. Large bladder diverticula
7. Hydronephrosis
8. Renal insufficiency

3(سنوات)

❖Mention4indication for TURP

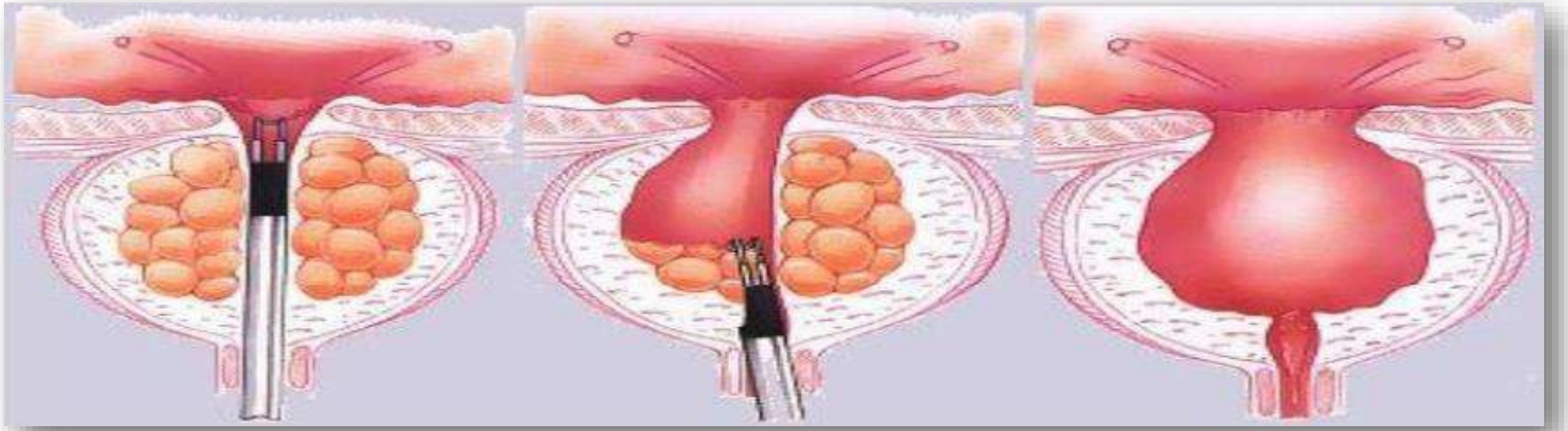
1. Failureof medical treatment
2. Recurrent UTI
3. Refractory urinary retention
4. Recurrent gross hematuria
5. Bladder stones
6. Large bladder diverticula
7. Hydronephrosis
8. Renal insufficiency

TURP

- **What is the name of this procedure ?**
- Transurethral resection of the prostate (TURP)

What are the complications of this procedure ?

1. Retrogradeejaculation (majority)
2. Impotence
3. Incontinence (especially men with storage symptoms)
4. TUR syndrome
5. Urethralstricture
6. Bleeding



BPH

- **Mention 3 symptoms of BPH**
  - Frequency, Urgency, Hesitancy
- **What is the most used medical agent to treat BPH ?**
  - Finasteride
- **What is the most specific surgery to treat BPH ?**
  - TURPT

- **Mention 5 treatment options for BPH**
  - Medical
  - TURP
  - Open simple prostatectomy
  - Transurethral incision of the prostate
  - Laser treatment

1. Five modalities of treatment for BPH?

1)Medical

2) TURP

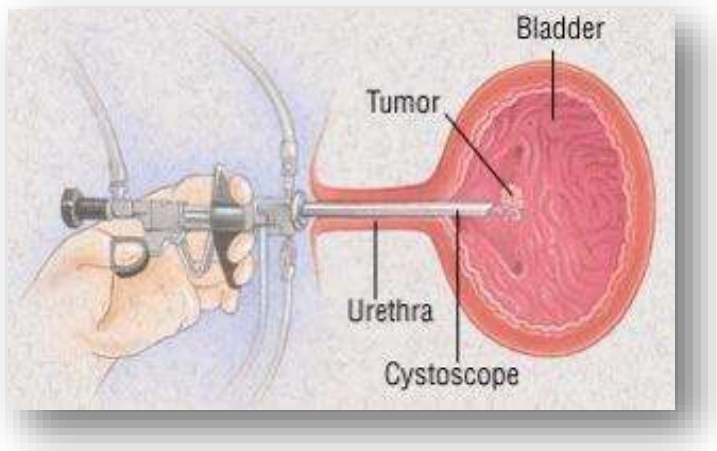
3) Open simple prostatectomy

4) Transurethral incision of the prostate

5) Laser treatment

Transurethral Resection Syndrome (TUR)

- **Etiology**:
  - Arise from the infusion of a large volume of hypotonic irrigating solution into the circulation during endoscopic procedures (TURP, TURBT, PCNL)
  - Most commonly after prolonged TURP of large prostate
- **Irrigation fluid**: glycine + water
- During TURP this fluid enter the circulation leading to dilutional hyponatremia (Hypervolemia, Hyponatremia)
- **Signs and symptoms**
  - Confusion
  - Bradycardia
  - Nausea and vomiting
  - Seizures
  - Hypertension due to fluid overload
  - Visual disturbances (flashing light), in case of spinal anesthesia (TURP due to glycine inhibitory neurotransmitter which affects on retina)



Transurethral Resection Syndrome (TUR)

❖**Prevention**:

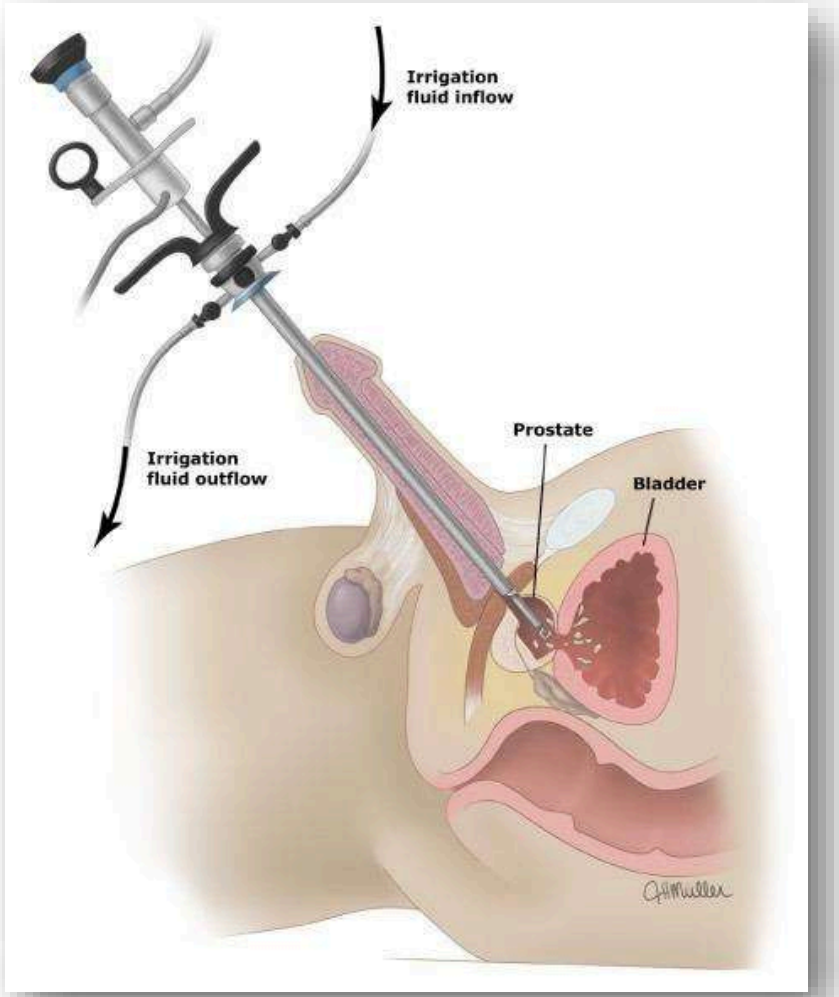
- Useacontinuous irrigating cystoscope, limit resection time and avoid aggressive resection near the capsule

oFor prolonged procedures, where greater degree of fluid may occur, measure serum Na+ ⟶ give 20-40mg IV furosemide

❖**Treatment**:

- If Na^+comes back normal ⟶ you'll have done little harm by giving furosemide

oIf it comes back Na+<125 mmol/L →need more treatment and intervention to prevent development of severe TUR syndrome



Indications of open surgery in BPH

1. Large prostate (>60 g)
2. Long urethra
3. Urethral stricture
4. Concomitant inguinal hernia
5. Concomitant bladder stones or bladder diverticula
6. Inability to be positioned for transurethral surgery
7. Intraoperative bleeding during TURP obscuring vision

oExcellent outcomes in terms of improvement of symptoms, but higher morbidity rate, associated with risk of significant blood loss

Minimally invasive procedures

1. Laser therapy
2. Transurethral electro-vaporization of the prostate
3. Transurethral needle ablation of the prostate
4. high-intensity focused ultrasound
5. Intra-urethral stents (unco-operative patient)
6. Transurethral balloon dilation of the prostate

BPH

- Three symps. Of BPH ? Frequency

urgency Hesitancy

Most common used agents? Finasteride

-

Most specific surgery ? TURPT

One of the following Is indicated for open prostatectomy except:

A) large prostate

B)borthsome symptoms

C)blunt hip fracture M

D)all of mentioned above considering true

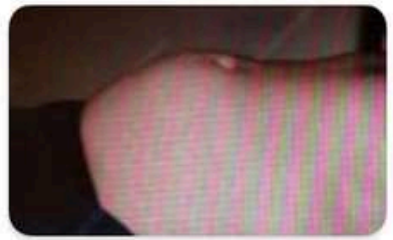
-) patient with BPH

a) indication for TURB

b) two complications specific for TURB

c) two secondary causes for UVR

Station 4



1-Three differences between acute urinary retention and this condition??

Acute urinary retention	Chronic urinary retention
Bladder capacity (400-500ml).	Bladder capacity (2-3L).
Painful.	Feeling of fullness (Painless).
Bladder is functioning.	Bladder atony (Neurogenic bladder).
No Reflux.	Renal impairment , Hydronephrosis & Reflux.

-) This photo showing suprapubic fullness for 70 years old male patient attend urology clinic complaining of inability to pass urine with episodes of urinary incontinence since more than 2 weeks

a) what is the type of incontinence, what is the type of retention

b) mention 2 drugs management and the site of action

-Type of incontinence seen in this condition???

-Give 4 indication for surgery in BPH???

❖ **Mention 4 indication of surgery in BPH**

1. Failure of medical treatment
2. Recurrent UTI
3. Refractory urinary retention
4. Recurrent gross hematuria
5. Bladder stones
6. Large bladder diverticula
7. Hydronephrosis
8. Renal insufficiency

Prostatic cancer

شرح

Prostatic cancer

- **Risk factors**: Age (>65),Africans,Familyhistory,High fat diet, Familial Ca prostate gene
- **Histopathology**: Adenocarcinoma ofthe posterior zone
- **Symptoms**: Storage symptoms, voiding symptoms, back pain (due to incontinence),bonepain(mets),Leg pain andedema (nodalmets)
- **Best screening tests**: PSA + DRE
- Most common site for metastasis in Prostatic CA is bone→ **sclerotic lesion**

سنوات قديم

- **Gleason's system**:
  - Primarygrade-assigned to the dominant pattern of the tumor (has tobe greater than 50% of the total pattern seen)
  - Secondary grade -assigned to the next-most frequent pattern (has tobe less than 50%, but at least 5%, of the pattern of the total cancer observed)

Treatment protocol of prostate cancer

- If life expectancy <10%, Watchful waiting
- If life expectancy > 10%, asses the risk
  - **Lowrisk**:Activesurveillance,PSAandbiopsy every 6 months -1 year
  - **Intermediate risk**:
    - **Without metastasis**: Radical prostatectomy
    - **Withmetastasis**:ShortcourseADT(androgen deprivation therapy) then radiotherapy
  - **High risk**:
    - **Localized**: Radical prostatectomy + EBT (extrabeamradiotherapy)
    - **Locally advanced**: Neoadjuvant hormonal + EBT
    - **Metastasis**:Hormonaltherapy (LHRHagonistinjection every 1-3 months or surgical castration (bilateral orchiectomy))

Preferred first-line options –Matching

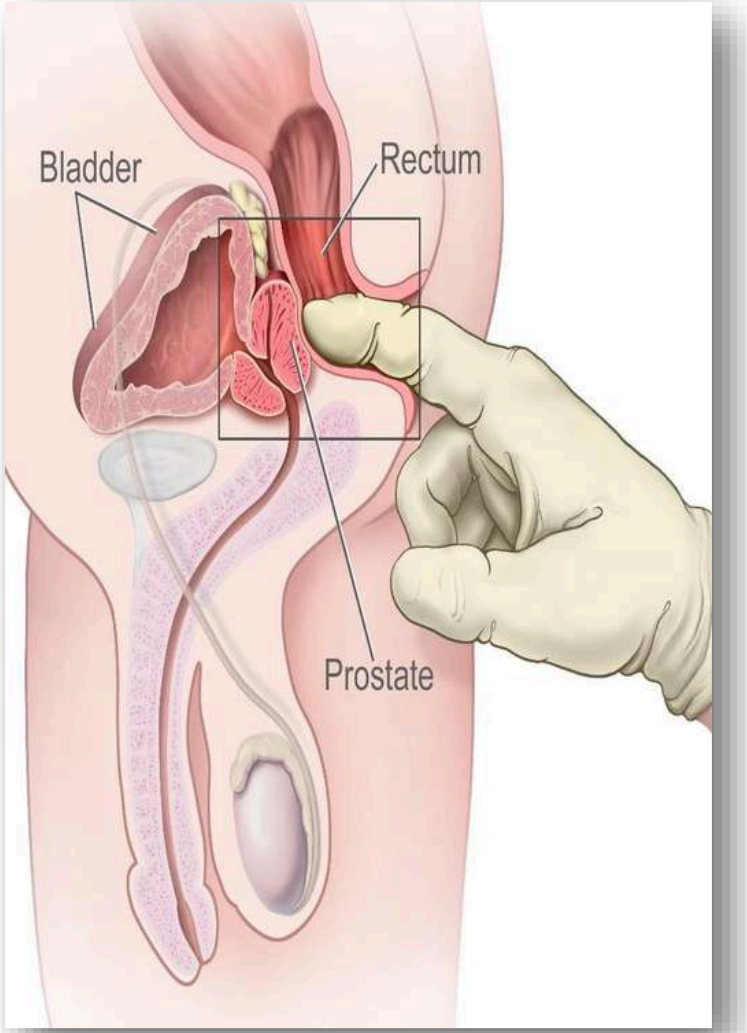
- **Patient with localized prostate cancer**: Radical prostatectomy
- **Patient with metastatic prostatic cancer**: Hormonal therapy; molecular therapy
- **Patient with advanced prostatic adenocarcinoma and bony metastasis**: Hormonal therapy; molecular therapy

Prostate cancer

- **Name of this examination**
  - Digital rectal examination

Features suggestive of prostate cancer

1. Localized indurated nodules on another wise smooth surface
2. Prostatomegaly
3. Lobar asymmetry
4. Obliteration of the sulcus
5. Hard nontender nodules



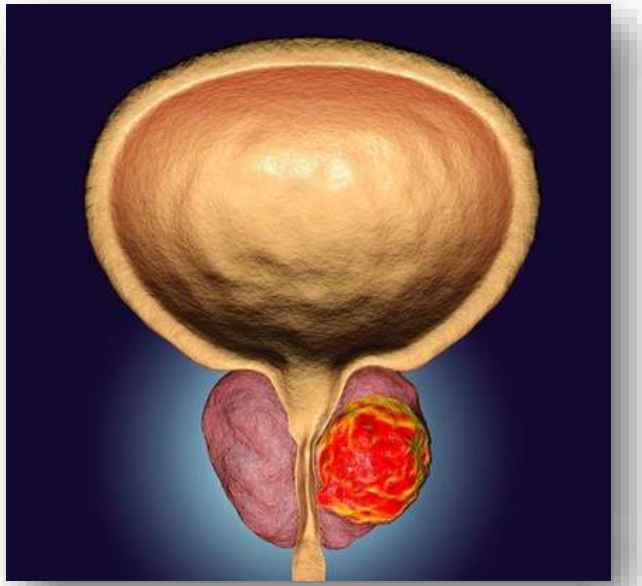
Prostate cancer

Spot diagnosis

- Prostate cancer

Mention 4 findings in digital rectal examination

1. Prostatomegaly
2. Lobar asymmetry
3. Obliteration of the middle sulcus
4. Hard nontender nodules
5. Localized indurated nodules on an otherwise smooth surface



Mention 3 symptoms of TUR syndrome

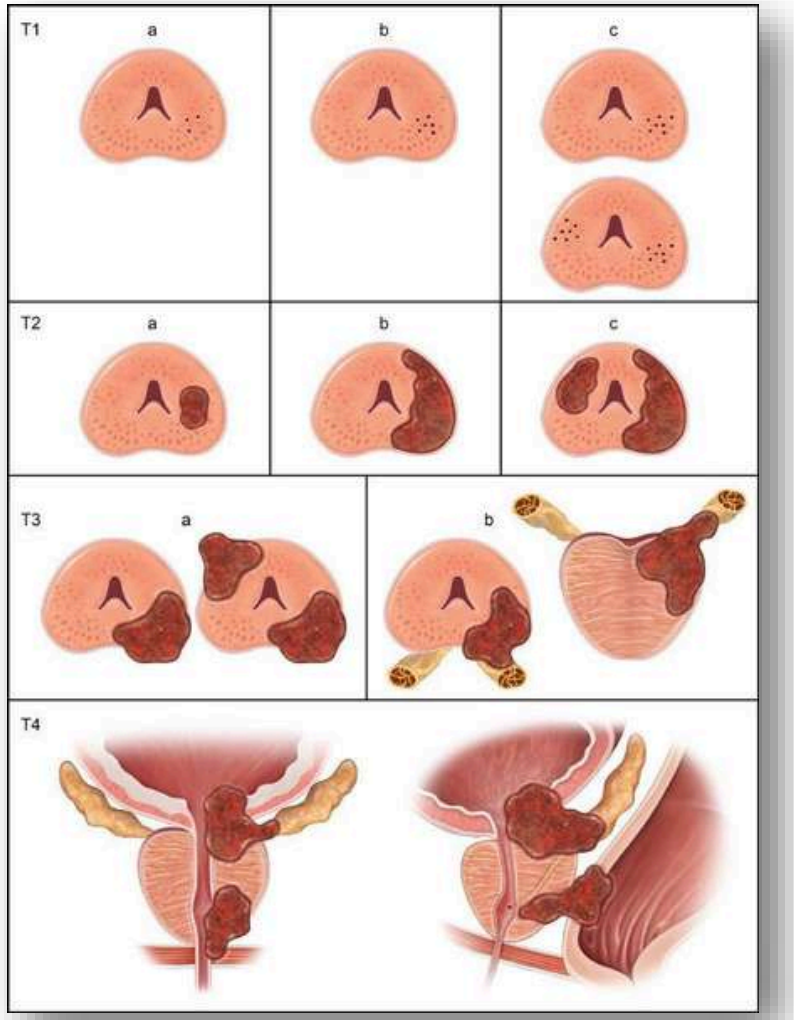
- Nausea and vomiting, seizures, confusion, hypertension, bradycardia, visual disturbances

Station 3 (matching)

- patient with prostate size 35g and bothersome symptoms Tx is>> **alpha blocker**
- patient with prostate size 100g and large bladder stone >>**tranvesical prostatectomy**
- patient with localized prostate CA>> **Radical prostatectomy**
- patient with metastatic prostate CA>> **hormonal therapy**
- patient with prostate size 80g without symptom >> **watchful waiting**

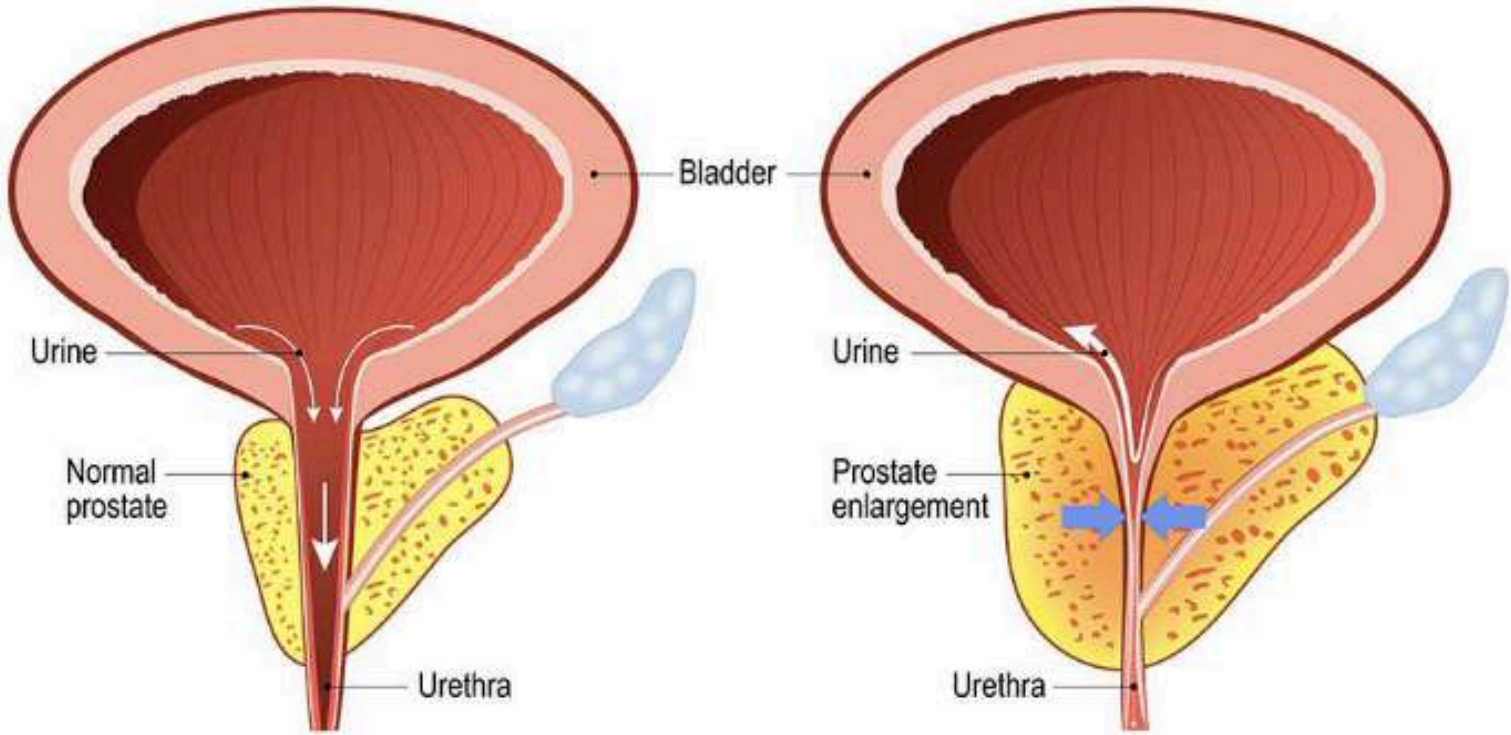
T staging of prostatic cancer

- **TX**: cannot evaluate theprimary tumor
- **T0**: no evidence of tumor
- **T1**: clinically undetectable tumor, normal DRE and TRUS
  - **T1a**: tumor was incidentally found in less than 5% of prostate tissue resected (forother reasons)
  - **T1b**: tumor was incidentally found in greater than 5% of prostate tissue resected
  - **T1c**: tumor was found in a needle biopsy performed due to an elevated serum PSA
- **T2**: palpable, confined to prostate
  - **T2a**: the tumor is in halfor less than half of one lobe of the prostate gland's
  - **T2b**: the tumor is in more than half of one lobe, but not both
  - **T2c**: the tumor is in both lobes
- **T3**: the tumor extends through the prostatic capsule (if it is only part-way through, it is still T2)
  - **T3a**: thetumorhasspreadthroughthecapsuleononeor both sides
  - **T3b**:thetumorhasinvadedoneorbothseminalvesicles
- **T4**: the tumor has invaded adjacent structures



66 y old male pt came to your clinic for
counseling about his complaint (prostate cancer)
what do you want to tell him about his treatment
plane??
Written
Treatment protocol of prostate cancer
* If life expectancy <10%, Watchful waiting
* If life expectancy > 10%, asses the risk
•Low risk: Active surveillance, PSA and biopsy every 6 months - 1 year|
intermediate risk:
• Without metastasis: Radical prostatectomy
• With metastasis: Short course ADT(androgen deprivation therapy) then radiotherapy
o High risk:
• Localized: Radical prostatectomy + EBT (extrabeam radiotherapy)
• Locally advanced: Neoadjuvant hormonal + EBT
• Metastasis: Hormonal therapy (LHRH agonist injection every 1-3 months or surgical castration (bilateral orchiectomy))

BENIGN PROSTATIC HYPERPLASIA



1. what ARE the 2 mechanisms by which BPH cause urinary retention ?
2. What are the diagnostic tests for prostatic CA ?
3. Define th TUR syndrome

Benign scrotal swellings

Essay –Anatomy

- **The content of thespermaticcordincludethefollowing**
  - **Three arteries**:
    - Testicular artery, ductus deferens artery, cremasteric artery
  - **Three nerves**:
    - Genital branch of genitofemoral, cremasteric nerve, sympathetic nerve fibers
  - **Three other structures**:
    - Ductus deferens, pampiniform plexus, lymphatic vessels

Painful Scrotal Swelling

Testicular torsion

❖Mention 5 symptomsoftesticulartorsion

- Testicular pain
- Swelling
- Erythema
- Vomiting
- Recurrent episodes (not sure)

❖Mention 5 physical examination findings of torsion

- Erythema and swelling
- High riding testis
- Horizontal lie of the affected testis
- Absent cremasteric reflex
- Prehn's sign

Testicular torsion

- **What method of investigationishelpfulinthis situation?**
  - Color doppler ultrasound
- **Mention 3 signs that you will find during physical examination**
  - NegativePrehn’s sign,retractedtestis,andabsent cremastericreflex
- **What is the treatment ?**
  - Manualtesticulardetorsion in the ER for immediate pain relief or if the surgery is not immediately available
  - Immediate surgical exploration of the scrotum with reduction (untwisting) of the left testis and orchidopexy of both testes
  - oOrchiectomy of the left testis if it is grossly necrotic or nonviable

- **What happen if it was untreated ?**
  - Infarction and die

Testicular torsion –Case scenario 1

➢14 years oldboyattendERcomplaining of left sudden testicular pain with vomiting, on doppler U/S no blood flow was identified

1.What is the most likely diagnosis?

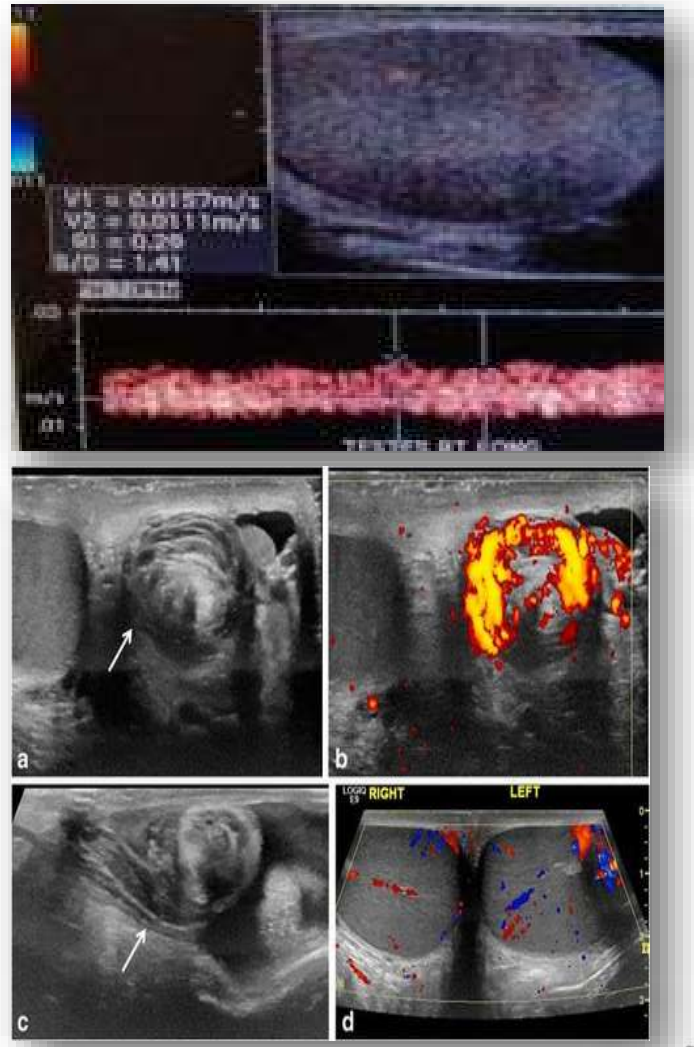
- Left testicular torsion

2.What is your management?

- Manual testicular detorsion in the ER for immediate pain relief or if the surgery is not immediately available

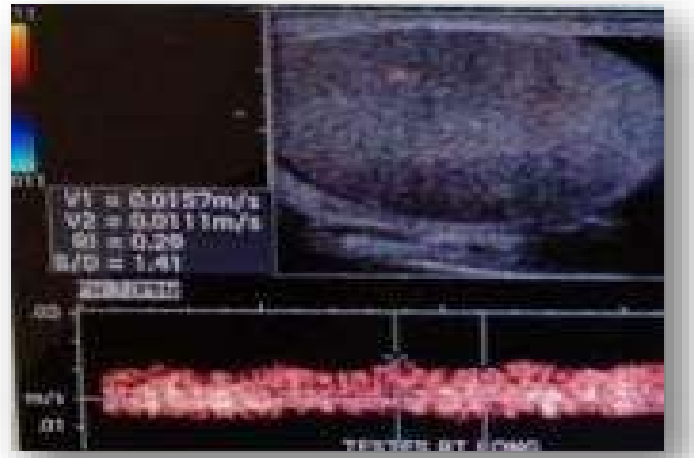
oImmediate surgical exploration of the scrotum with reduction (untwisting) of the left testis and orchidopexy of both testes

oOrchiectomy of the left testis if it is grossly necrotic or nonviable



Testicular torsion –Case scenario 1

➢14 years oldboyattendERcomplaining of left sudden testicular pain with vomiting, on doppler U/S no blood flow was identified



3.Mention 3 difference between this case and epididymitis:

o Answer:

Testicular torsion	Epididymorchitis
Mechanical twist of the testicle	Inflammatory process
Acute onset severe pain	Gradual onset mild pain that increase withtime
negative Cremasteric reflex	positive Cremasteric reflex

Mention 5 difference between this case and epididymitis:

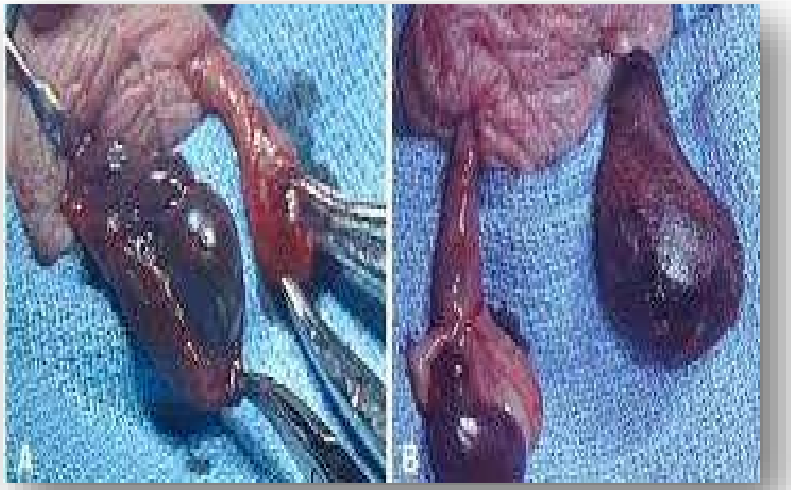
Testicular torsion	Epididymorchitis
Mechanical twist of the testicle	Inflammatory process
Acute onset severe pain	Gradual onset mild pain that increase with time
Afebrile	Associated with high fever, chills and rigors
w/o urinary symptoms	Associated with dysuria and frequency
Negative Prehn sign	Positive Prehn sign
Negative Cremasteric reflex	Positive Cremasteric reflex
Non-tender prostate	Tender prostate
Doppler: Decrease testicular flow	Doppler : increased testicular flow
Testicular position: elevated and more horizontal	Testicular position : normal (vertical)
Associated with nausea and vomiting due to severe pain	Not associated with nausea and vomiting

Testicular torsion VS Epididymorchitis

	Testiculartorsion	Epididymorchitis
Age	(10-30) years	(16-30) & (51-70)years
Pain	Sudden onset not affected by position	Gradualonset worse when standing
Onset	After exercise, sleepor minor trauma	Rarely after sleep
Time to presentation	<6 hours	> 24 hours
Past episodes	Frequently >2weekspast	Onlyif previous infection
Severity	Peaks in hours	Peaks in days
Vomiting	Common from pain	Unusual
Fever	Up to 20%	Up to95%
Swelling	After 12 hours	Common
Dysuria	Rare	Common
Urinanalysis	30% have wbc/bacteria, voiding complication rare	50% may be normal, voiding complication common
Physical exam	- Cremasteric reflex - Prehn sign	+ Cremasteric reflex + Prehn sign
Color Doppler	Decreased testicular flow	Increased testicular flow
Management	Antibiotics, if it fails, we do orchidectomy	Surgery (Orchidopexy or Orchidectomy)

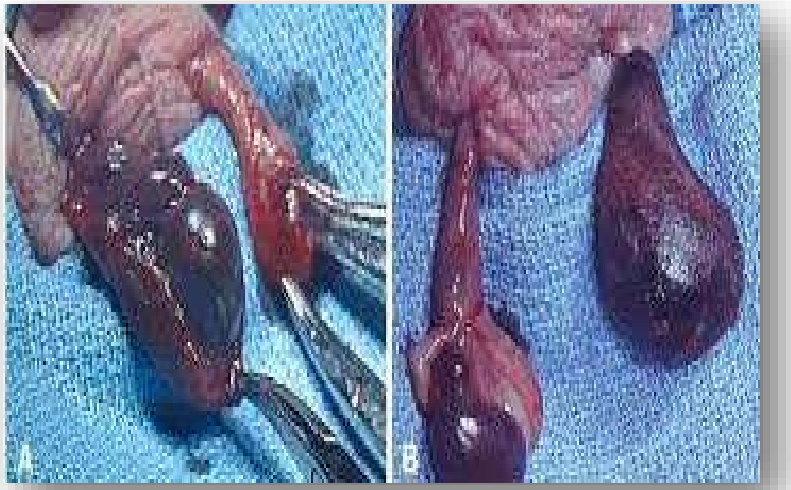
Testicular torsion –Case scenario 2

- 12 yearsold male patientpresentedto theER complaining of 12 hours right testicular pain; emergent exploration surgery was done showing the following:
- **Diagnosis**:
  - Necrotic right testis due to testicular torsion
- **Management**:
  - Radical orchiectomy of the right testis
  - Orchidopexy of the left testis



Testicular torsion –Case scenario 2

- **Describe what you see:**
  - Swollen and black, pulled up testis
- **Which age affect and what's the peak age ?**
  - 10-30 years (peak is 13-15 years)
- **Mention3arteriessupplying the testes**
  - Testicular artery
  - Cremasteric artery
  - Artery of the ductus deferens
- **What anchor the testes in its position ?**
  - Spermatic cord



- Mention 5 physical examination findings
- Erythema and swelling
- High riding testis
- Horizontal lie of the affected testis
- Absent cremastric reflex

Torsion

1- golden time for diagnosis :

Within 6 hours of the start of symptoms, before the testis starts necrosis

2- best imaging modality :

Color doppler US

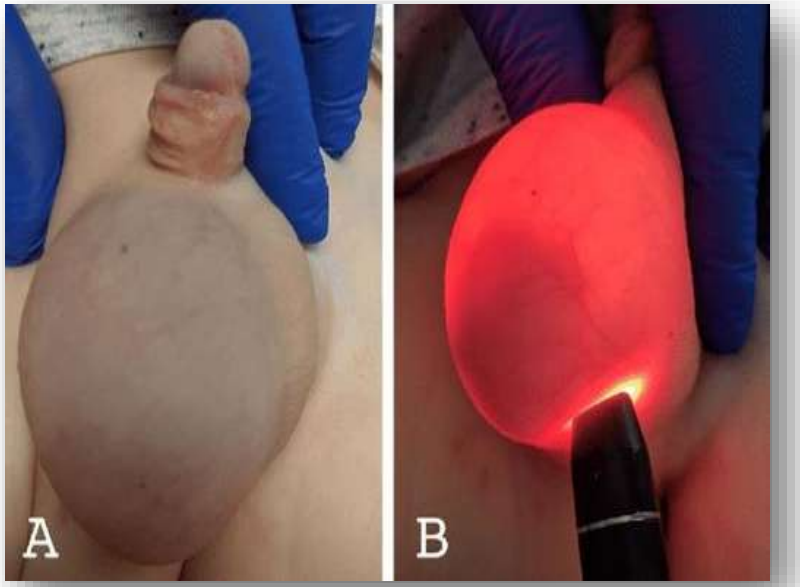
3- misdiagnosis leads to what :

Leads to necrosis of the affected testis, and may affect fertility

Painless Scrotal Swelling

Hydrocele

- **What is the name of thistest?**
  - Transillumination test
- **What is your diagnosis ?**
  - Hydrocele
- **Mention 5 differential diagnosis**
  - Spermatocele, Hematocele, Pyocele, Varicocele, Hernia
- **Management**:
  - **Children**: resolve spontaneously
  - **Adults**: surgical excision, if secondary treat underlying cause



Grades of varicocele–Simplified

- **Grade 0**: Subclinical Varicocele, Dx by US or venography
- **Grade 1**: Palpable with Valsalva maneuver on standing
- **Grade 2**: Easily detected without Valsalva maneuver on standing
- **Grade 3**: Detected visually at a distance

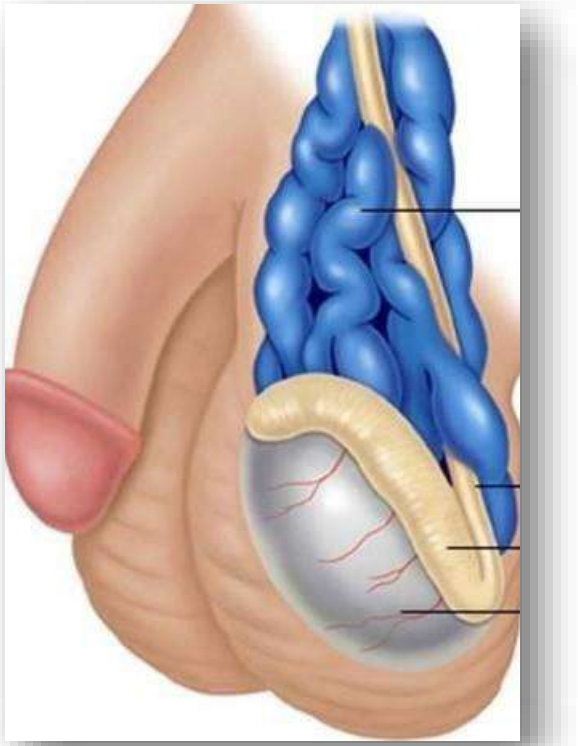
Patient complains from palpable varicocele

1. Why doesit occur in the left more than right?

- Thelonger courseof theleftspermaticveinandits insertion at a 90°angle into the left renal vein predisposes to slower drainage and increased hydrostatic pressure.

2.Whichgradeisthispatient's varicocele ?

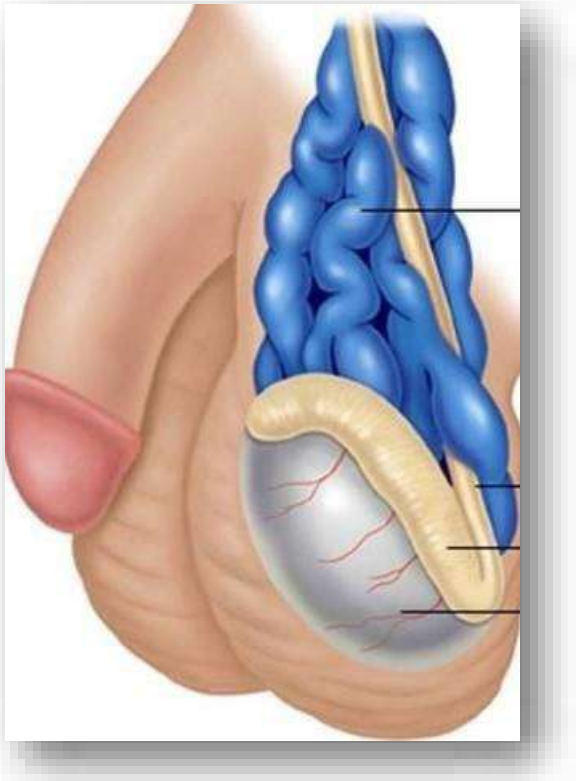
- Palpable ⟶ Grade 2



Patient complains from palpable varicocele

3. Howit canbe assessed clinically ?

- Inspectionand palpationwhilethe patient is standing
- Askthepatient topreformValsalva maneuver



4.Mention 4 indications of surgery

1. Pain
2. Fertility problems
3. Abnormal semen analysis
4. Testicular asymmetry
5. Testicular atrophy
6. Delayed growth of the affected testis in children and adolescents
7. Grade III or higher in pediatric

Case scenario

➢28 years old male patient presentedtothe ER complaining of testicular pain, examination finding was bag of worms over the left testis

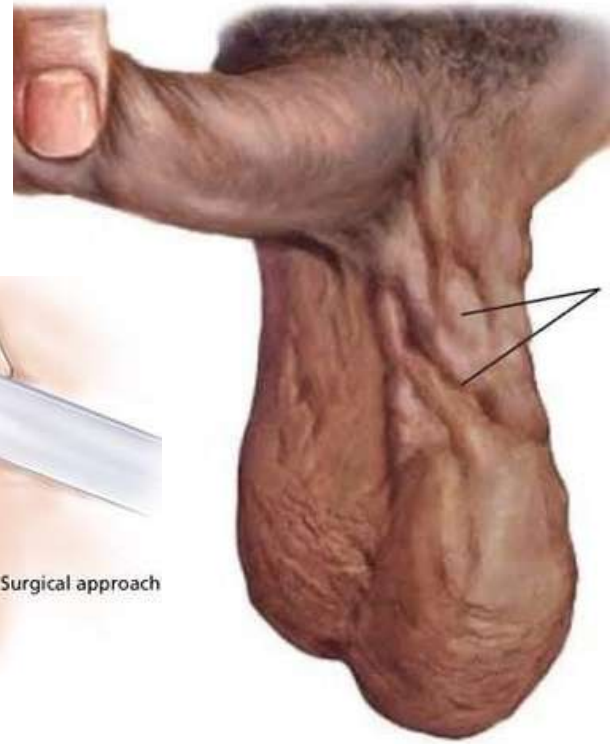
- **What is your diagnosis ?** Varicocele
- **What is the first thing that affected on sperm analysis on this condition?** Motility
- **Mention 4 indications of surgery**
  1. Pain
  2. Fertility problems
  3. Abnormal semen analysis
  4. Testicular asymmetry
  5. Testicular atrophy
  6. Delayed growth of the affected testis in children and adolescents
  7. Grade III or higher in pediatric

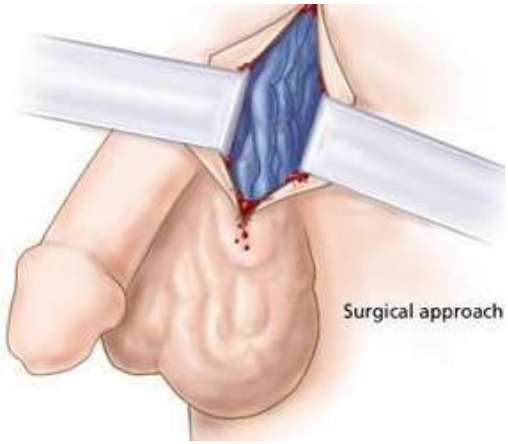
)أكثر صورةتكررت)5مرات

نفس سؤال السلالايد الماضي، السؤال تكرر كثير لكن بصور مختلفة

- **What is your diagnosis ?**
- Varicocele

Mention 4 indications of surgery





1. Pain
2. Fertility problems
3. Abnormal semen analysis
4. Testicular asymmetry
5. Testicular atrophy
6. Delayed growth of the affected testis in children and adolescents
7. Grade III or higher in pediatric

:

Q4:

Diagnosis ? varicocele

List 4 indications for surgery

Pain

Fertility problems

Testicular atrophy

Testicular asymmetry

What is the first thing that affected on sperm analysis on this condition: ?? motility

Q 7

b) treatment of epididymitits??
1st doxycycline
2nd Macrolide
For 14 days

c) best imaging in prostat urethral trauma??
Urethrography

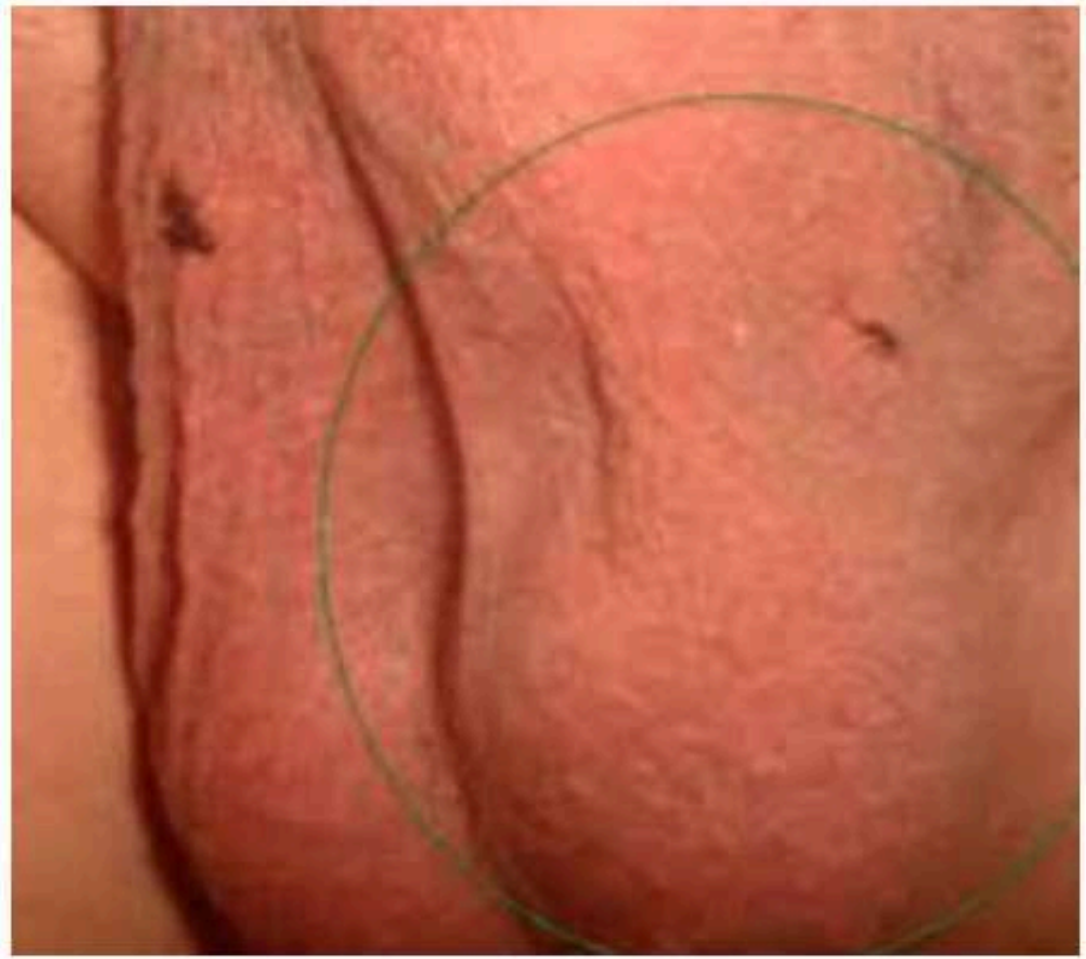
Station 6

1-Patient with painless hemiscrotal swelling for one year nearly ???

2-Give 4 differential diagnosis ??
3-Give 2 causes??
في كمان سؤال نسيته

What’s your diagnose? Answer: hydrocele

The best diagnosis is? Answer:varicose tests (varicocele)



What’s your diagnose?

A)varicose☑

b) hydrocele

C)congenital swelling

D)normal testis

Scrotal Pathology_ mini-osce

Q1. Pic 1 → Identify the condition.

➡ **Varicocele**

Q2. Pic 2 → Name the test.

➡ **Transillumination test (positive in hydrocele, negative in solid tumors)**

Q3. Pic 3 → Diagnosis.

➡ **Testicular torsion**

Q4. Bell-clapper deformity is associated with?

➡ **Testicular torsion**

Q5 treatment of epididymitis?

1st :fluroquinolone 2nd: 2nd generation cephalosporin OR 1st: doxycycline,2nd :macrolide

Scrotal Pathology_ mini-osce

Q1. Pic 1 → Identify the condition.

➡ **Varicocele**

Q2. Pic 2 → Name the test.

➡ **Transillumination test (positive in hydrocele, negative in solid tumors)**

Q3. Pic 3 → Diagnosis.

➡ **Testicular torsion**

Q4. Bell-clapper deformity is associated with?

➡ **Testicular torsion**

Testicular tumors

Testicular tumors

- **Risk factors**: Age (20-40),WhiteCaucasian,PreviousTesticular cancer, Cryptorchidism,Testicularintraepithelialneoplasia,HIV,first-degreerelative with testicular cancer
- **Symptoms**: Painless scrotal lump, Acute scrotal pain (5%), 10% develop symptoms suggestive of advanced disease, including weight loss, lumps in theneck, chestsymptoms,or bone pain
- More common on the **right**
- **Signs**:asymmetryorslightscrotal skin discoloration, hard, non-tender, irregular, non-transilluminablemass
- **Investigations**:
  - **Imaging**:Ultrasound (first-line), Abdominal and chest CT (for staging purposes)
  - **Serum tumor markers**: α-fetoprotein (AFP), β-HCG, Lactic dehydrogenase (LDH)

Testicular tumors –Case scenario 1

➢24 years old patientobserve painlessmassinrightscrotalregionduring shower. He is a smoker for 10 years.

- **Whatinformationinthehistoryraisesthepossibilityofatesticular tumor?**
  - Painlessmass,Age (24)
- **What is the most important investigation to confirm diagnosis ?**
  - Ultrasound,tumor markers
- **What blood tests would you like to order ?**
  - oTumor markers (AFP, β-HCG, LDH)
- **Treatment:**
  1. Radical inguinal orchiectomy (Dx & local control)
  2. Radiotherapy

Testicular tumors –Case scenario 2

➢30 yearsoldmalepatientpresentwithpainlessscrotalswelling

- **If the tumor reach the scrotal wall what is its T stage ?**
  - T4
- **Define radical orchiectomy**
  - Theremovaloftheentirespermatic cord and the testicle through an inguinal incision.
- **What is the most common testicular tumor ?**
  - Seminoma

سنوات قديم

- **What is the most common site for metastases in testicular tumor ?**
  - Para-aortic lymph nodes, lung

سنوات قديم

The lymphatic spread of testicular cancer is mainly to Para-aortic lymph nodes

Testicular tumors –station 3

Question 1: What is the diagnosis method for a suspected testicular tumor?

Scrotal ultrasound + serum tumor markers (AFP, β-hCG, LDH)

Question 2: What is the most common testicular tumor?

Seminoma

Question 3: Name syndromes associated with testicular tumors.

Klinefelter syndrome, Down syndrome

Question 4: What is the gold standard management of testicular tumor?

Radical inguinal orchiectomy

Testicular tumors –station 4

Question 1: What is the diagnosis method for a suspected testicular tumor?

Scrotal ultrasound + serum tumor markers (AFP, β-hCG, LDH)

Question 2: What is the most common testicular tumor?

Seminoma

Question 3: Two differential diagnoses?

→ Epididymitis, Hydrocele

Testicular tumors

(matching)

Reinke crystals .....> Leydig Cell

Always secrete B-HCG .....> Choriocarcinoma

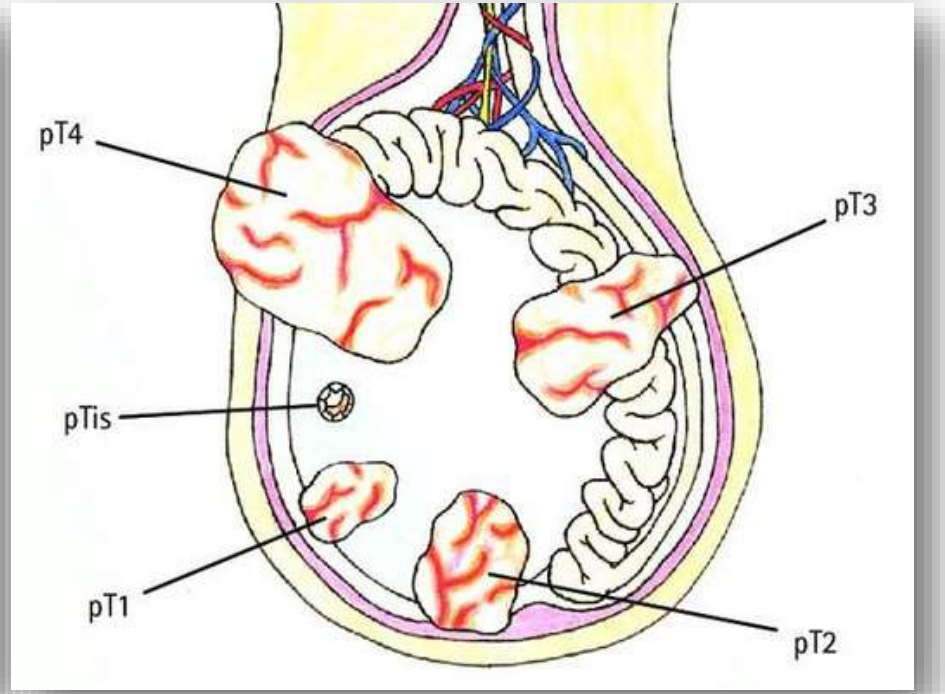
never secrete AFP .....> Seminoma

Secretes AFB and B-HCG.....> Yolk Sac

causes precocious puberty .....> Sertoli Cell

T staging of testicular tumor

Tx	Primary tumour has not been assessed (no radical orchidectomy)
T0	No evidence of primary tumour
Tis	Intratubular germ cell neoplasia, testicular intraepithelial neoplasia (carcinoma *in situ*)
T1	Tumour limited to testis and epididymis without vascular/lymphatic invasion; may invade tunica albuginea, but not tunica vaginalis
T2	Tumour limited to testis and epididymis with vascular/lymphatic invasion or tumour involving tunica vaginalis
T3	Tumour invades spermatic cord with or without vascular/lymphatic invasion
T4	Tumour invades scrotum with or without vascular/lymphatic invasion



Erectile dysfunction

غير شامل للموضوع بالكامل

الجدول كان مكتوب عليه مهم بالسمينار

شرح

Phases of erectile process

Description	Term	Phase
Cavernosalsmooth musclecontracted;sinusoids empty; minimal arterial flow	Flaccid phase	0
Increased pudendal artery flow; penile elongation	Latent (filling) phase	1
Rising intracavernosalpressure; erection forming	Tumescent phase transition	2
Increased cavernosal pressure causes penis to become fully erect	Full erection phase	3
Further increases in pressure + ischiocavernosal muscle contraction	Rigiderection phase	4
Following ejaculation, sympathetic discharge resumes; there is smooth muscle contraction and vasoconstriction; reduced arterial flow; blood is expelled from sinusoidal spaces	Detumescence phase	5

Erectile dysfunction –Case scenario

➢Patient cametoyoucomplaining of erectiledysfunction

❖**Define the erectile dysfunction**: the inability to achieve and maintain an erection adequate for intercourse to the mutual satisfaction of the man and his partner.

❖**What would you ask him to determine whether it's physiological or psychological dysfunction?**

Table 2 Distinguishing erectile dysfunction that is psychogenic in origin from organic (physiological) erectile dysfunction.

Patient characteristics	Organic (physiological) erectile dysfunction	Psychogenic erectile dysfunction
Age	40 years and above	<40 years
Onset of symptoms	Gradual (except trauma and pelvic surgery)	Acute
Circumstances	Global	Situational
Symptom course	Consistent or progressive	Intermittent
Morning erections	Poor or absent	Normal
Desire	Normal	Decreased
Comorbid conditions that could cause or contribute to sexual dysfunction	Present	Absent, variable
Relationship problems	Started after onset of symptoms	At onset of symptoms
Anxiety	Started after onset of symptoms	Primary (never experienced normal erections)

Essay

سنوات (قديم 1)

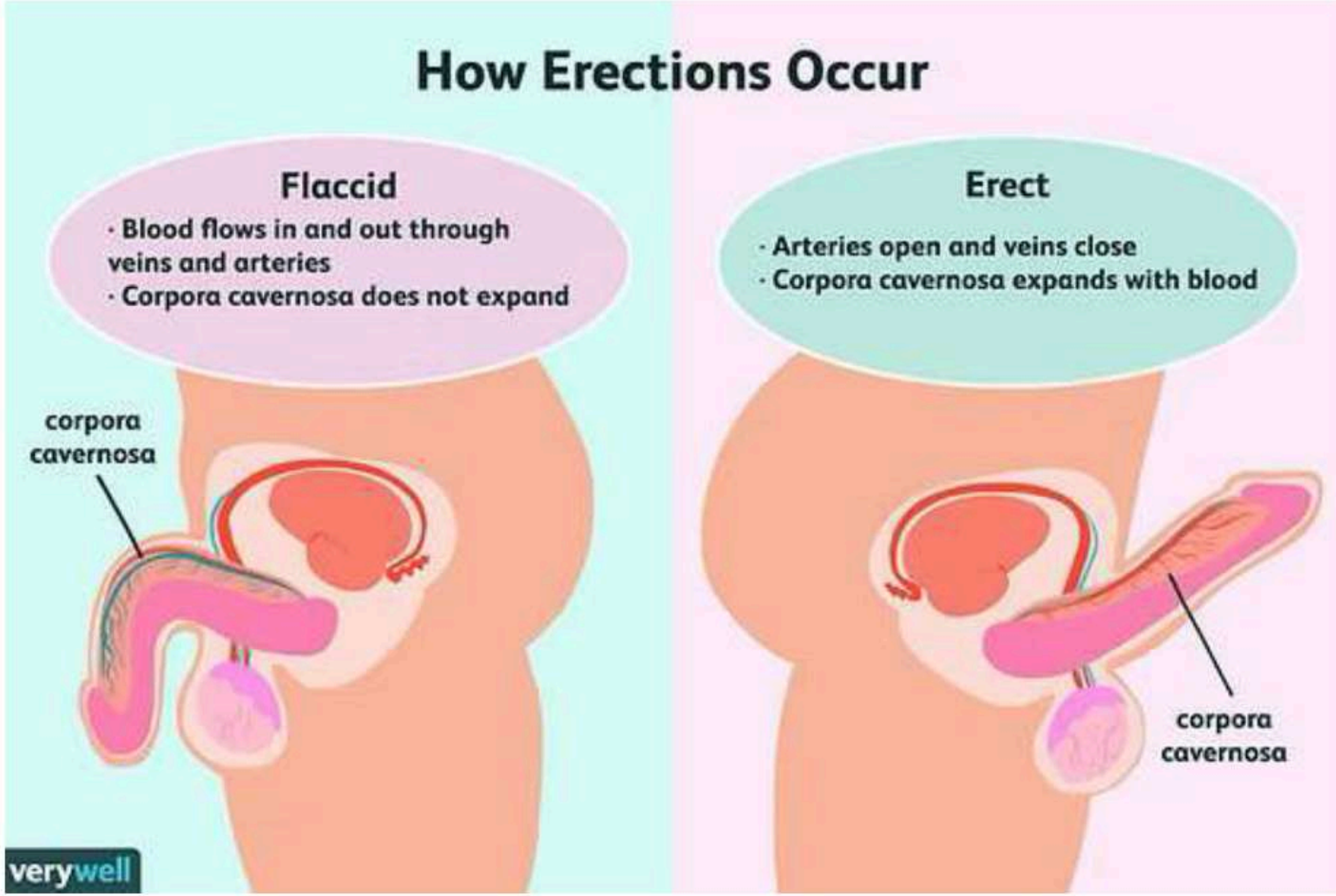
- **Mechanism of action of sildenafil(Viagra)in the treatment of erectile dysfunction**:
  - PDE inhibitor and increases the cGMP that promotes and sustains smooth muscle relaxation and increased blood flow

سنوات (قديم 1)

- **Psychogenic Causes of erectile dysfunction**:
  - Anxiety,Depression,Fatigue,Guilt,Stress,Marital Discord, Excessive alcohol consumption

سنوات (1)

- **Mention5linesof treatment**
  - Penile prosthesis
  - Phosphodiesterase type-5 (PDE5) inhibitors
  - Intracavernosal injection therapy
  - Dopamine receptor agonist
  - Testosterone replacement therapy



1. mention 4 types of dry tile dysfunction
2. What are the 6 phases of erection

شرح

Peyronie Disease

- **Definition**: fibroproliferativedisorderthataffectsthe tunica albuginea of the penis, causing abnormal curvature of the penis
- **Pathophysiology**: repeated penile microtrauma during sexual intercourse or athletic activity followed by abnormal wound healing →fibrous plaque formation
- **Classification**:
  - **Active phase**: progressive penile deformity and painful erection
  - **Stable phase**: lack of progression of penile deformity and pain
- **Clinical presentation**: Penile pain, Penile nodules, erectile dysfunction
- **Treatment**:
  - **Active phase**: Oral NSAIDs, or oral pentoxifylline
  - **Stable phase**: Intralesional collagenase injections, Surgical repair

"It's kind of thing once you seen a picture of it, it is not easy to forget"
Dr. Jason Ryan (BnB)

Male infertility

غير شامل شرح للموضوع فقط أسئلة سنوات

Essay

- **Define infertility**: failure of conceptionafter at least 12 months of unprotected intercourse
- **Mention 3 local causes of infertility**
  - Cryptorchidism, Varicocele, Testicular injury
- **Mention 3 systemic causes of infertility**
  - Renal failure, Liver cirrhosis, cystic fibrosis
- **Mention 3 environmental causes of infertility**
  - Pesticides, heavymetals, hotbaths

Define

❖**Define infertility**: failure of conceptionafter at least 12 months of unprotected intercourse

- **oligospermia :decrease number of sperm**
- **asthenospermia :Poor sperm motility**
- **Teratospermia :abnormal sperm shape**
- **Azoospermia :no sperm in the ejaculate**

Sperm parameters

Collectedafter2-7daysofsexualabstinence

Parameter	Lower limit reference
Spermvolume	1.5ml
PH	=> 7.2
Total sperm count	39x10^6 per ejaculate
Sperm concentration	15x10^6 per ml
Motility	40% progressive + nonprogressive 32% progressive motility
Morphology	4% Normalforms
Vitality	58% live spermatozoa
Time to liquefy	5-25 minutes
WBCs	< 1x10^6 per ml
MAR test(for anti-sperm antibodies)	<50% motile spermatozoa with bound particles

Sperm parameters

❖What is your diagnosis?

- Normal study

Variable	Cut-off value
Sperm volume	>1.5ml
Sperm concentration	>15 million / ml
Total sperm count	>39 million
Sperm progressive motility (A + B)	>32%
Sperm morphology	>4%
Sperm DNA fragmentation	<30%
Non-sperm cells	<1 million / ml

Q 6

سؤال أكمل الفراغ

(١) sperm count.....39 million

(٣) morphology.....4%

(٤) best modality of tertment of Erectile dysfunction in fail of medical treatment?

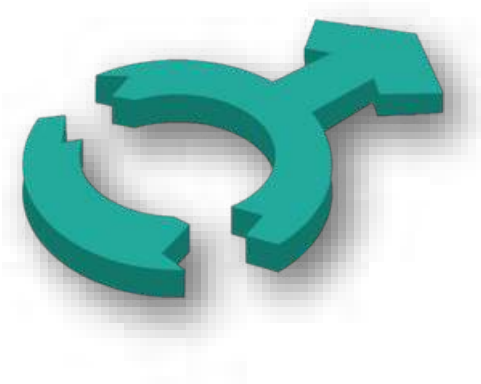
Penile prosthesis

(٥) ??treatment of psycho-social Erectile dysfunction(2)

(٦) ?most important physical sign in male infertility(2)

Azoospermia

➢Patient present with primaryazoospermia



❖**Define primary azoospermia**:

- 😟

❖**Mention the causes of azoospermia**:

- **Pretesticular**(ex.Hypopituitarism,hyperprolactinemia, chemotherapy)
- **Testicular**(ex.Klinefelter'ssyndrome, cryptorchidism,orchitis, surgery, radiation)
- **Post-testicular**(ex.Vasectomy,cystic fibrosis, ejaculatory duct obstruction)

❖**Blood test you would like to order**:

- FSH, LG, Testosterone and prolactin

case of azoospermia (- 1

type بده ال

Diagnsosis plan

Advice to get pregnant

Station 1

Definitions:—
Infertility
Asthenospermia
Teratospermia
Oligospermia
Azoospermia

-) Patient present with azoospermia

a) how to differentiate between obstruction and non-obstruction type

Station 5

1-Infertility is failure to conceive conception after one year of unprotected intercaurse involve ————and————???

2-Best treatment if failed medical treatment???
Penile prosthesis

3-Give 2 causes need surgery???

4-Give a vascular cause for erectile dysfunction??
Hypertension!!!

A) Type of azoospermia ?

Etiology from Oxford American Handbook of Urology

- Obstructive: absent or obstructed vas deferens; epididymal or ejaculatory duct obstruction. The cystic fibrosis gene is located on chromosome 7 and the condition is associated with congenital absence of the vas deferens (CAVD).
- Nonobstructive: hypogonadotrophism (Kallmann's syndrome, pituitary tumour); abnormalities of spermatogenesis (chromosomal anomalies, toxins, idiopathic, varicocele, orchitis, testicular torsion

- **Pretesticular**(ex.Hypopituitarism,hyperprolactinemia, chemotherapy)
- **Testicular**(ex.Klinefelter'ssyndrome, cryptorchidism,orchitis, surgery, radiation)
- **Post-testicular**(ex.Vasectomy,cystic fibrosis, ejaculatory duct obstruction)

B) Blood test you would like to order:
FSH, LG, Testosterone and prolactin

C) How we differentiate between type according blood test Investigations ? Oxford American Handbook of Urology

1. **Hormone**

- Elevated FSH indicates a nonobstructive cause
- normal FSH with normal testes indicates an increased likelihood of obstruction
- Low levels of FSH, LH, and testosterone indicate Kallmann's syndrome (hypogonadotropic hypogonadism) due to hypothalamic dysfunction and absence of GnRH secretion. Prader-Willi syndrome also has absent GnRH secretion.

2. **Chromosomal analysis**
3. **Testicular biopsy**
4. **Transrectal ultrasound**


"That's all Folks!"