What urological problems bring patients to The Emergency?

Dr. Abdelmoniem E. Eltraifi

Consultant Urologist

College of Medicine & The Medical City

King Saud University, Riyadh, Kingdom of Saudi Arabia

- Compared to other surgical fields, there are relatively few Urological Emergencies.

Why the patients come to emergency?

Classification

- Non traumatic
  - Haematuria
  - Renal Colic
  - Urinary Retention
  - Acute Scrotum
  - Priapism
- Traumatic
  - **Renal Trauma**
  - **Ureteral Injury**
  - **Bladder Trauma**
  - **Urethral Injury**
  - **External Genital Injury**

Non-Traumatic Urological Emergencies

Haematuria

HAEMATURIA

Blood in the urine

Types:

- **Gross (Macroscopic, Visible, Clinical): emergency or urgent**
  1 ml of blood in 1 liter of urine is visible for the patients

- **Microscopic (non visible, not clinical)=**
  3 or more RBCS/High power, in 2 out of 3 properly collected samples (AUA).

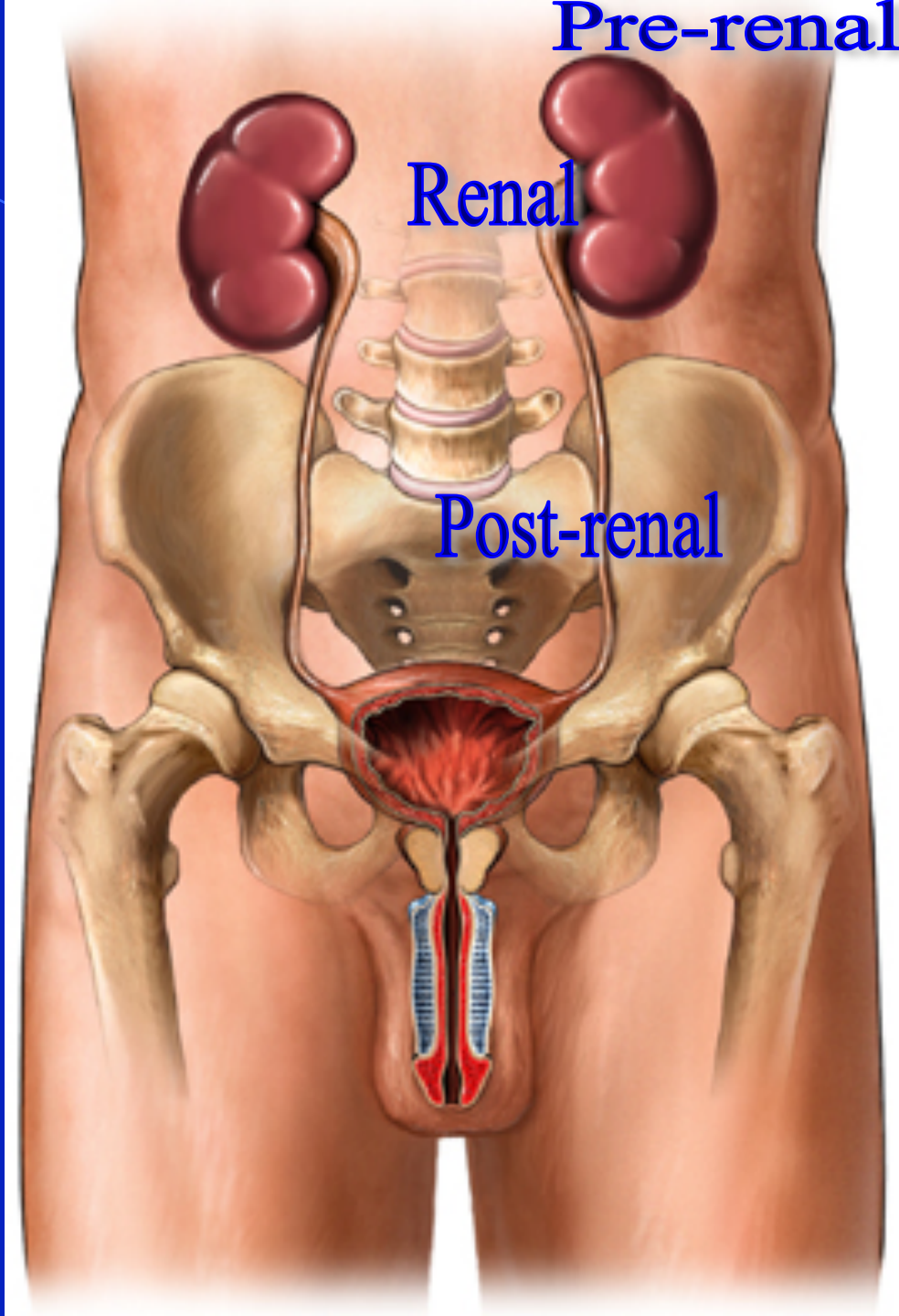
Haematuria…

Causes:

Varies according to:

- Patient Age
- Symptomatic or Asymptomatic
- The existence of risk factors for malignancy
- The type: Gross or Microscopic

Haematuria



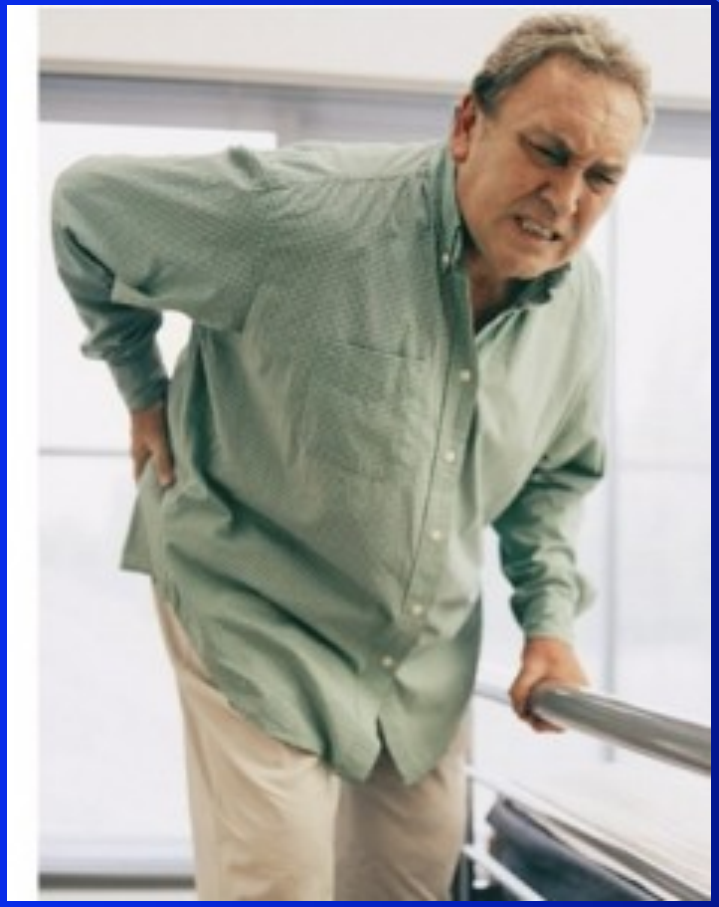
Haematuria…

- **<u>Management:</u>**
- Gross Haematuria mandate full work up.
  - Work Up:
    - History
    - *P/E= usually no much signs*
    - *Investigations.*
    - *3 ways urethral catheter and bladder wash out for heavy bleeding.*
    - *Treat according to the cause.*

History of Haematuria

- Age
- Residency.
- Duration.
- Occupation
- Painless or painful
- Timing of haematuria
- How dark colored is the urine?
- Clots and shape of clots
- Trauma
- Bleeding from other sites
- Associated Symptoms urinary and Systemic
- History of: bleeding disorders, SC, TB, Bilharzias & stone disease.
- Family History o:f Malignancy or hematological disorders.
- Drugs
- Colored food or drinks intake.
- Smoking

Renal Colic

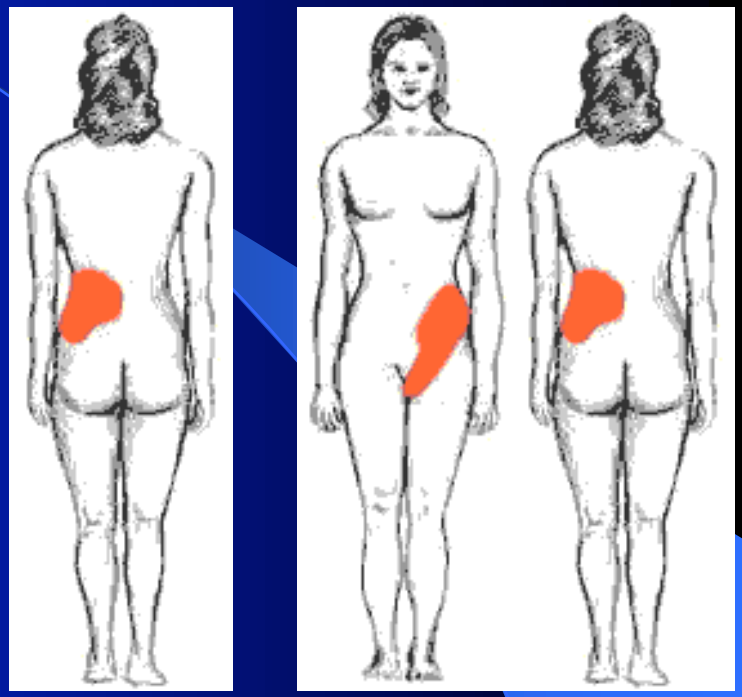


Renal Colic

- The commonest urologic emergency.
- One of the commonest causes of the “Acute Abdomen”.

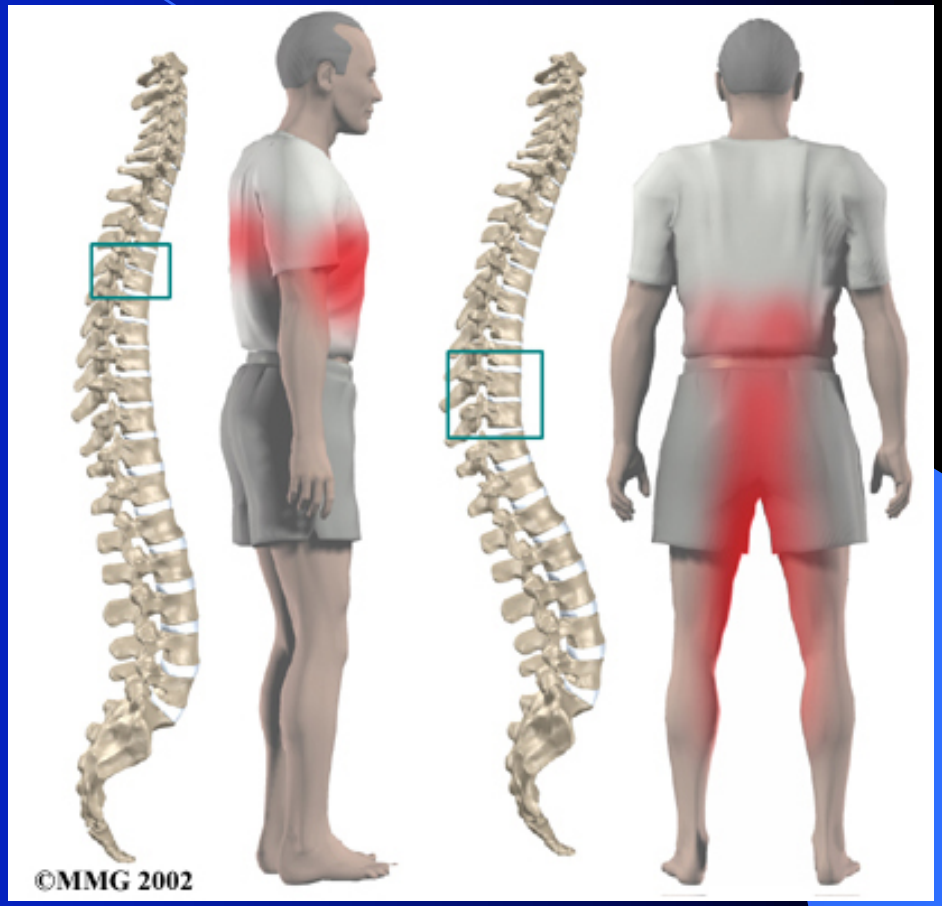
Renal Colic…

- **Pain:**
  - Severe
  - sudden onset
  - colicky in nature
  - Radiates
  - May change in location, from the flank to the groin, (the location of the pain does not provide a good indication of the position of the stone)
  - The patient cannot get comfortable, and may rolled around
  - Associated with nausea / Vomiting



Renal Colic…

- **Differential diagnosis:**
  - Radiculitis (pseudo-renal)
  - Leaking abdominal aortic aneurysms
  - Pneumonia
  - Myocardial infarction
  - Ovarian pathology (e.g., twisted ovarian cyst)
  - Acute appendicitis
  - Testicular torsion
  - Inflammatory bowel disease (Crohn's, ulcerative colitis)
  - Diverticulitis
  - Ectopic pregnancy
  - Burst peptic ulcer
  - Bowel obstruction

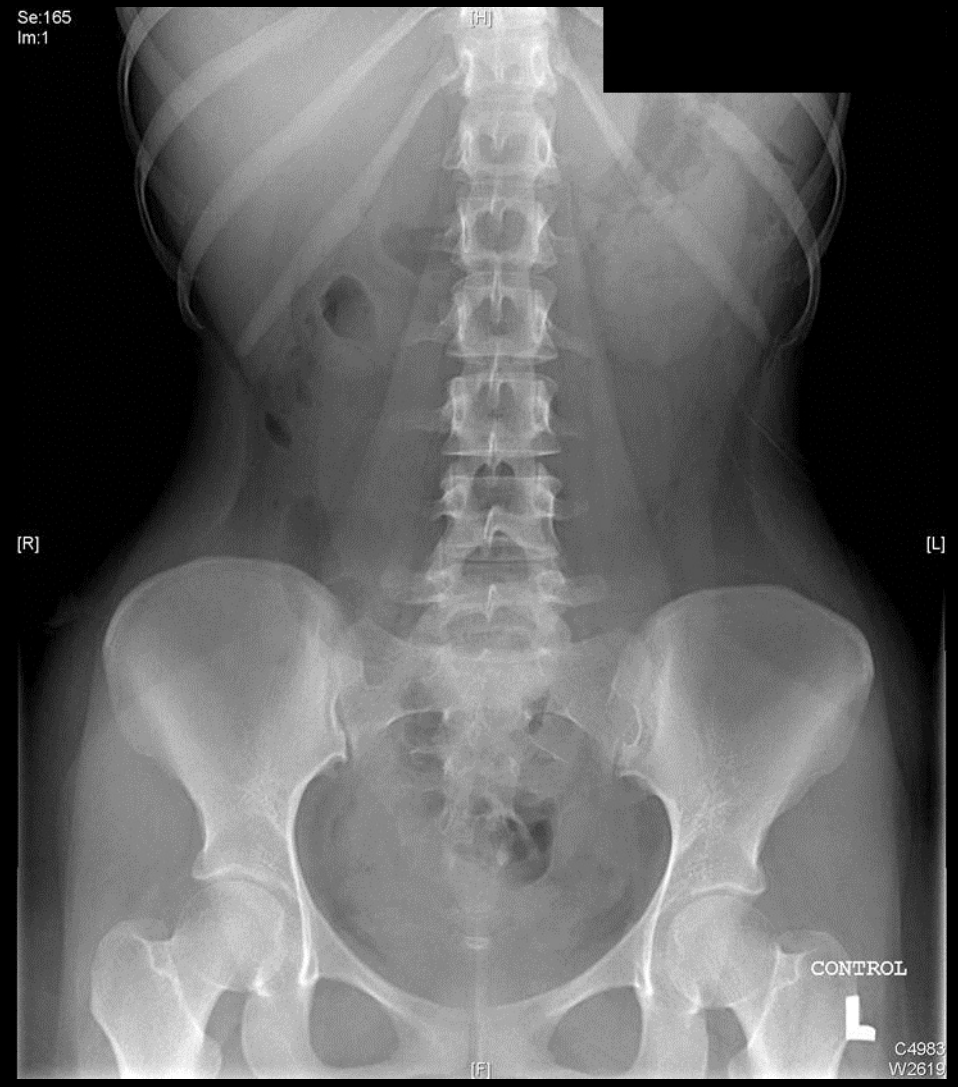


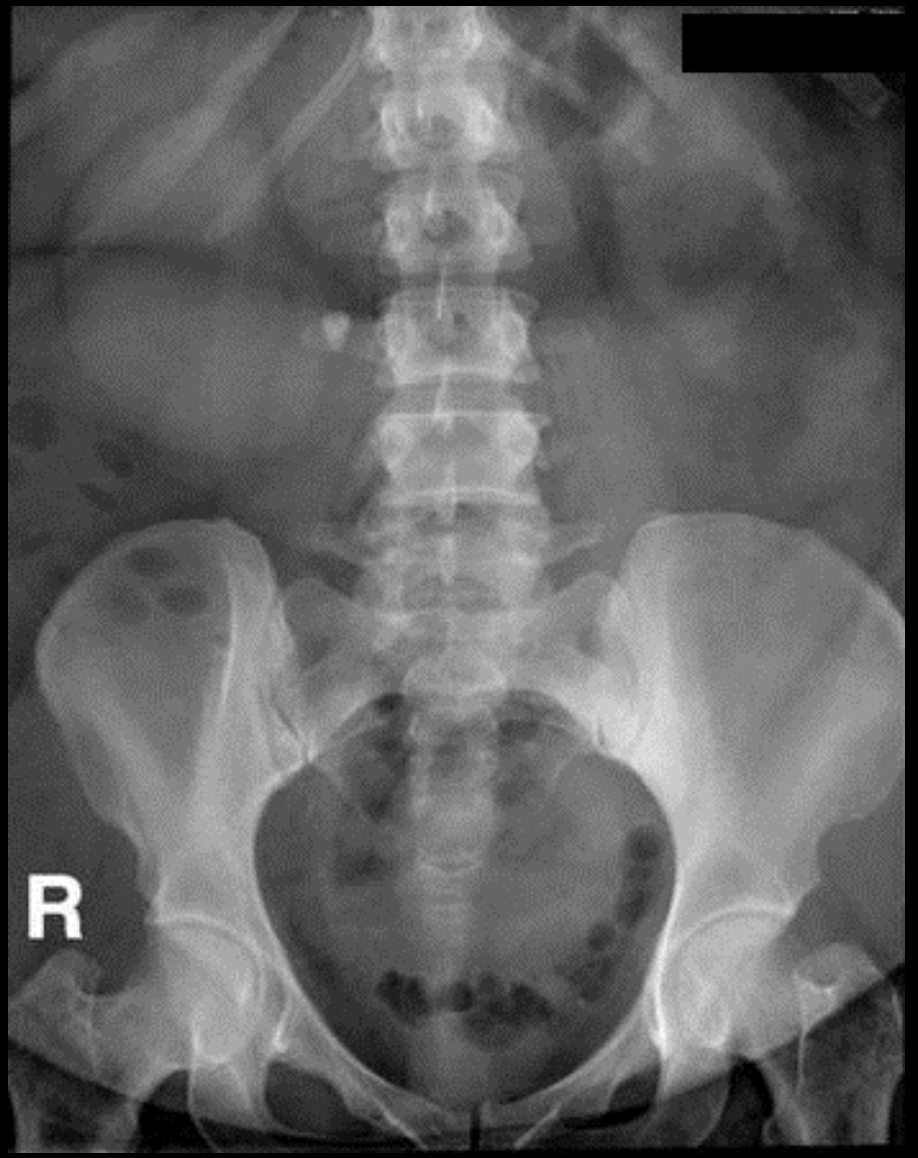
Renal Colic…

- **Work Up:**
  - History
  - Examination: patient want to move around, in an attempt to find a comfortable position.
  - +/- Fever
  - Pregnancy test
  - MSU
  - U&E

Radiological investigation :

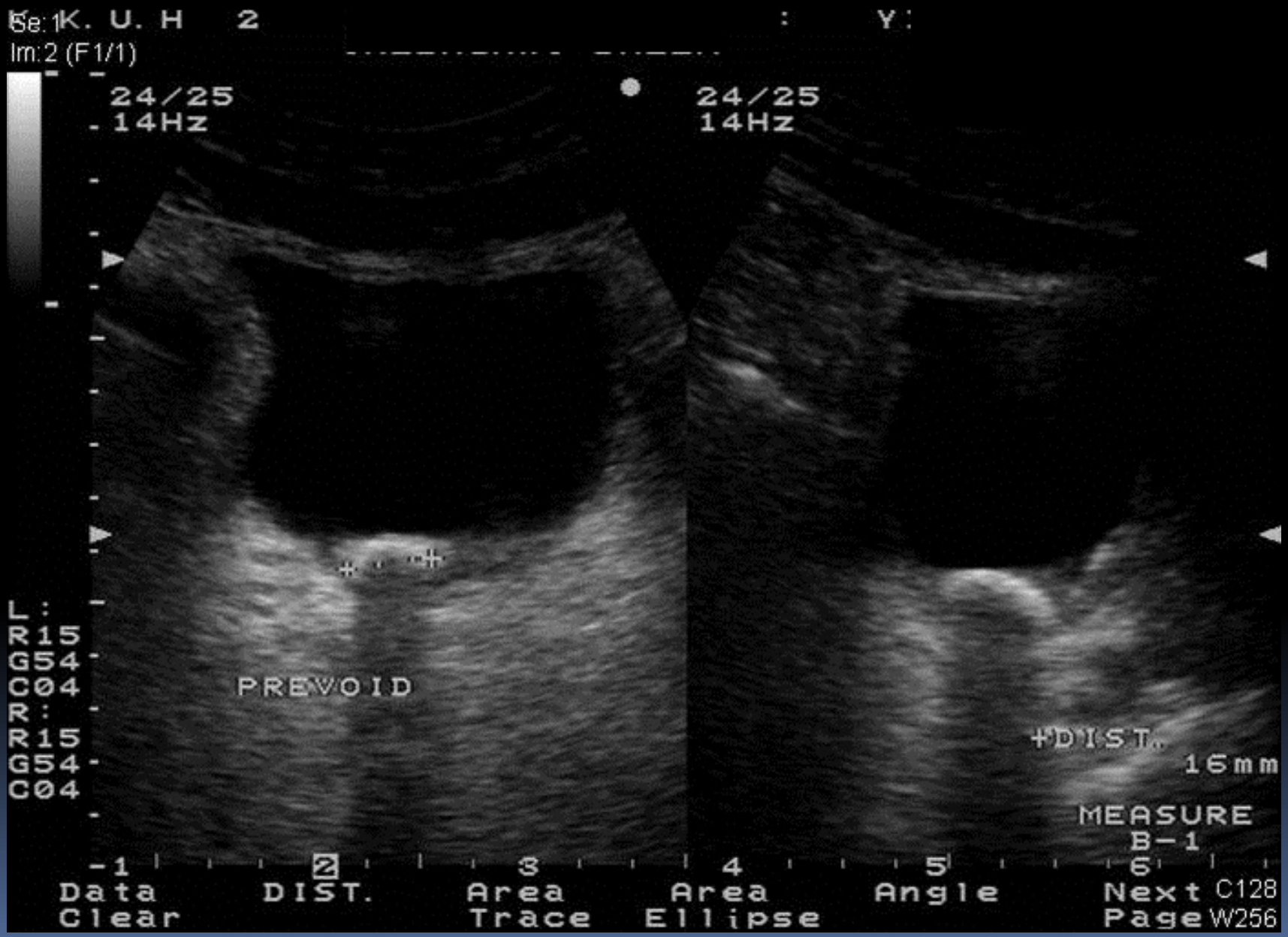
KUB





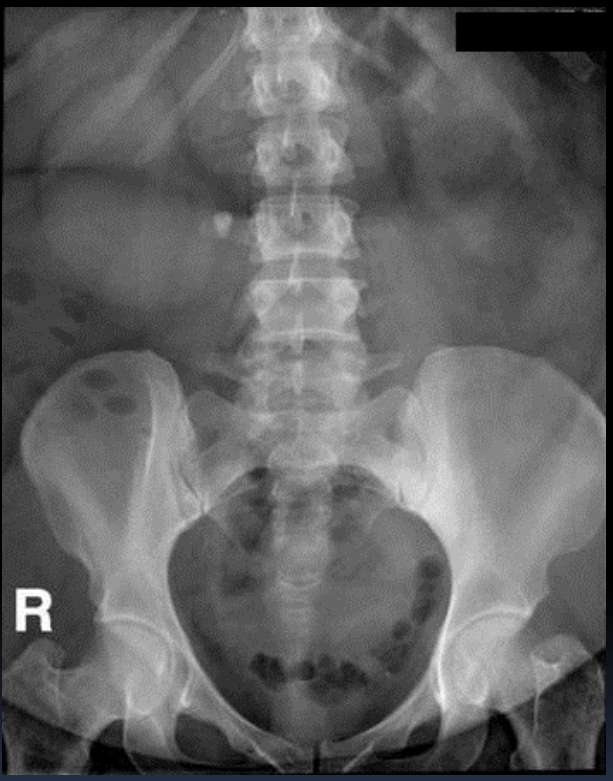
RENAL COLIC (work-up)…

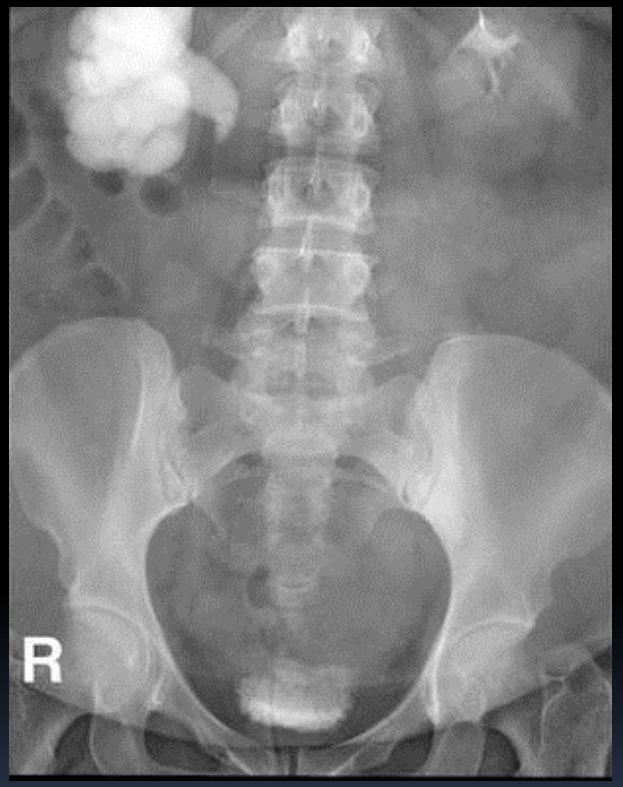
RUS



RENAL COLIC (work-up)…

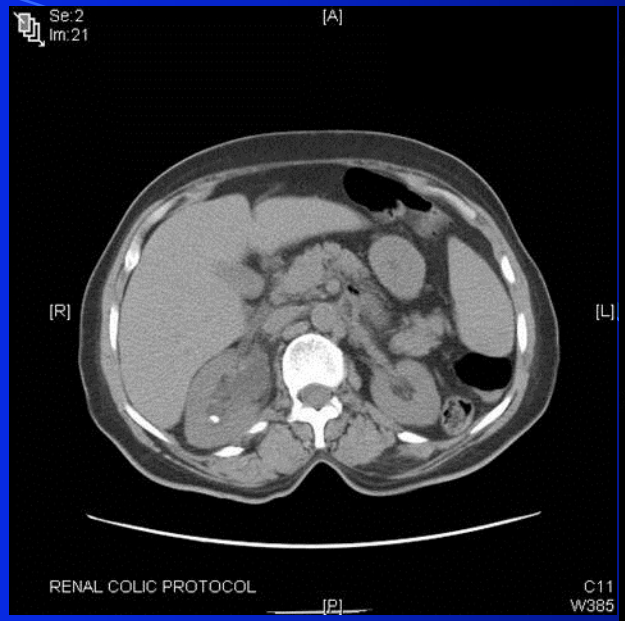
IVU

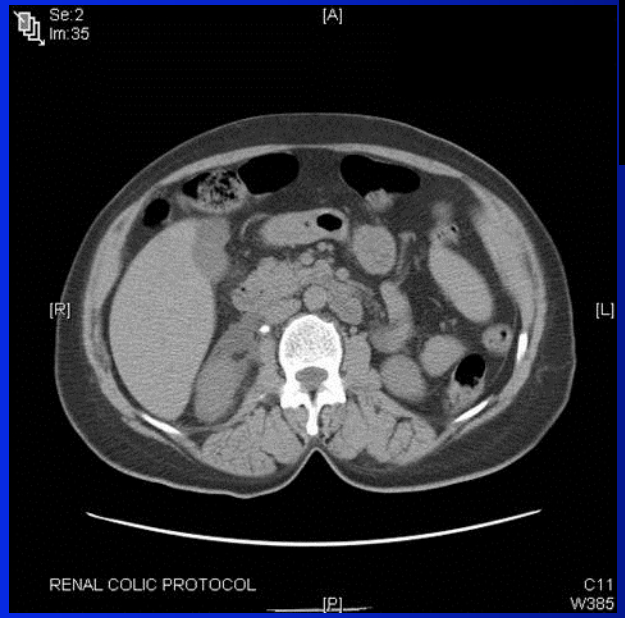




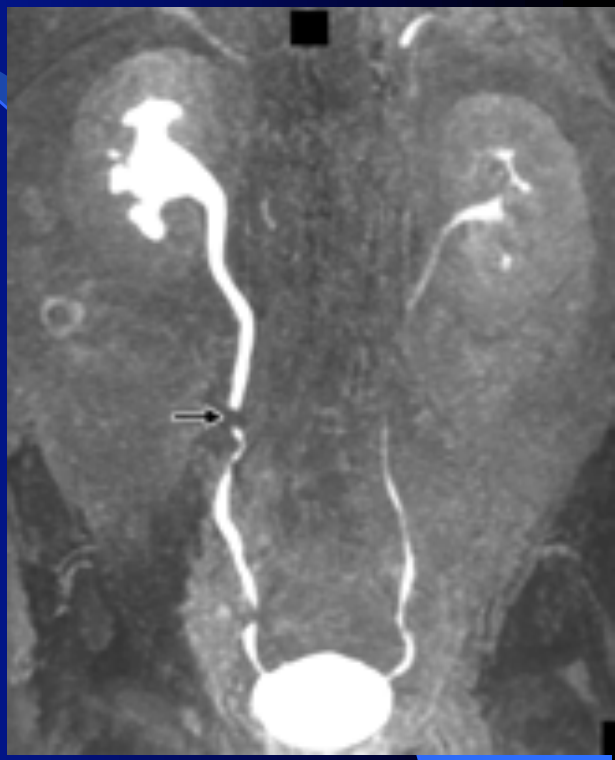
RENAL COLIC (work-up)…

- **Helical CTU**
  - *Greater specificity (95%) and sensitivity (97%)*
  - *Can identify other, non-stone causes of flank pain.*
  - *No need for contrast administration.*
  - *Faster, taking just a few minutes*
  - *the cost of CTU is almost equivalent to that of IVU*





- **MRI**
  - Very accurate way of determining whether or not a stone is present in the ureters
  - Time consuming
  - Expensive
  - Good for pregnant ladies



Renal Colic *(Management)*

- Pain relief
  - *NSAIDs*
  - *Intramuscular or intravenous injection, by mouth, or per rectum*
  - *+/- Opiate analgesics (pethidine or morphine).*
- Hyper hydration
- '**watchful waiting**' with analgesic supplements
  - *95% of stones measuring 5mm or less pass spontaneously*

Renal Colic…

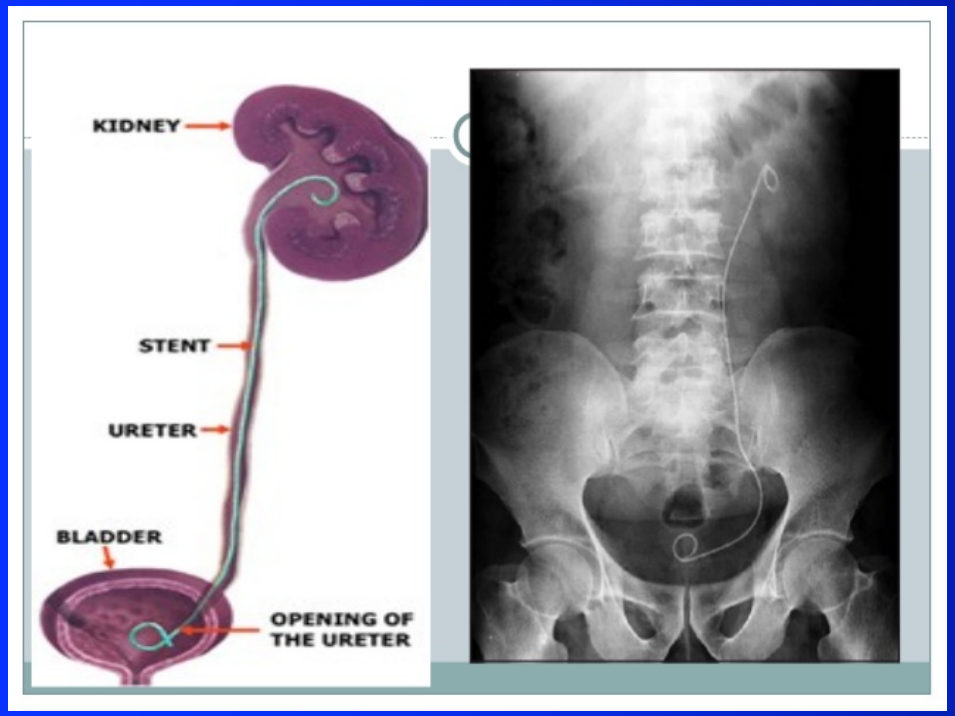
- **Indications for Intervention**

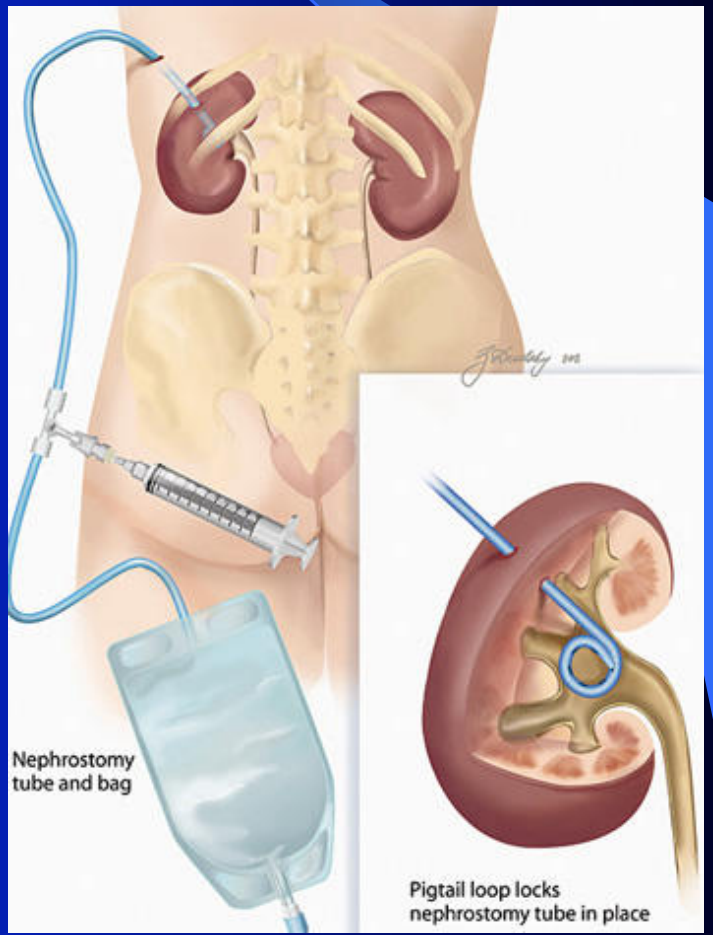
To Relieve Obstruction and/or Remove the stone

1. Pain that fails to respond to analgesics.
2. Associated fever.
3. Renal function is impaired because of the stone (solitary kidney obstructed by a stone, bilateral ureteric stones)
4. Obstruction unrelieved (not to exceed 4 weeks)
5. Personal or occupational reasons

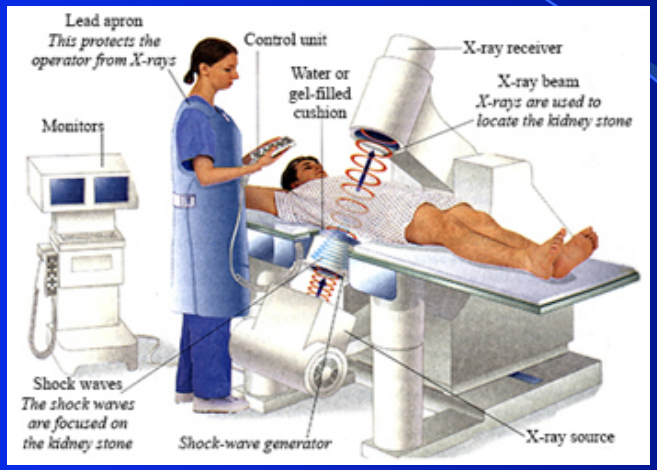
Renal Colic…

- **Surgical intervention:**
  - Temporary relief of the obstruction:
    - *Insertion of a JJ stent or percutaneous nephrostomy tube*

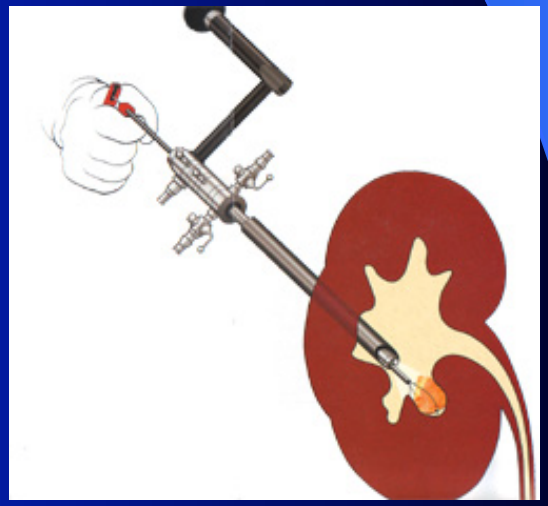




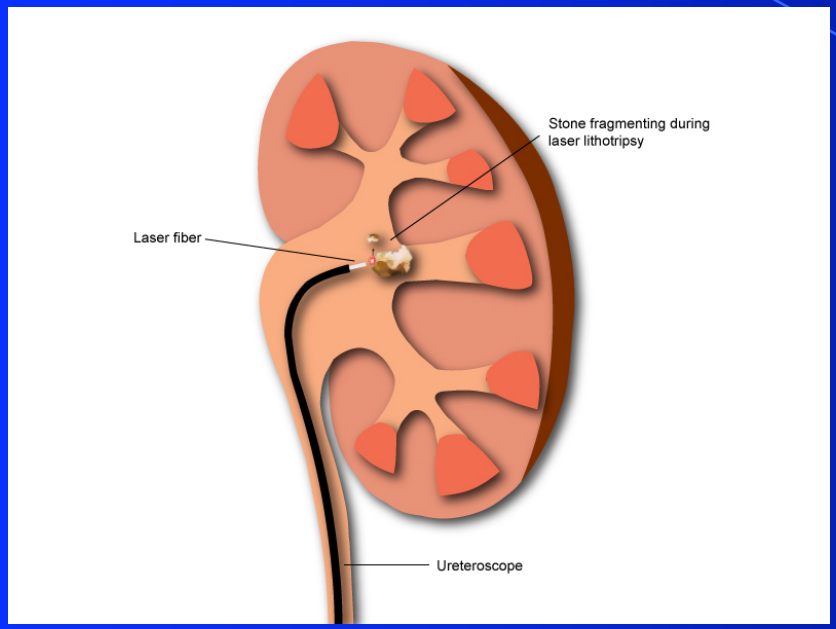
- **Definitive treatment:**
  - Extracorporeal Shockwaves Lithotripsy (ESWL).

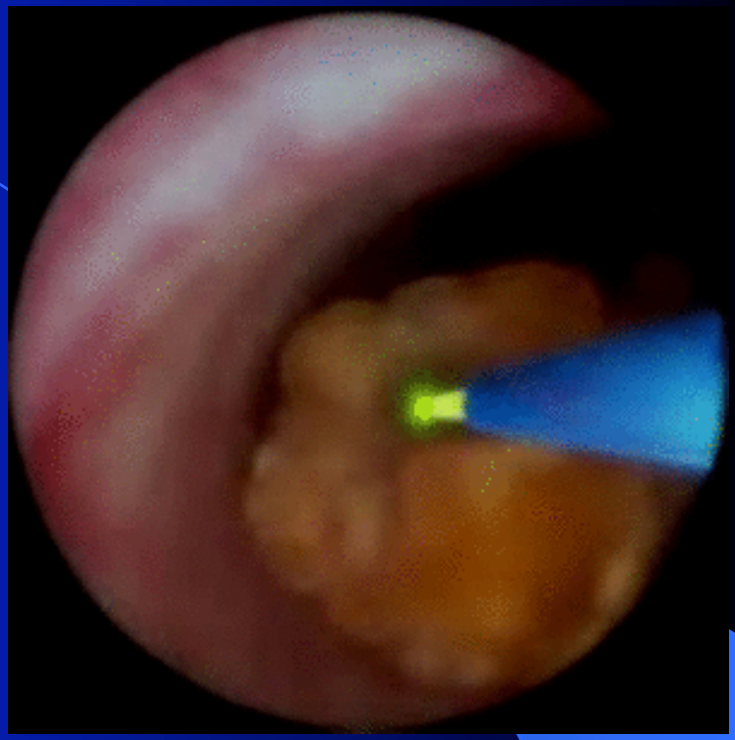


  - percutaneous nephrolithotomy (PCNL)



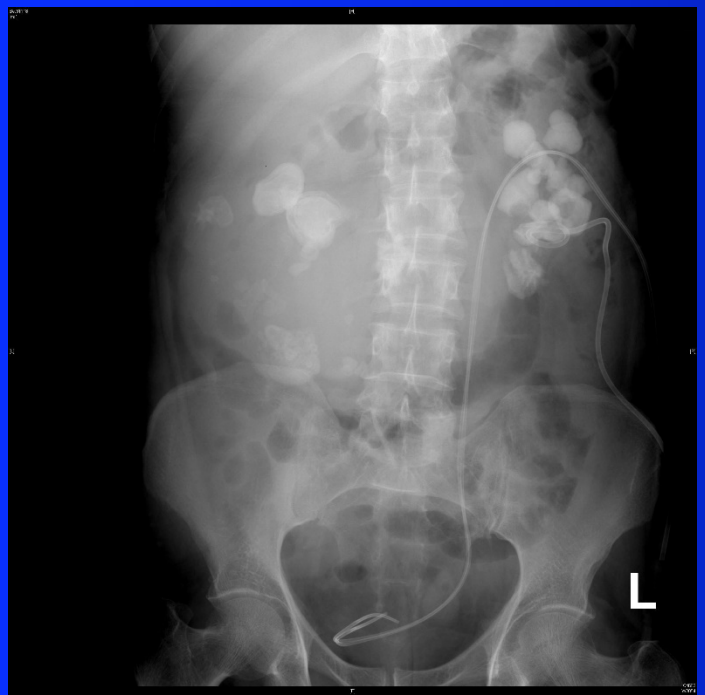
– Ureteroscopy (URS)

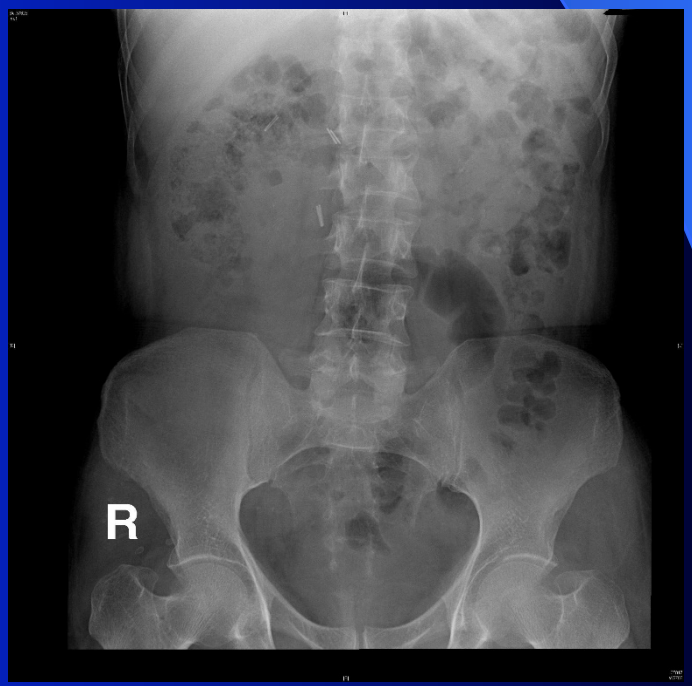




– Laparoscopic extraction

– Open Surgery: very limited





Urinary Retention

Urinary Retention

- Acute Urinary retention
- Chronic Urinary retention

Acute Urinary retention

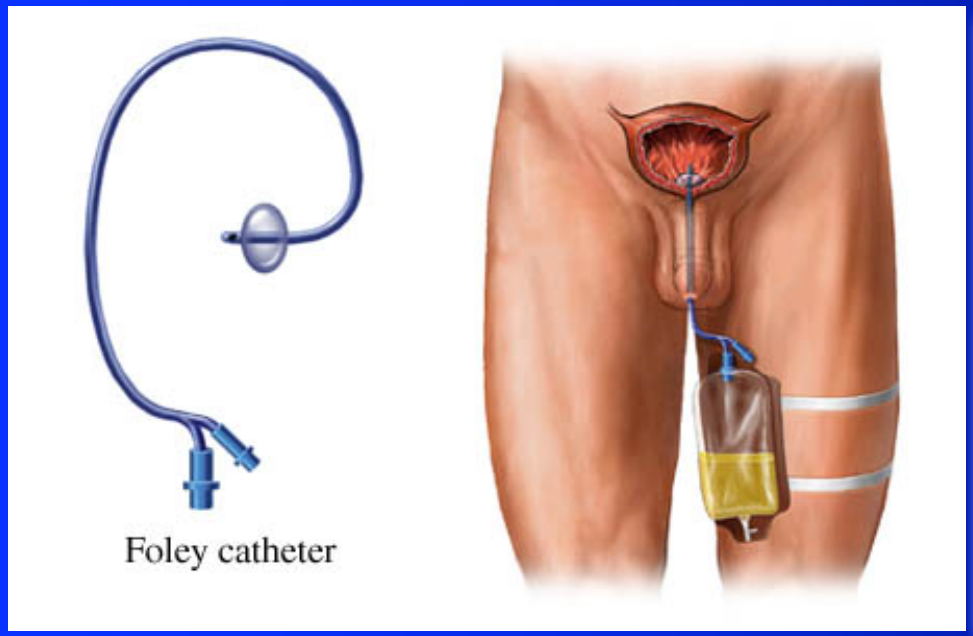
Painful inability to void, with relief of pain following drainage of the bladder by catheterization.

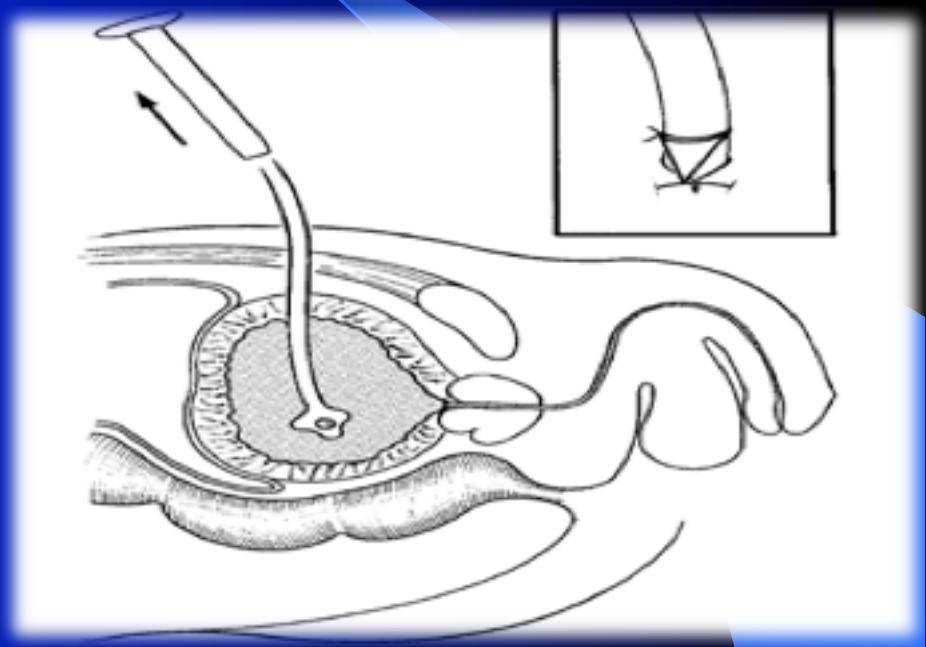
Acute Urinary retention…

- **Causes:**
  - **Men:**
    - *Benign prostatic enlargement (BPE) due to BPH*
    - *Carcinoma of the prostate*
    - *Urethral stricture*
    - *Prostatic abscess*
    - *Stones*
    - *Constipation*
  - **Women**
    - *Pelvic prolapse (cystocoele, rectocoele, uterine)*
    - *Urethral stenosis*
    - *Urethral diverticulum;*
    - *Post surgery for 'stress' incontinence*
    - *pelvic masses (e.g., ovarian masses)*

Acute Urinary retention…

- **Initial Management**
  - Urethral catheterization
  - Suprapubic catheter (SPC)





Late Management:

Treating the underlying cause

Chronic Urinary Retention

- Obstruction develops slowly, the bladder is distended (stretched) very gradually over weeks/months (Pain not a feature)
- Usually associated with
  - Reduced renal function.
  - Upper tract dilatation

Chronic urinary retention…

- **Presentation:**
  - Urinary dribbling
  - Overflow incontinence
  - Palpable Bladder
  - Symptoms of renal failure

Chronic urinary retention…

- **Management**
  - Treatment is directed to renal support.
  - Bladder drainage
  - Late treatment of cause.

Acute Scrotum

Acute Scrotum

Emergency situation requiring prompt evaluation, differential diagnosis, and potentially immediate surgical exploration

Acute Scrotum

Differential Diagnosis:

- Torsion of the spermatic cord.
- Torsion of the appendix testis
- Torsion of the appendix epididymis
- Epididymitis
- Epididymo-orchitis
- Orchitis
- Hernia
- Trauma/ insect bite
- Dermatological lesion
- Inflammatory vascultits
- Neurological (adductor tendonitis)

- **Torsion of the Spermatic cord**
  - Most serious.
- **Epididymitis.**
  - Most common

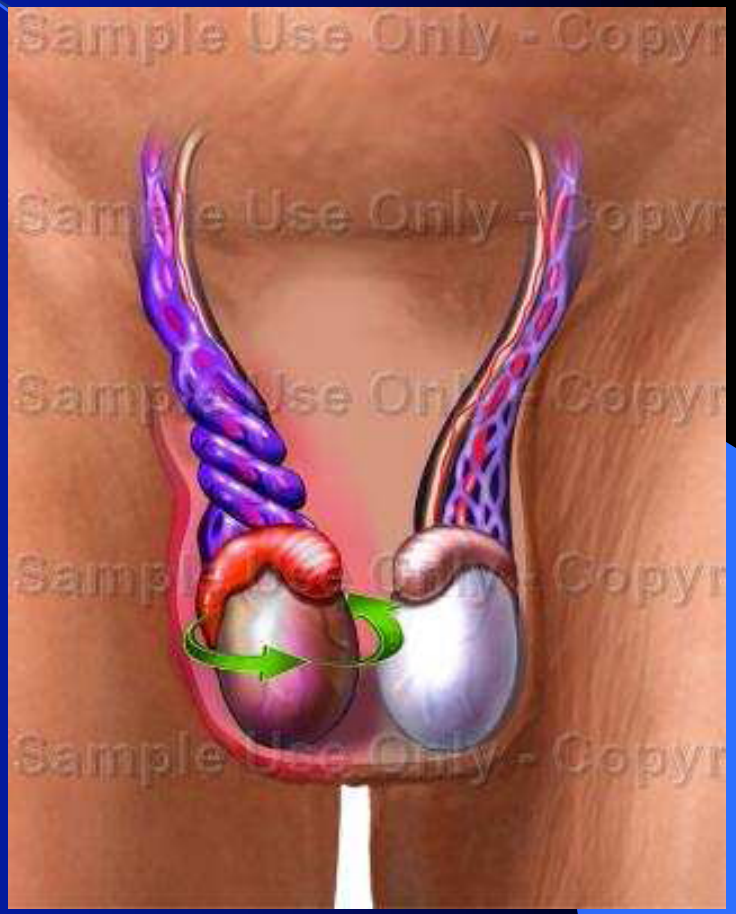
Torsion of the Spermatic cord

Torsion of the Spermatic cord

- Common among teenagers (12-18) years
- Possible in children and neonates
- Unlikely after the age of 25 years

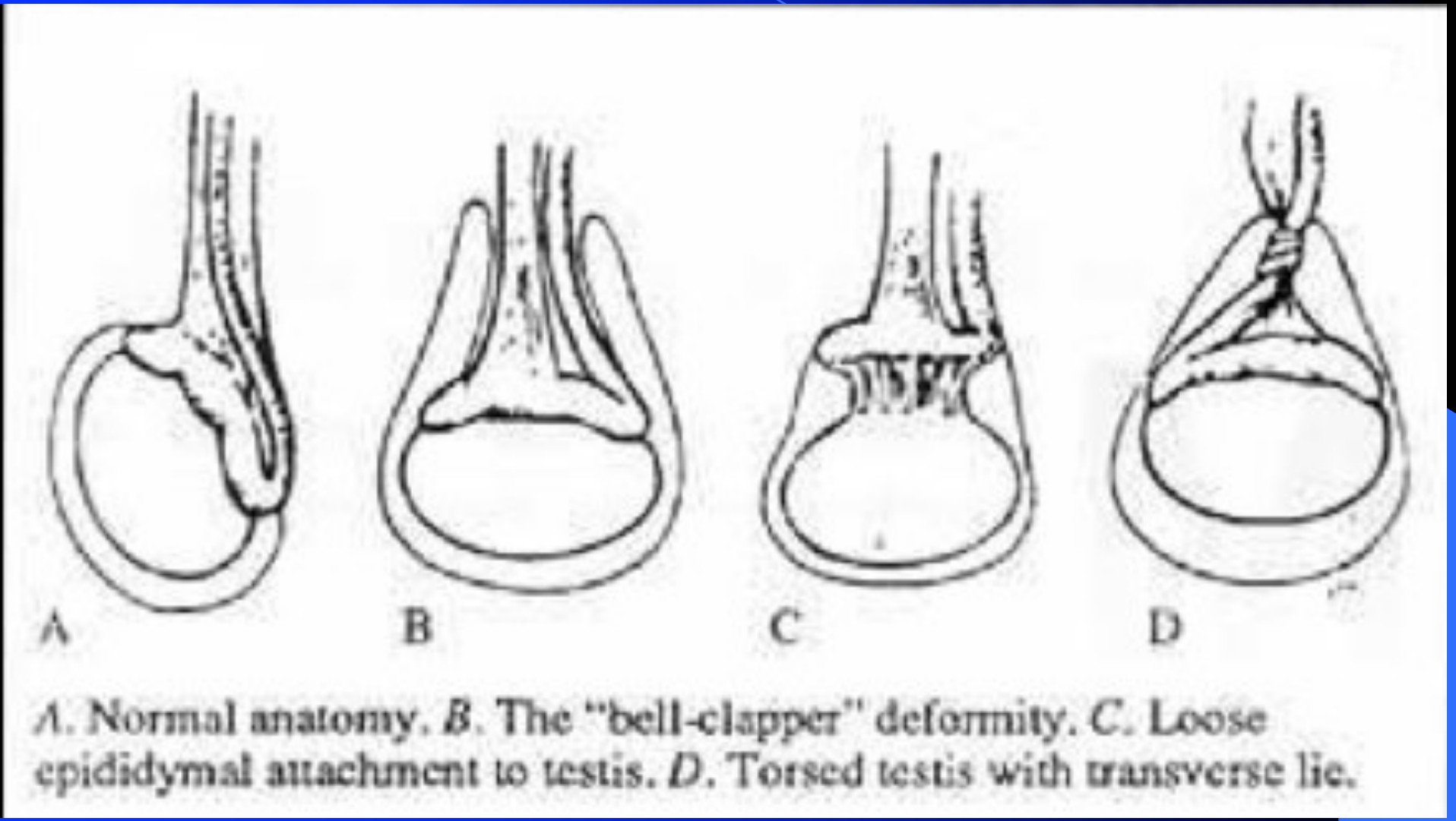
Torsion of the Spermatic Cord

- True surgical emergency of the highest order
- Irreversible ischemic injury to the testicular parenchyma may begin as soon as 4 hours
- Testicular salvage ↓ as duration of torsion ↑



Torsion of the Spermatic Cord

Anatomical variations



A. Normal anatomy. *B*. The "bell-clapper" deformity. *C*. Loose epididymal attachment to testis. *D*. Torsed testis with transverse lie.

Torsion of the Spermatic Cord…

- **Presentation:**
  - *Acute onset of scrotal pain.*
  - Majority with history of prior episodes of severe, self-limited scrotal pain and swelling
  - Nausea/Vomiting
  - Referred to the ipsilateral lower quadrant of the abdomen.
  - Children might not complain of testicular pain
  - Dysuria and other bladder symptoms are usually absent.

Torsion of the Spermatic Cord…

- **Physical examination:**
  - The affected testis is high riding transverse orientation
  - Acute hydrocele or massive scrotal edema
  - Cremasteric reflex is absent.
  - Tender larger than other side
  - Elevation of the scrotum causes more pain

Torsion of the Spermatic Cord…

- Adjunctive tests:

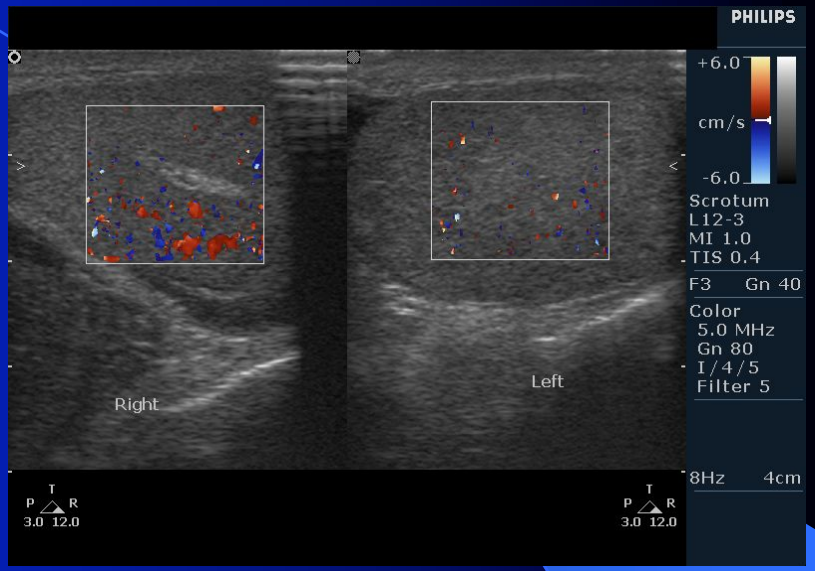
(If the diagnosis is clinically suspicious don't delay the patient for any investigations).

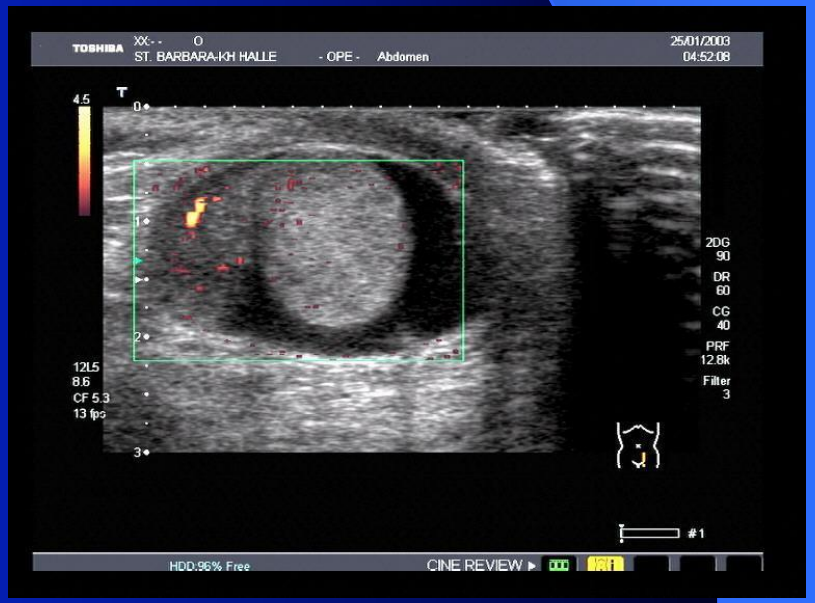
- To aid in differential diagnosis of the acute scrotum.
- To confirm the absence of torsion of the cord.
- Doppler examination of the cord and testis
  - High false-positive and false- negative

Torsion of the Spermatic Cord…

❑ Color Doppler ultrasound:

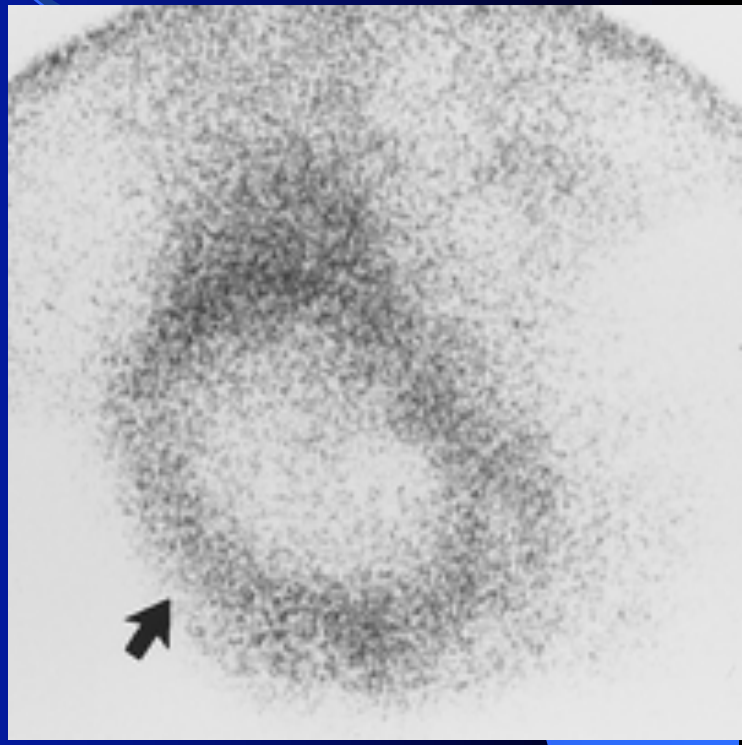
- Assessment of anatomy and determining the presence or absence of blood flow.
- Sensitivity: 88.9% specificity of 98.8%
- Operator dependent.





❑ Radionuclide imaging :

- Assessment of testicular blood flow.
- A sensitivity of 90%, & specificity of 89%.
- False impression from hyperemia of scrotal wall.
- Not helpful in Hydrocele and Hematoma



- **Surgical exploration:**
  - A scrotal incision
  - The affected side should be examined first
  - The cord should be detorsed.
  - Testes with marginal viability should be placed in warm and re-examined after several minutes.
  - A necrotic testis should be removed
  - If the testis is to be preserved, it should be fixed
  - The contra-lateral testis must be fixed to prevent subsequent torsion

Epididymo-orchitis

Epididymo-orchitis…

- **Presentation:**
  - Indolent process.
  - Scrotal swelling, erythema, and pain.
  - Dysuria and fever is more common
- **P/E :**
  - localized epididymal tenderness, a swollen and tender epididymis, or a massively swollen hemi-scrotum with absence of landmarks.
  - Cremasteric reflex should be present
- **Urine:**
  - pyuria, bacteriuria, or a positive urine culture

Epid.Orchitis…

- Management:
  - Bed rest for 1 to 3 days then relative restriction
  - Scrotal elevation, the use of an athletic supporter
  - parenteral antibiotic therapy should be instituted when UTI is documented or suspected.
  - Urethral instrumentation should be avoided

Priapism

Priapism

- Persistent erection of the penis for more than*4 hours that is not related or* accompanied by sexual desire

Priapism…

- 2 Types:
  - Ischemic (veno-occlusive, low flow) (most common)
    - Due to hematological disease, malignant infiltration of the corpora cavernosa with malignant disease, or drugs.
    - Painful
  - *Non-ischemic (arterial, high flow).*
    - *Due to perineal trauma, which creates an arterio-venous fistula.*
    - *Painless*

Priapism…

- **Causes:**
  - Primary (Idiopathic) : 30% - 50 %
  - Secondary:
    - *Drugs*
    - *Trauma*
    - *Neurological*
    - *Hematological disease*
    - *Tumors*

Priapism…

- The diagnosis:
  - Usually obvious from the history
    - Duration of erection >4 hours?
    - Is it painful or not?.
    - Previous history and treatment of priapism ?
    - Identify any predisposing factors and underlying cause

Priapism…

- Examination
  - Erect, tender penis (in low- flow)
  - Characteristically the corpora cavernosa are rigid and the glans is flaccid.
  - Abdomen for evidence of malignant disease
  - DRE: to examine the prostate and check anal tone.

Priapism…

- **Investigations:**
  - CBC (white cell count and differential, reticulocyte count).
  - Hemoglobin electrophoresis for sickle cell.
  - Urinalysis including urine toxicology.
  - Blood gases taken from either corpora;
    - low-flow (dark blood; pH <7.25 (acidosis); pO2 <30mmHg (hypoxia); pCO2 >60mmHg (hypercapnia))
    - high-flow (bright red blood similar to arterial blood at room temperature; pH = 7.4; pO2 >90mmHg; pCO2 <40mmHg)
  - Color flow duplex ultrasonography in cavernosal arteries;
    - *Ischemic (inflow low or nonexistent)*
    - *Non-ischemic (inflow normal to high).*
  - Penile pudendal arteriography

Priapism…

- Treatment:
  - Depends on the type of priapism.
  - Conservative treatment should first be tried
  - Medical treatment
  - Surgical treatment.
  - Treatment of underlying cause