

# Emergency in Urology

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## Emergency in Urology

- Require rapid diagnosis and immediate treatment.
- Compared to other surgical fields there are relatively few Urological Emergencies.

### Classification:

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

### Non-Traumatic Urological Emergencies:

**Hematuria:** Blood in the urine

#### Types:

- Gross (Visible, Clinical): emergency or urgent (in malignancies)

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. (Detected by mid stream urine)

#### Causes:

#### Varies according to:

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

Could be:

Pre renal such as: SLE, hematology disease

Renal tumor either benign or malignant (painless), renal stasis, stone (painful), glomerulonephritis

Post-renal tumor in bladder, ureter and urethra or Bilharzias

History: (very important, it helps in DDx)

- Age
- Residency. (Bilharzias in Jeizan)
- Duration.
- Occupation
- Painless (tumor) or painful (stones, UTI)
- Timing of hematuria
- Amount of bleeding
- Clots and shape of clots
- Trauma
- Bleeding from other sites
- Associated Symptoms urinary and Systemic
- Bleeding disorders, SC, TB, Bilharzias & stone disease.
- Family History of Malignancy or hematological disorders.
- Drugs
- Colored food or drinks.
- Smoking (risk factor for bladder carcinoma)

- Management: Gross hematuria mandate full work up.

● Work Up:

- History
- P/E= usually no much signs
- Investigations. Most important imaging method is CTU
- 3 ways urethral catheter and bladder wash out for heavy bleeding.

Treat according to the cause

## RENAL COLIC:

- The commonest urologic emergency.
- One of the commonest causes of the “Acute Abdomen”.
- Sudden onset of severe pain in the flank
- Pain:
  - Sudden onset
  - Colicky in nature
  - Radiates

Kidney & upper ureter → in men radiate to testicle (innervations from dermatome T7 8 9)

Mid ureter → radiates to the iliac fossa

(Dermatome T10) .. it could be confused with appendicitis if it's in the right side ..

Distal ureter → radiates to trigonal bladder, posterior urethra, scrotal skin, labia majora and lower abdomen ..

(Dermatome T12)

- 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 (due to sever pain)
- Differential diagnosis:
  - Radiculitis (pseudo-renal) it's a MSK pain due to an irritation in the intercostal nerve T7 8 9, the different between radiculitis and renal colic is that radiculitis is aggravated by movement while renal stones are relieved by movement and it radiates to the lower limb .. In history taking the patient had carried something heavy ..
  - Leaking abdominal aortic aneurysms
  - Pneumonia
  - Myocardial infarction
  - Ovarian pathology (e.g., twisted ovarian cyst)
  - Acute appendicitis moving will aggravate the pain due to peritoneal retention ..
  - Testicular torsion

- Inflammatory bowel disease (Crohn's, ulcerative colitis)
- Diverticulitis
- Ectopic pregnancy
- Burst peptic ulcer
- Bowel obstruction

### Work Up:

- History
- Examination: patient want to move around, in an attempt to find a comfortable position.
- +/- Fever (supradialysis infections)
- Pregnancy test
- MSU mid stream urine (for the microscopic hematuria)
- U&E urine and electrolytes .. (Renal function)

### Radiological investigation :

1. IVU IV urogram .. Takes plane film .. Needs contrast .. We need and anatomical test and IVU is not ..
2. CT scan without contrast .. It's the gold standard;
  - High sensitivity 97% .. Greater specificity 95 %
  - Fast ad easy to be done
  - Without contrast .. Contrast could lead to renal impairment and it requires the attendance of the doctor ..
  - Other problems could be detected
  - Shadow of stone is very clear .. Shadow above renal the psoas muscle ureteric stone ..
3. KUB kidney, ureter and bladder x-ray ..
4. RUS renal ultrasound .. Can't see stones in ureter .. Not anatomical ..
5. MRI although it's very accurate in determining the site of stone it's very expensive and time consumer .. But it could be used for pregnant ladies ..

### Management:

- Pain relief it's one of the most painful conditions ..
  - NSAIDs
  - Intramuscular or intravenous injection, by mouth, or per rectum (profen)
  - +/- Opiate analgesics (pethidine or morphine). If no respond to NSAIDs
- Hyper hydration
- 'Watchful waiting' with analgesic supplements
  - 95% of stones measuring 5mm or less pass spontaneously

- **Indications for Intervention:**

1. To Relieve Obstruction and/or Remove the stone
2. Pain that fails to respond to analgesics.
3. Associated fever. *It maybe pyelonephritis .. You have to drain the kidney ..*
4. Renal function is impaired because of the stone (solitary kidney obstructed by a stone, bilateral ureteric stones)
5. Obstruction unrelieved for >4 weeks *kidney can function till 4 weeks of obstruction more than that it won't be able to function and the obstruction may cause necrosis ..*
6. Personal or occupational reasons

- **Surgical intervention:**

1. Temporary relief of the obstruction:
  1. *Insertion of a JJ stent or percutaneous nephrostomy tube*

- **Definitive treatment:**

2. Extracorporeal Shockwaves Lithotripsy (ESWL).
3. Percutaneous nephrolithotomy (PCNL) *for large stones*
4. Ureteroscopy (URS) *commonly used*
5. Laparoscopic extraction
6. Open Surgery: very limited

### Urinary retention:

- **Acute Urinary retention:**

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

- **Causes:**

- **Men:**

- *Benign prostatic enlargement (BPE) due to BPH > 40 years old*
    - *Carcinoma of the prostate*
    - *Urethral stricture*
    - *Prostatic abscess*

- **Women:**

- *Pelvic prolapse (cystocele, rectocele, uterine)*

- *Urethral stricture;*
- *Urethral diverticulum;*
- *Post surgery for 'stress' incontinence*
- *pelvic masses (e.g., ovarian masses)*

- **Initial Management:**

- Urethral catheterization **for analgesics**
- 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)

**Hydronephrosis and renal failure are sometimes present ..**

- Usually associated with
  - Reduced renal function.
  - Upper tract dilatation
- Presentation:
  - Urinary dribbling
  - Overflow incontinence
  - Palpable Bladder **painless**

**Management:**

- Treatment is directed to renal support. **Hyperkalemia**
- Bladder drainage under slow rate to avoid sudden decompression > > > hematuria.
- Late treatment of cause.

**Acute scrotum:**

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

**Differential Diagnosis:**

Torsion of the spermatic cord  
 Torsion of the appendix testis  
 Torsion of the appendix epididymis  
 Epididymitis  
 Epididymo-orchitis  
 Inguinal hernia  
 Communicating hydrocele  
 Hydrocele  
 Hydrocele of the cord  
 Trauma/insect bite  
 Dermatologic lesions  
 Inflammatory vasculitis (Henoch-Schönlein purpura)  
 Idiopathic scrotal edema  
 Tumor  
 Spermatocele  
  
 Nonurogenital pathology (e.g., adductor tendinitis)

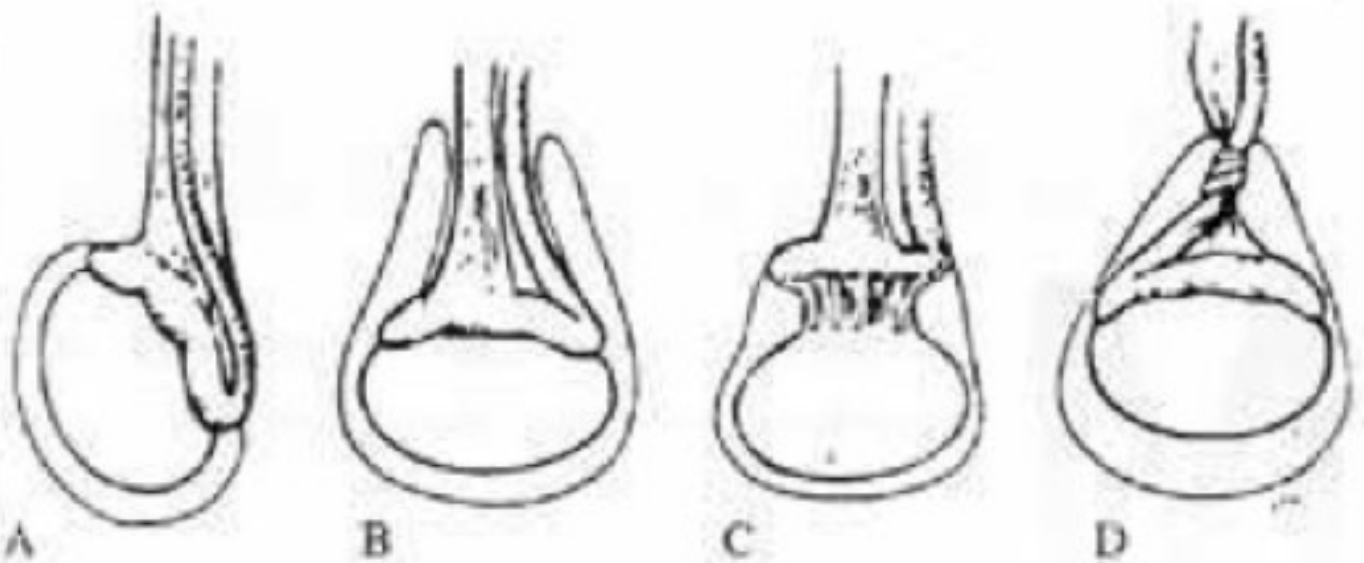
- Torsion of the Spermatic cord
  - Most serious.
- Epididymitis.
  - Most common

#### Torsion of the spermatic cord:

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

#### Anatomical variations:





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

- **Presentation:**

- *Acute onset of scrotal pain. Sharp and severe .. Patient suffer from testicular pain which comes and goes*
- 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 *instead they complain of abdominal pain .. Any child with abdominal pain + vomiting could be suffering from torsion .. It's a congenital disease but may be aggravated later on by moving or other factors ..*

*Mother saying that her child had gone to school and came back with abdominal pain and vomiting after eating food there*

- Dysuria and other bladder symptoms are usually absent.

- Physical examination: *emergency cases are sent to the OR immediately unless you're 99% sure it's not torsion, ischemic damage after 4 hours only ..*
- 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 .. Due to the ischemia and the child won't let you touch it because it's painful ..

- Adjunctive tests:

- 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

Color Doppler ultrasound: could be done in OR

- 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%, and a 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 .. With a needle prick if there's no blood coming out or it's black then it's dead ..
- 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 .. Even if the first testis is dead ..

Epididymo-orchitis : this one is the most common in Saudi Arabia

### 1-Presentation:

1. Indolent process ( start gradually with no pain and this is the big difference between the orchitis and torsion " sudden and sever pain " )
2. Scrotal swelling, erythema, and pain.
3. Dysuria and fever is more common ( most of the patient have UTI symptoms or urethral discharge or sexual transmitted disease STD e.g. Gonorrhea . Rare in hematological cases and children with UTI )

### 2- Physical examination:

1. localized epididymal tenderness, a swollen and tender epididymis
2. massively swollen hemi-scrotum with absence of landmarks. (if only the epididymis is effected it'll be epididymal tenderness only but the rest of the testis is normal)
3. Cremasteric reflex should be present ( absent in torsion of spermatic cord)

### 3-Urine:

- 1-pyuria, bacteriuria, or a positive urine culture (+ve pus cells and bacteria )

### 4-Mangment:

1. Bed rest for 1 to 3 days then relative restriction
2. Scrotal elevation, the use of an athletic supporter
3. parenteral antibiotic therapy should be instituted when UTI is documented or suspected or oral antibiotic (first treat the organism and then do your procedure)
4. Urethral instrumentation should be avoided ( if someone did urethral instrumentation the patient could have septicemia )

### Priapism:

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

Age: At any age but two main age groups affected more likely are 5- to 10-year-old boys and 20- to 50-year-old men.

### 2-Types

Types	Ischemic	Non-ischemic
Other names	veno-occlusive, low flow ( because there's no flow in the vein ) " The Most Common Type "	arterial, high flow

Causes	Due to hematological disease( <b>most common in sickle cell patients</b> ), malignant infiltration of the corpora cavernosa ( <b>pelvic or prostate</b> ) with malignant disease, or drugs.( <b>e.g Prostaglandin Injection</b> ) (thrombosis of the venous system causes congestion and thus lead to erection )	Due to perineal trauma, which creates an arterio-venous fistula. ( <b>secondary to trauma in perineum or pelvic which creates fistula between the artery and vein then the blood clots will accumulate in corpus spongiosum then the erection will occur</b> )
	Painful ( <b>the patient can't pass urine</b> )	Painless ( <b>erection not strong as ischemic</b> )

### 3-Causes

-Primary (Idiopathic) : 30% - 50 %

-Secondary

1. Drugs
2. Trauma **in perineum or pelvic**
3. Neurological
4. Hematological disease **sickle cell disease**
5. Tumors **in pelvic**
6. Miscellaneous

### 4- The diagnosis:

Usually obvious from the history

1. Duration of erection >4 hours?
2. Is it painful or not? **to know which type is it**
3. Previous history and treatment of priapism ? **especially patients with sickle cell ( most people have sickle cell is from the south and east of Saudi Arabia )**
4. Identify any predisposing factors and underlying cause

### 5-Examination:

1. Erect, tender penis (**in low- flow the ischemic type**)
2. Characteristically the corpora cavernosa are rigid and the glans is flaccid (**soft**)
3. Abdomen for evidence of malignant disease (**check any underlying cause For nrurological D. – also examin lymph node if there is any palpable mass**)
4. DRE: to examine the prostate and check anal tone. (**anarectal exam**)

### 6- Investigations:

1. CBC (white cell count and differential, reticulocyte count)
2. Hemoglobin electrophoresis for **sickle cell test**
3. Urinalysis including urine toxicology
4. Blood gases taken from either corpora, **to differentiate between the ischemic and non-ischemic type**
  - low-flow (**dark blood "because it's from the vnenous"; pH <7.25 (acidosis) "usually 3.2"; pO2 <30mmHg (hypoxia); pCO2 >60mmHg (hypercapnia)**)

- high-flow (**bright** red blood similar to arterial blood at room temperature; pH = **7.4**; pO<sub>2</sub> **>90**mmHg; pCO<sub>2</sub> **<40**mmHg)
- 5. Color flow duplex ultrasonography in cavernosal arteries:
  - Ischemic (inflow low or **nonexistent**)
  - Non-ischemic (inflow normal to **high**).
- 6. Penile pudendal arteriography **for type 2 graph arteriograph the pudendal artery**

**7-Treatment:** depend on the type when it prolong occlusive "clotting" thrombosis then fibrosis then erectile dysfunction

1. Depends on the type of priapism.
2. Conservative treatment should first be tried **ask the patient to climb the stairs , if failed start medical and surgical treatment**
3. Medical treatment
4. Surgical treatment. **Aspiration, saline wash carbora and typical type of shunt**
5. Treatment of underlying cause **the treatment usually combined exchange-transfusion-biocarbonate -oxygenation and other measures**  
(It is important to warn all patients with priapism of the possibility of impotence.)

## **Second: Traumatic Urological Emergencies:**

### **Classification:**

- Renal trauma
- Ureteral injury
- Bladder trauma
- Urethral injury
- External genital injury

### 1-RENAL INJURIES:

1. The kidneys relatively protected from traumatic injuries. (**kidneys are will protected organ by the thorax , muscular wall, spinal cord**)
2. Considerable degree of force is usually required to injure a kidney. (**Usually patient with renal problems could have renal injury )**

### **1-Mechanisms and cause:**

1. Blunt
  - direct blow or acceleration/ deceleration (road traffic accidents, falls from a height, fall onto flank)
2. Penetrating
  - knives, gunshots, iatrogenic, e.g., percutaneous nephrolithotomy (PCNL)(**PNCL is the most common penetrating way the doctors do it when they cure stones can fracture the kidney )**

### **2-Indications for renal imaging:**

1. Macroscopic hematuria
2. Penetrating chest, flank, and abdominal wounds
3. Microscopic [**>5** red blood cells (RBCs) per high powered field] or dipstick

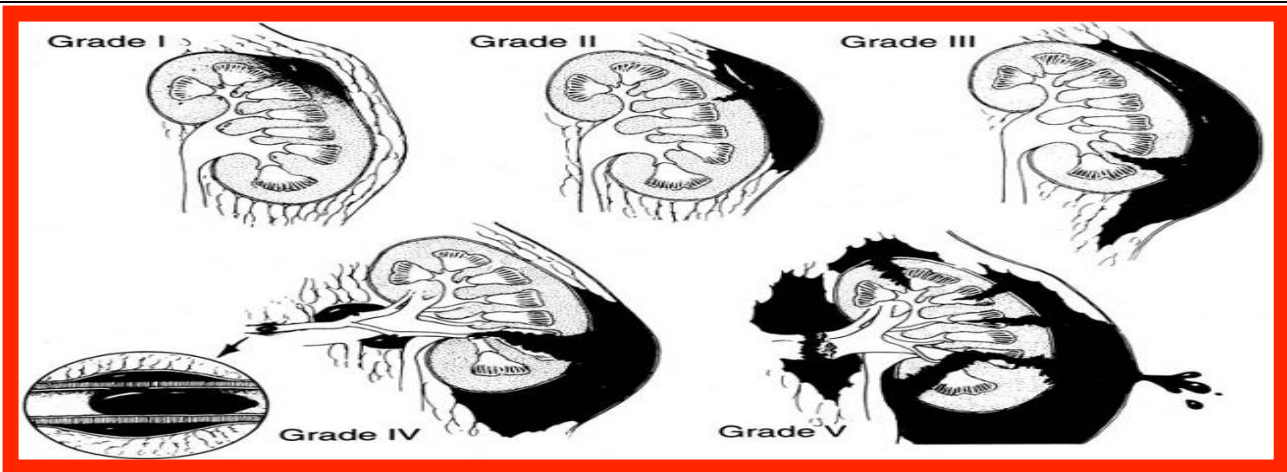
4. hematuria a hypotensive patient (SBP <90mmHg )
5. A history of a rapid acceleration or deceleration
6. Any child with microscopic or dipstick hematuria who has sustained trauma (even < 5 RBC.)

### 3-What Imaging Study?

- a) IVU: it's not the gold standard anymore because CT is better
  1. replaced by the contrast- enhanced CT
  2. On-table IVU if patient is transferred immediately to the operating theatre without having had a CT scan and a retroperitoneal hematoma is found  
(they use it only when urologist was called to operate and they suspect injury in the kidney he'll do IVU to see the severity of the damage and most important to see if the other kidney exist because most of the time they'll remove the kidney)
- b) Spiral non contrast CT: does not allow accurate staging
- c) Renal US:
  - Advantages:
    1. can certainly establish the presence of two kidneys
    2. the presence of a retroperitoneal hematoma
    3. power Doppler can identify the presence of blood flow in the renal vessels good for follow up to see the degree of the hematoma increased or decreased
  - Disadvantages:
    1. cannot accurately identify parenchymal tears, collecting system injuries, or extravasations of urine until a later stage when a urine collection has had time to accumulate.
- d) Contrast-enhanced CT: investigation of choice
  1. the imaging study of choice
  2. accurate, rapid, images other intra-abdominal structures

### 4- Staging:

1. Grade I: flank pain + Hematuria with or without subcapsular hematoma, but no evident kidney damage no ulceration in the kidney just subcapsular hematoma
2. Grade II: injury to the cortex only of 1cm or less with hematoma 1cm only in the cortex
3. Grade III: injury to the cortex and medulla without reaching the collecting system with hematoma ( more than 1cm) more than 1 cm and reaches the medulla
4. Grade IV: injury reaching to the collecting system OR thrombosis to the renal vessels On IVU there will be extravasations of contrast and decreased filling reaches the collecting system and there's extravasation contrast outside the kidney, injuries involving the main renal artery or vein ischemia in part of the kidney for example segmental artery
5. Grade V: shattered kidney completely damaged thrombosis in all the renal arteries so the kidney doesn't get any blood



### 5-Management:

#### a) Conservative:

1. Over 95% of blunt injuries
2. 50% of renal stab injuries and 25% of renal gunshot wounds (specialized center).
3. Include:
  - Wide Bore IV line. Because the patient may have hypotension and need fast transfusion
  - IV antibiotics. To avoid having infection because of the hematoma
  - Bed rest
  - serial CBC (HCT)
  - F/up US &/or CT.

#### b) Surgical exploration:

1. Persistent bleeding (persistent tachycardia and/or hypotension "sings of hemolytic shock" failing to respond to appropriate fluid and blood replacement
2. Expanding peri-renal hematoma (again the patient will show signs of continued bleeding)
3. Pulsatile peri-renal hematoma

When we do surgical exploration? when the patient have persistent bleeding tachycardia hypotension and failed to respond to the blood transfusion or fluid rush to the OR, if the patient is already opened by other specialty and find hematoma in the retroperitoneal and expect that this hematoma coming from the kidney just see if the hematoma increasing or pulsatile I have to explore

### 2-Ureteral Injuries:

The ureters are protected from external trauma by surrounding bony structures, muscles and other organs more protected than the kidney

#### 1-Causes and Mechanisms :

- External Trauma
  1. Rare
  2. Severe force is required
  3. Blunt or penetrating.
  4. Blunt external trauma severe enough to injure the ureters will usually be associated with multiple other injuries
  5. Knife or bullet wound to the abdomen or chest may damage the ureter, as well as other organs.

- Internal Trauma **more common than the external most likely Iatrogenic: caused by doctors**
  - a. Uncommon, but is more common than external trauma
  - b. Surgery:
    1. Hysterectomy, oophorectomy, and sigmoidcolectomy
    2. Ureteroscopy
    3. Caesarean section
    4. Aortoiliac vascular graft replacement
    5. Laparoscopic
    6. Orthopedic operations

## 2-Diagnosis:

- Requires a high index of suspicion
- Intra-operative:
- Late:
  1. An ileus: the presence of **urine** within the **peritoneal cavity**
  2. **Prolonged** postoperative **fever** or overt urinary **sepsis**
  3. Persistent drainage of fluid from abdominal or pelvic drains, from the abdominal wound, or from the vagina.
  4. **Flank pain** if **the ureter has been ligated**
  5. An **abdominal mass, representing a urinoma**
  6. *Vague abdominal pain*

## 3- Treatment options

1. JJ stenting (**for your knowledge it's a thin tube inserted into the ureter to prevent or treat obstruction of the urine flow from the kidney One or both ends of the stent may be coiled to prevent it from moving out of place, this is called a JJ stent, double J stent or pig-tail stent**)
2. Primary closure of **partial** transaction of the ureter
3. Direct ureter to ureter anastomosis
4. Re-implantation of the ureter into the bladder using a psoas hitch or a Boari flap (**if the damage in the distal ureter do re-implantation**)
5. Trans uretero-ureterostomy (**if one of the kidneys are not healthy and it's ureter nephritic or injured do (TUU) it's a urinary reconstruction technique that is used to join one ureter to the other across the midline**)
6. Auto-transplantation of the kidney into the pelvis
7. Replacement of the ureter with ileum
8. Permanent cutaneous ureterostomy
9. Nephrectomy

## 3-Bladder Injuries:

### 1- Causes

- Iatrogenic injury **is the most caused by medical treatment or a process**



1. Transurethral resection of bladder tumor (TURBT)
  2. Cystoscopic bladder biopsy
  3. Transurethral resection of prostate (TURP)
  4. Cystolitholapaxy
  5. Caesarean section, especially as an emergency
  6. Total hip replacement (very rare)
- Penetrating trauma to the lower abdomen or back **stab or gunshots**
  - Blunt pelvic trauma—in association with pelvic fracture or ‘minor’ trauma in a drunkard patient. **drunkard patient with full bladder having road accident**
  - Rapid deceleration injury seat belt injury with full bladder in the absence of a pelvic fracture
  - Spontaneous rupture after bladder augmentation

## 2-Types of Perforation:

1. intra-peritoneal perforation
  - the **peritoneum overlying the bladder**, has been **breached** along with the wall the of the bladder, allowing **urine to escape into the peritoneal cavity**.
2. extra-peritoneal perforation
  - the **peritoneum is intact** and **urine escapes into the space around the bladder**, but **not** into the **peritoneal cavity**.

## 3-Presentation:

1. Recognized intra-operatively
2. The classic triad of symptoms and signs that are suggestive of a bladder rupture
  - suprapubic pain and tenderness
  - difficulty or inability in passing urine
  - hematuria

## 4- Management:

1. Intra peritoneal :
  - open repair...why?
  - Unlikely to heal spontaneously.
  - Usually large
  - Leakage causes peritonitis
  - Associated other organ injury.
2. Extra-peritoneal
  - Bladder drainage +++++
  - Open repair +++

## 4- Urethral Injury: **rare but more in males**

- a) Anterior urethral injuries:
- b) Posterior urethral injuries:

a)Anterior urethral injuries: Rare **most of the time in children playing**

### 1-Mechanism:

1. The majority is a result of a straddle injury in boys or men.
2. Direct injuries to the penis **with a football it will injure the anterior urethra**
3. Penile fractures
4. Inflating a catheter balloon in the anterior urethra **this one is the most common cause**
5. Penetrating injuries by gunshot wounds.

### 2-Symptoms and signs

1. Blood at the end of the penis
2. Difficulty in passing urine
3. Frank hematuria
4. Hematoma may around the site of the rupture
5. Penile swelling

### 3-Diagnosis:

1. Retrograde urethrography **inject contrast in the urethra**
  - **Contusion: no extravasation** of contrast
  - **Partial rupture : extravasation** of contrast, with contrast also **present in the bladder**
  - **Complete** disruption: **no filling** of the posterior urethra or bladder  
**(Less filling means greater damage)**

### 4- Management:

1. Contusion
  - A small-gauge urethral catheter for one week
2. Partial Rupture of Anterior Urethra
  - No urethral catheterization
  - Majority can be managed by suprapubic urinary diversion for one week
  - Penetrating partial disruption (e.g., knife, gunshot wound), primary (immediate)
3. Complete Rupture of Anterior Urethra
  - patient is unstable a suprapubic catheter.
  - patient is stable, the urethra may either be immediately repaired or a suprapubic catheter
4. Penetrating Anterior Urethral Injuries
  - generally managed by surgical debridement and repairrepair.

### b) Posterior urethral injuries:

#### 1-Mechanism:

1. Great majority of posterior urethral injuries occur in association with pelvic fractures
2. 10% to 20% have an associated bladder rupture

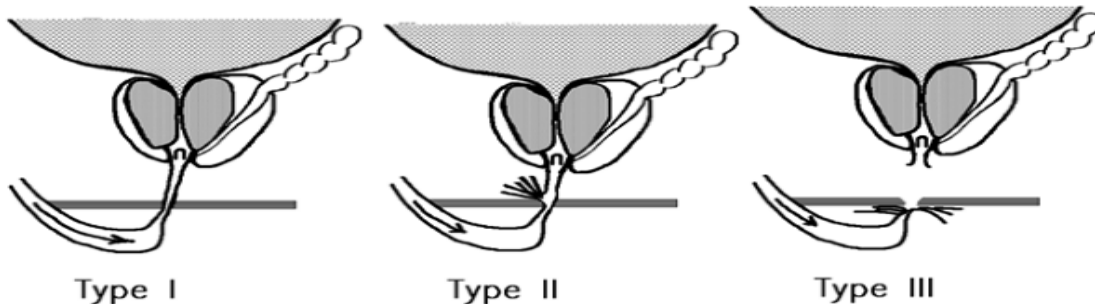
#### 2-Symptoms and signs:

1. Blood at the meatus, gross hematuria, and perineal or scrotal bruising.

2. High-riding prostate **because the hematoma will do a gap bush the prostate away**

### 3-Classification of posterior urethral injuries:

1. type I:(rare )
  - stretch injury with intact urethra
2. type II : (25%) **contrast going to the bladder**
  - partial tear but some continuity remains)
3. type III:(75%) **no contrast goes to the bladder**
  - complete tear with no evidence of continuity
4. In women, partial rupture at the anterior position is the most common urethral injury associated with pelvic fracture.



### 4- Management:

1. Stretch injury (type I) and incomplete urethral tears(type II) are best treated by stenting with a urethral catheter
2. Type III
  - Patient is at varying risk of urethral stricture, urinary incontinence, and erectile dysfunction (ED)
  - Initial management with suprapubic cystotomy and attempting primary repair at 7 to 10 days after injury.

### 5-External Genital injuries:

1. Penile Fracture **during sexual intercourse**
2. Glans Injury doing **Circumcision by non medical people**
3. Penile amputation and injury **it's either psychotic or criminal**
4. Scrotal Injury **very rare**
5. Female External genitalia injury **in some sports , crime**