

RETROPERITONEAL INJURIES - UROLOGICAL

PIKULA RADEK

Renal Trauma

■ Causes

Penetrating injuries

20%

Gun shot

stab

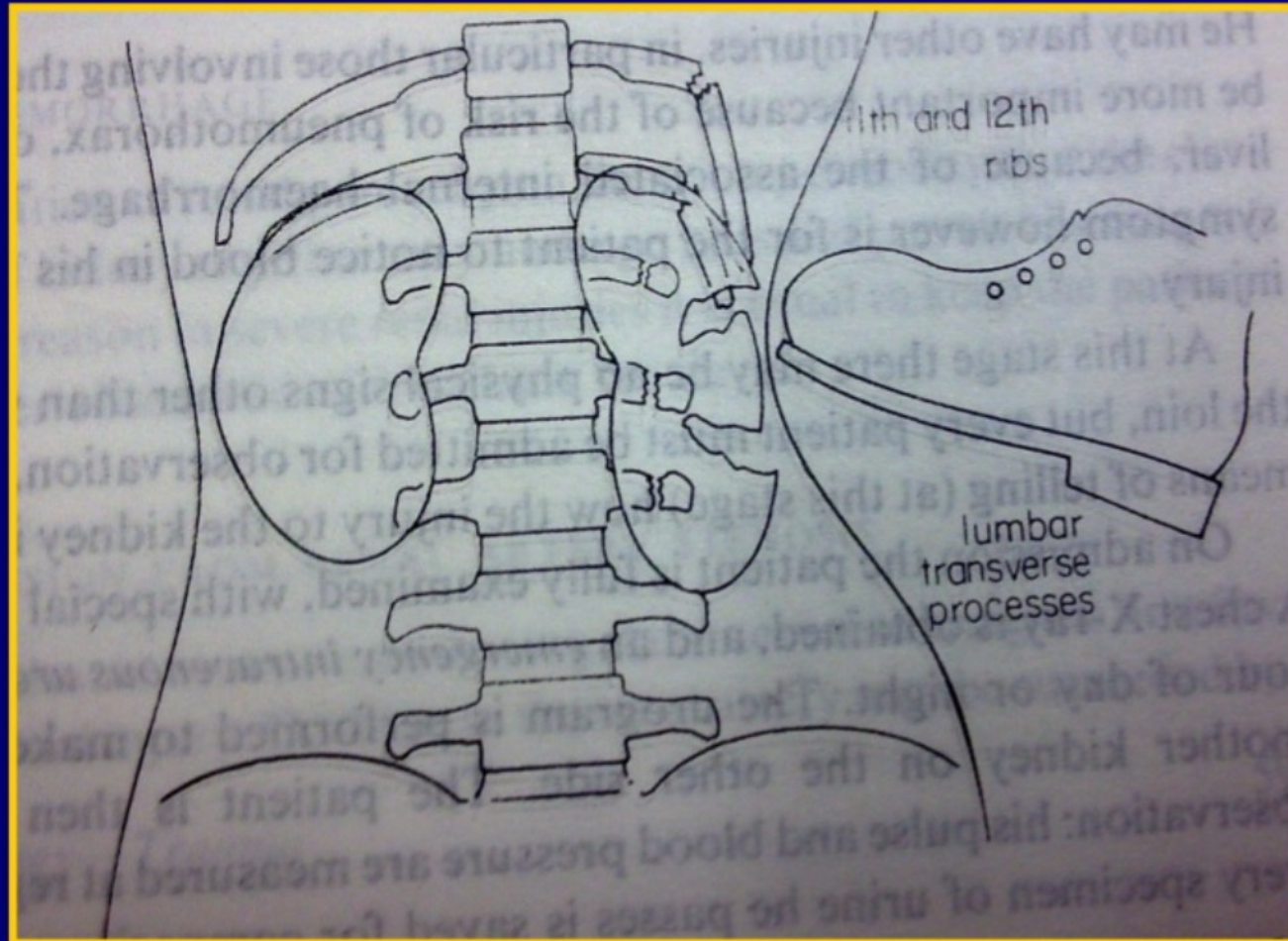
Blunt trauma

80%

Car accident

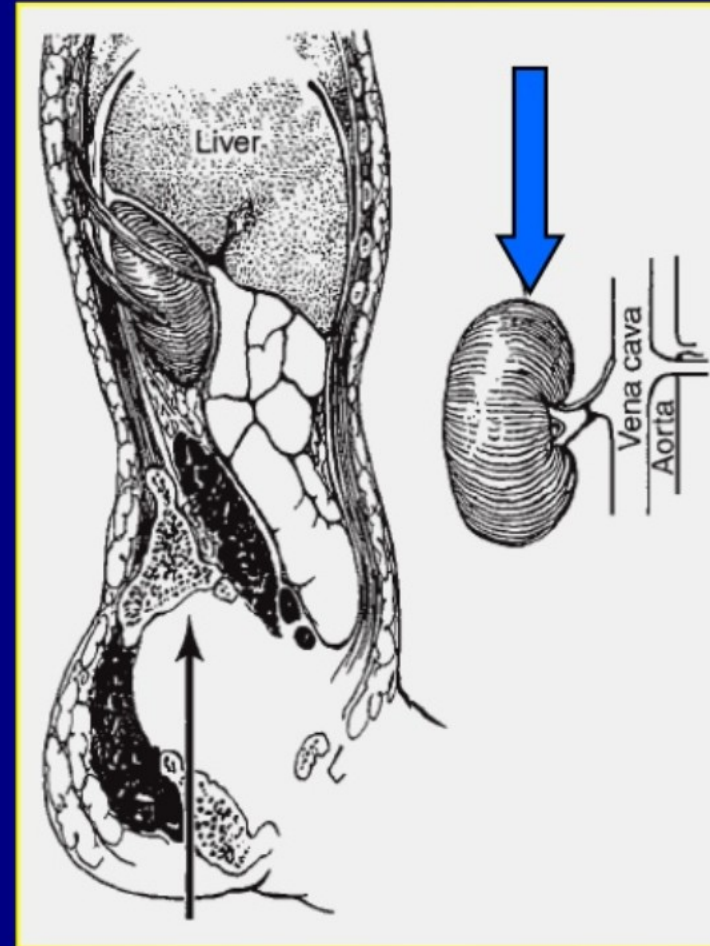
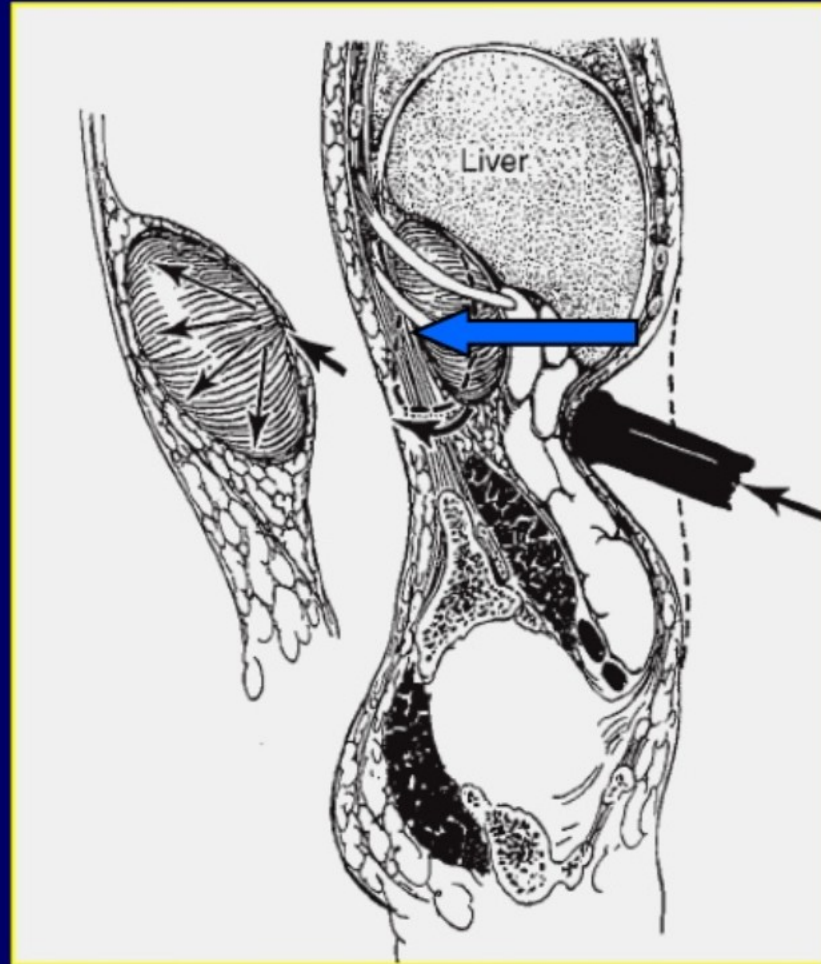
FFH

Blunt trauma



Direct blow to abdomen

FFH



Clinical Features

- 1- History of trauma
- 2- Shock
- 3- Skin bruises
- 4- Hematuria : may be absent in(10 – 25 %) :
 - * lesion not communicating with the pelvis
 - * avulsion of the pedicle or P.U.J
 - * obstruction of the ureter by clot

Grades of renal injury

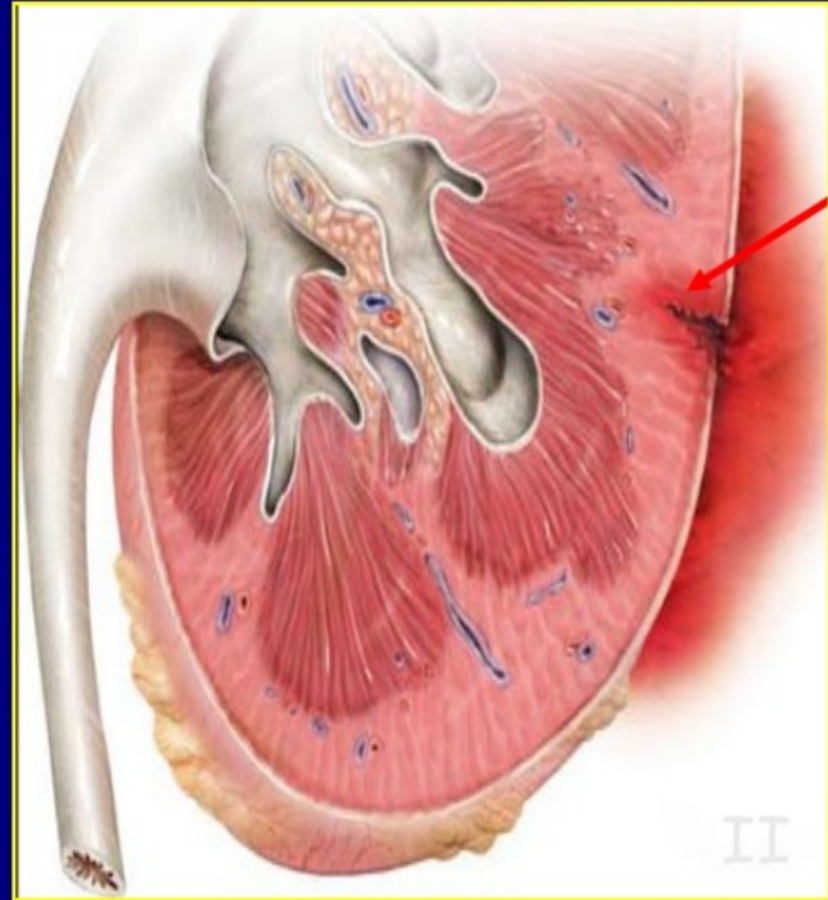
Organ Injury Scaling Committee
scale

A. Minor injuries

Subcapsular hematoma



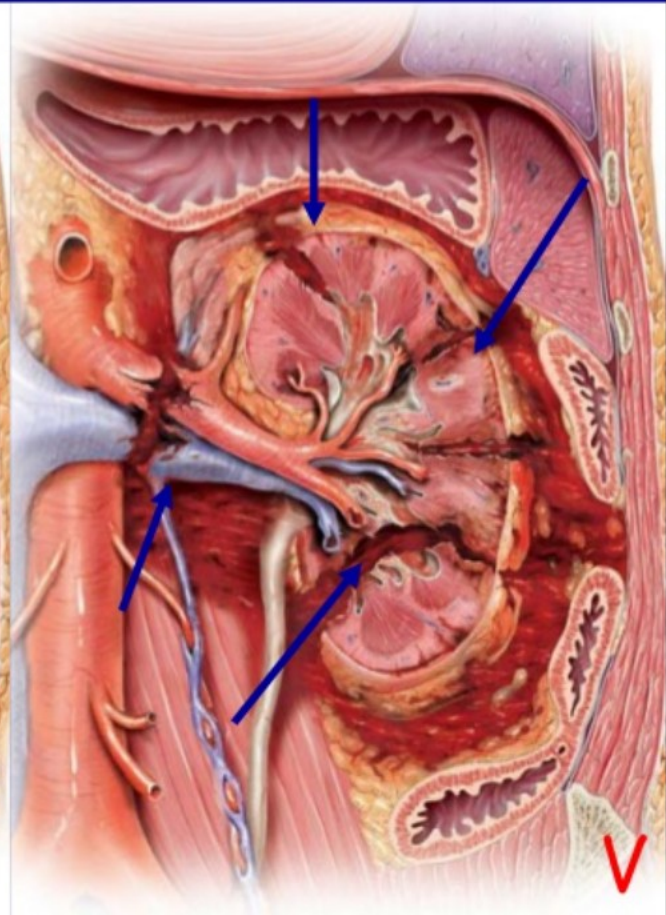
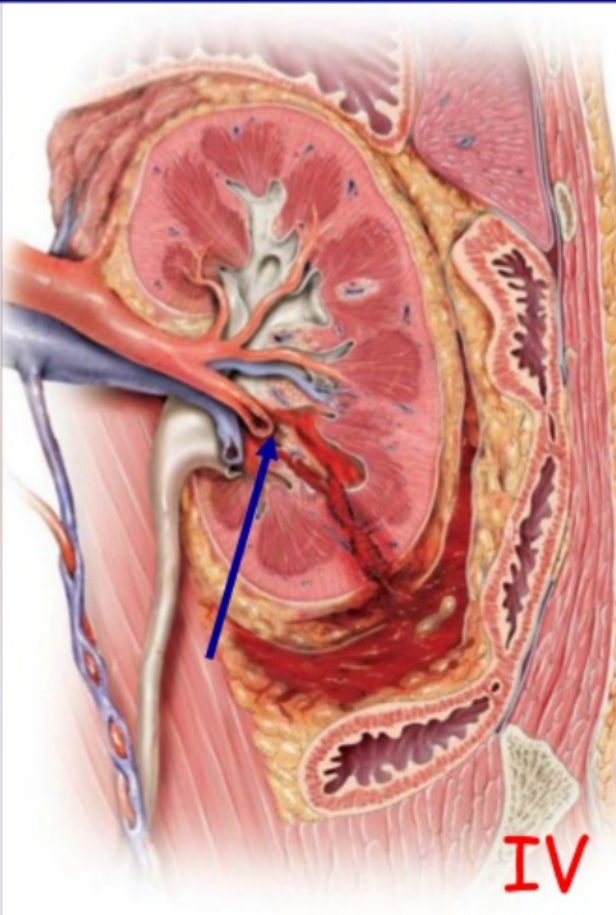
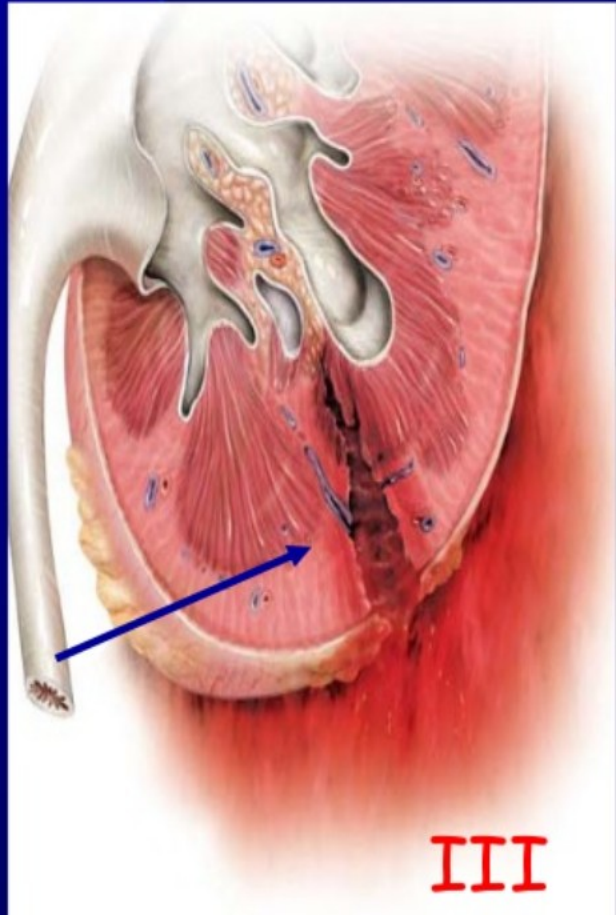
lacerations < 1 cm



B. Major injuries

lacerations > 1 cm Communicate ē Collecting S.

shattered kidney



Complications

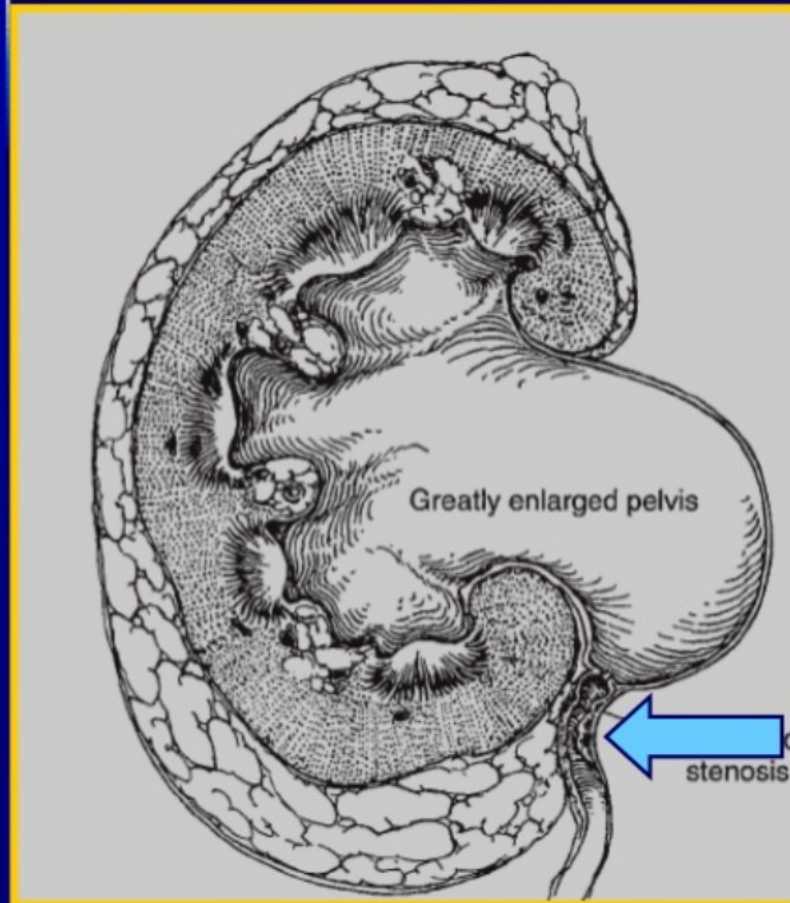
Early

- Delayed bleeding
- Perinephric abscess
- Urinary extravasation

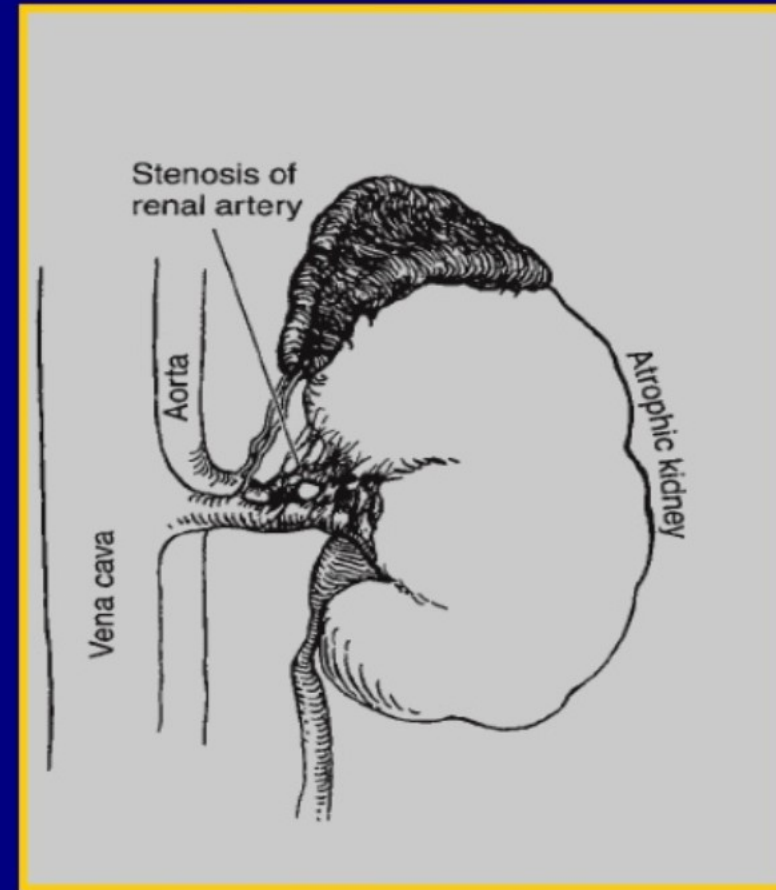
Late

- Hydronephrosis
- Hypertension
- A-V fistula with stab inj.
- Renal atrophy

Late Complications



Ureteropelvic stenosis



Atrophy of kidney

Management

- Gives priority to the airway , breathing, and circulation in that order (ABC)
- Secondary survey, an examination from head to toe.

Diagnosis

- Victims of polytrauma often suffer devastating injuries that take priority over possible renal injuries
- The presence of loin pain bruising, lower rib fractures, and haematuria are suggestive of renal trauma.

Investigations

- IVU

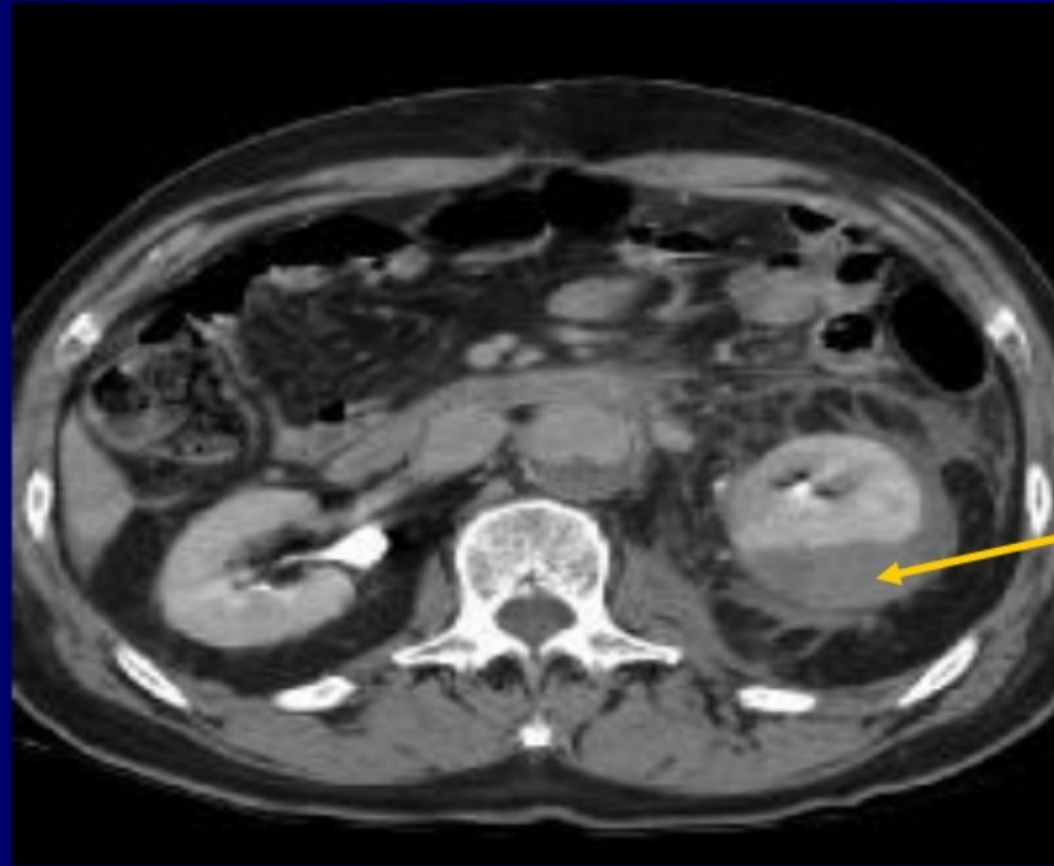
 - **Normal ————— observation

 - **Abnormal —————> DO more investigations

- U.S : follow up of peri-renal hematoma & extravasation

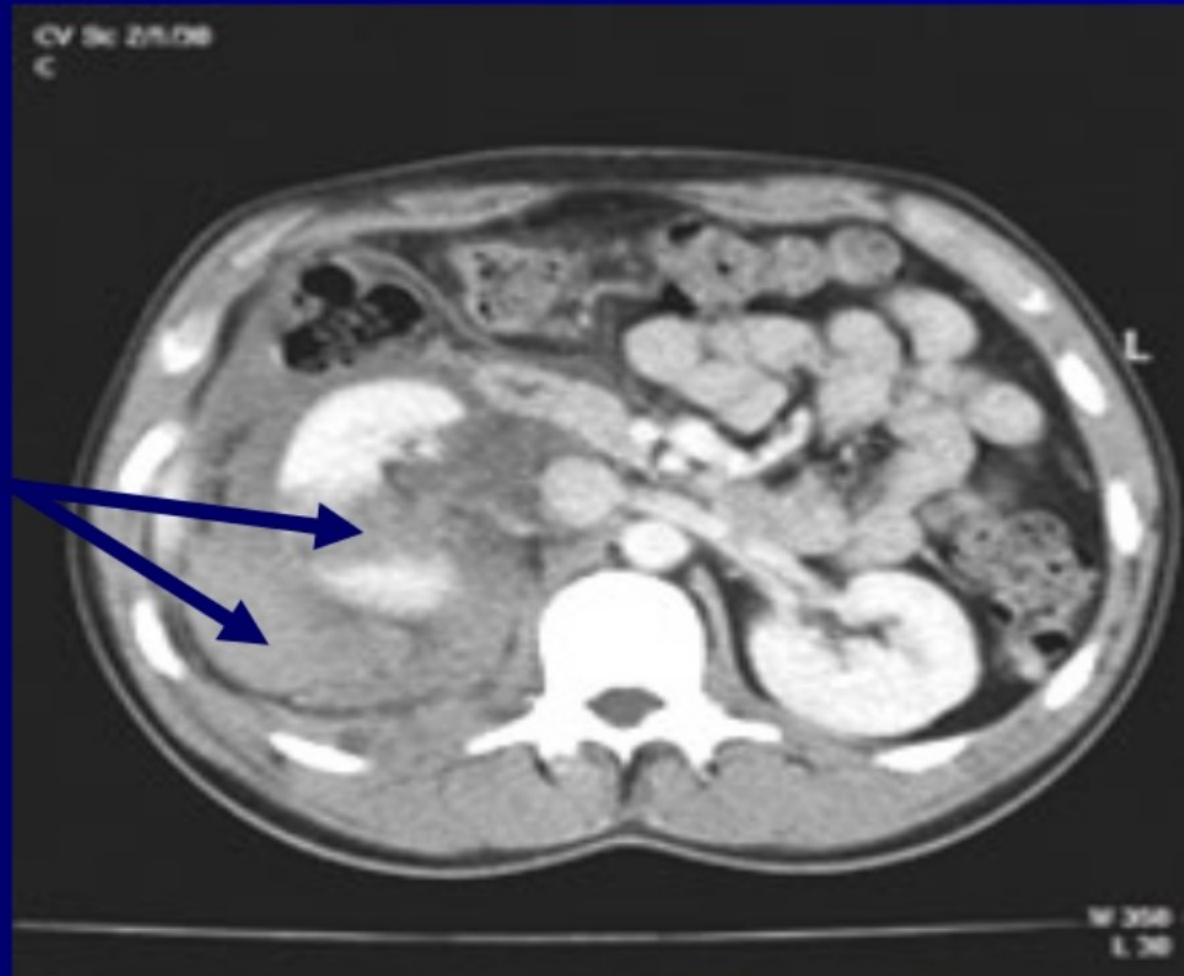
- C.T scan (ideal diagnosis)
 - Accurate diagnosis
 - Site & depth of laceration (proper staging)
 - Associated injury of abdominal organs

Grade 1 renal injury

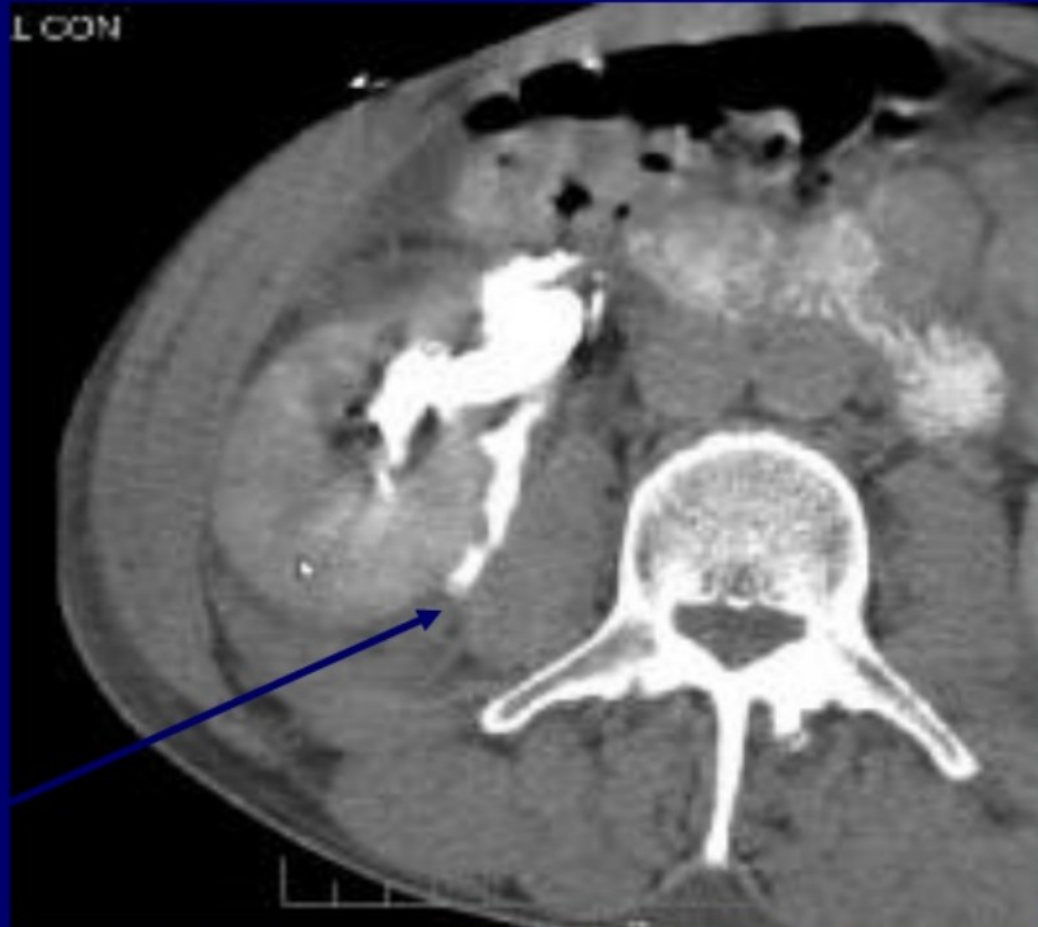


subcapsular hematoma

- Rt. Kidney injury +retroperitoneal hematoma



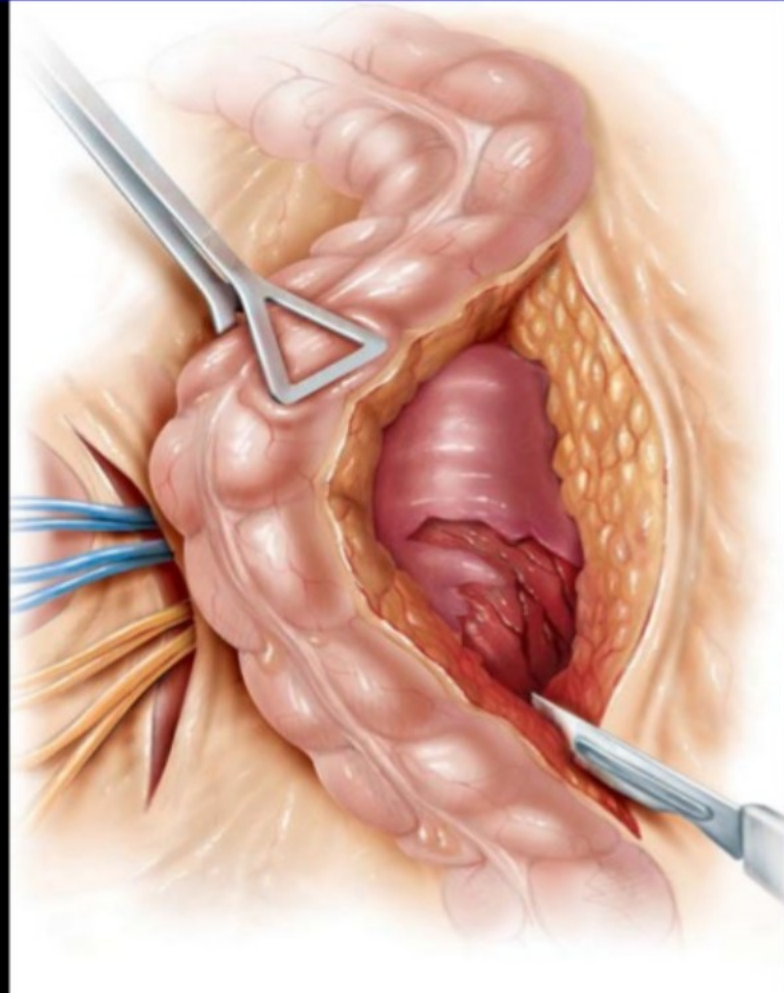
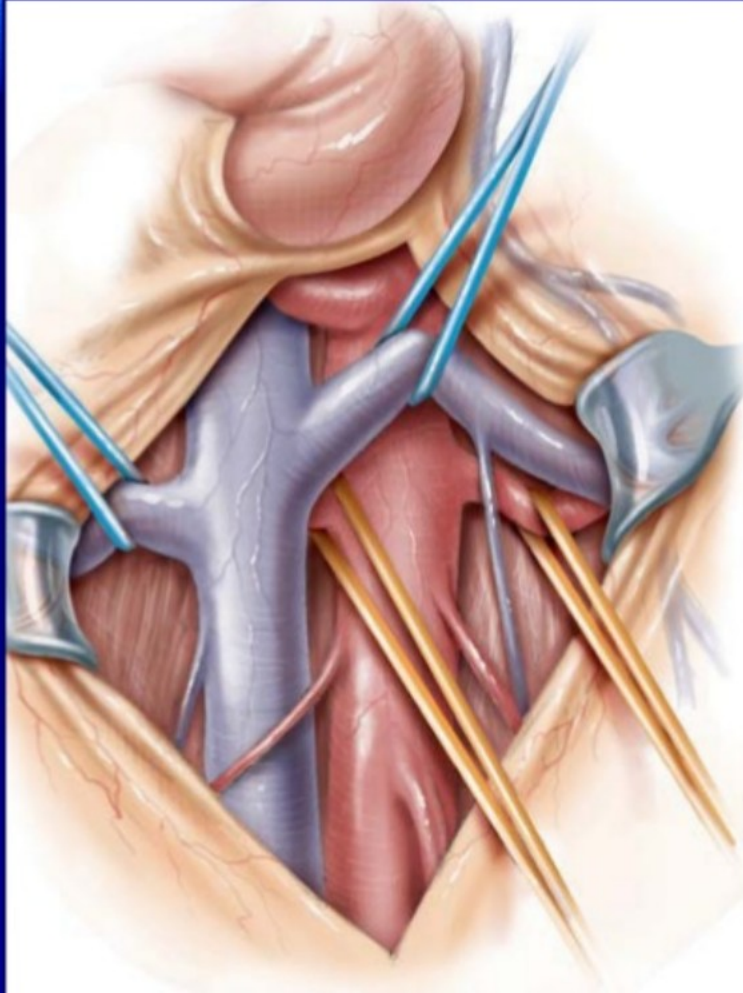
- Grade 5 renal injury.
- Partial PUJ tear and multiple deep lacerations.



Conservative Treatment

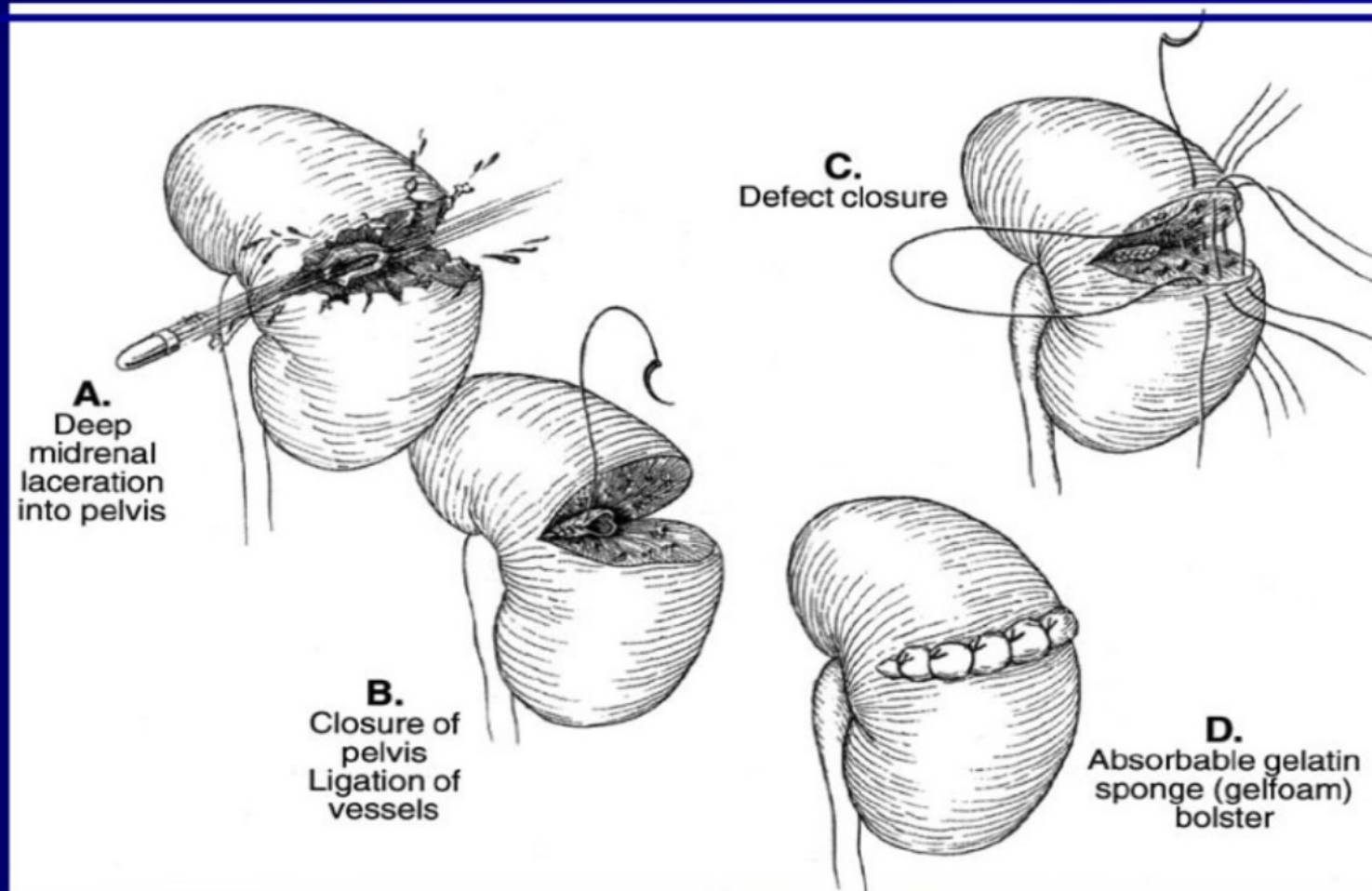
- Bed rest
- IV. fluid
- Analgesics
- Follow up by U.S

Surgical Explorations



- Superficial tears. → *suture*
- Deep tear → *partial nephrectomy*
→
- Avulsion of pedicle *nephrectomy*

Surgical treatment



Home messages

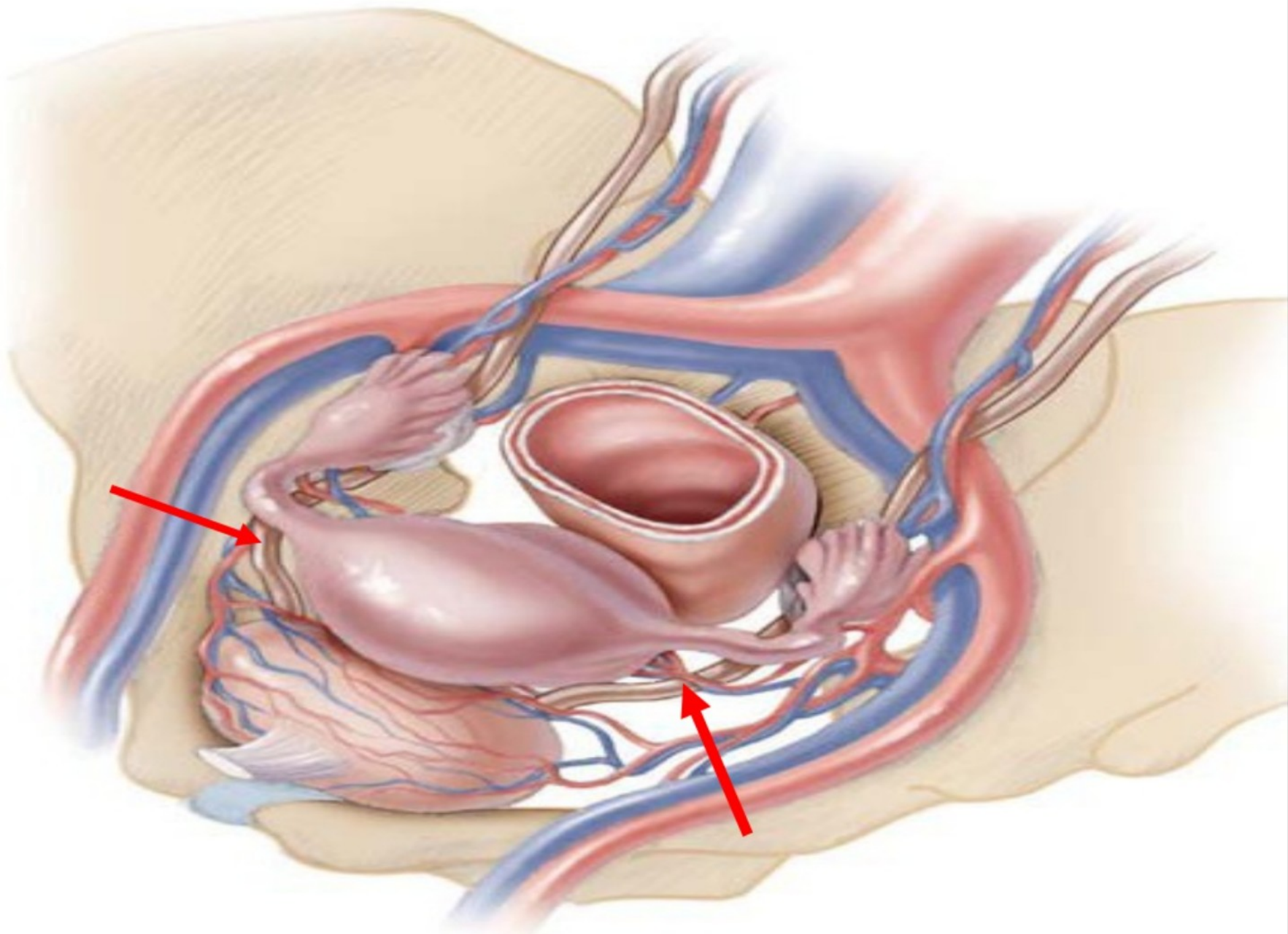
1. Renal trauma is usually blunt and minor
2. It is often sustained with polytrauma
3. Most patients are managed conservatively
4. Surgery is rarely indicated but life saving
5. Long term follow-up is needed to check for complications

Ureteral injuries

Causes:

1. Gun shot
2. Stab wound
3. Fracture spine
4. Avulsion at PUJ
5. Gynecological operations





Investigations

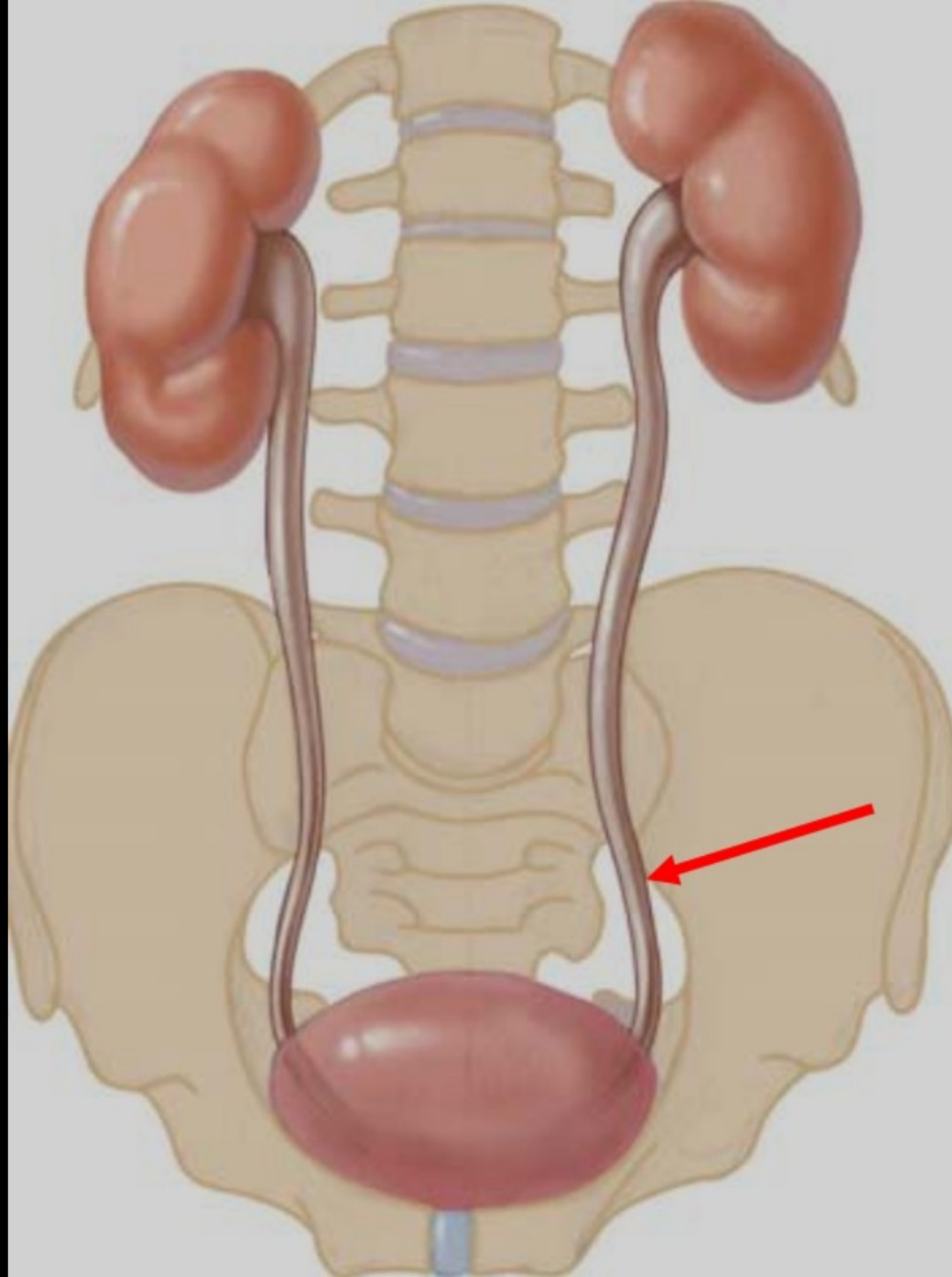
- IVU
- C.T scan
- Retrograde urography
- Antegrade urography

Extravasation Due To Uretral Injury



Treatment

- **Below iliac vein:** ureteral reimplantation
- **Above iliac vein:**
 1. End to end anastomosis
 2. Transureteroureterostomy
 3. Iliac replacement
 4. Auto transplantation

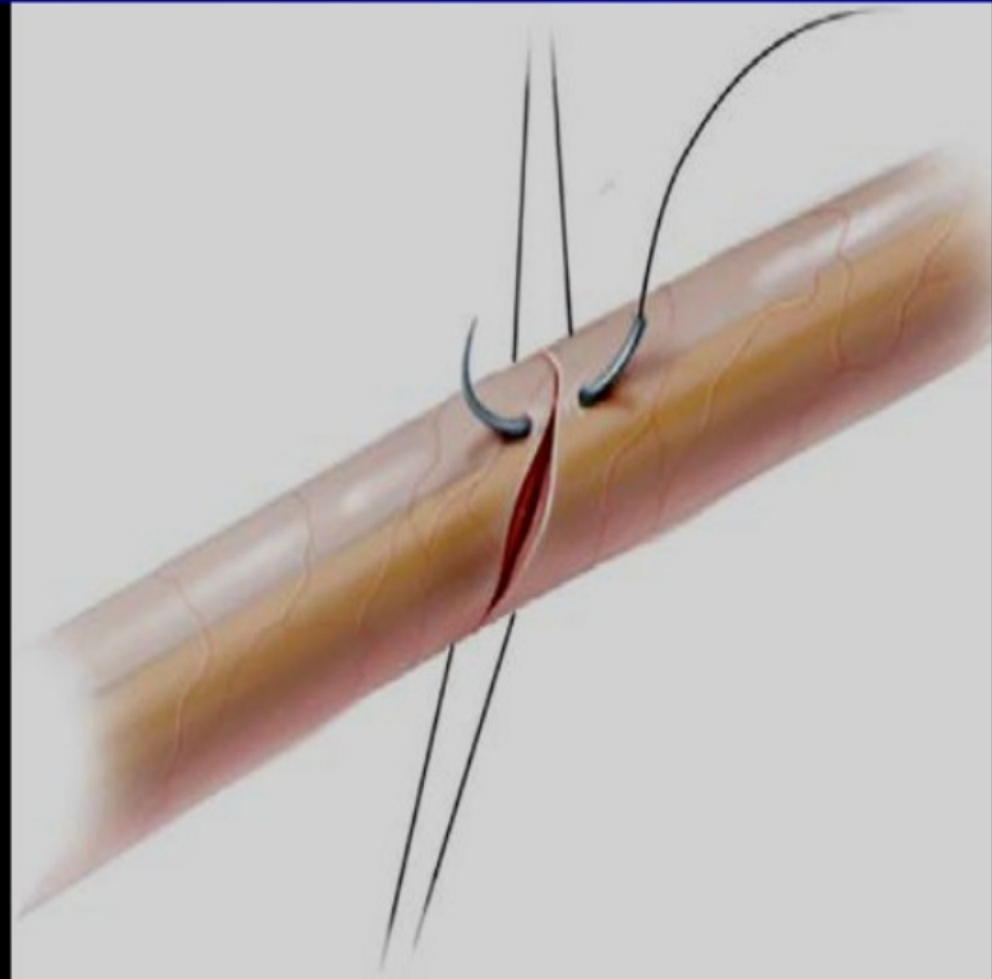
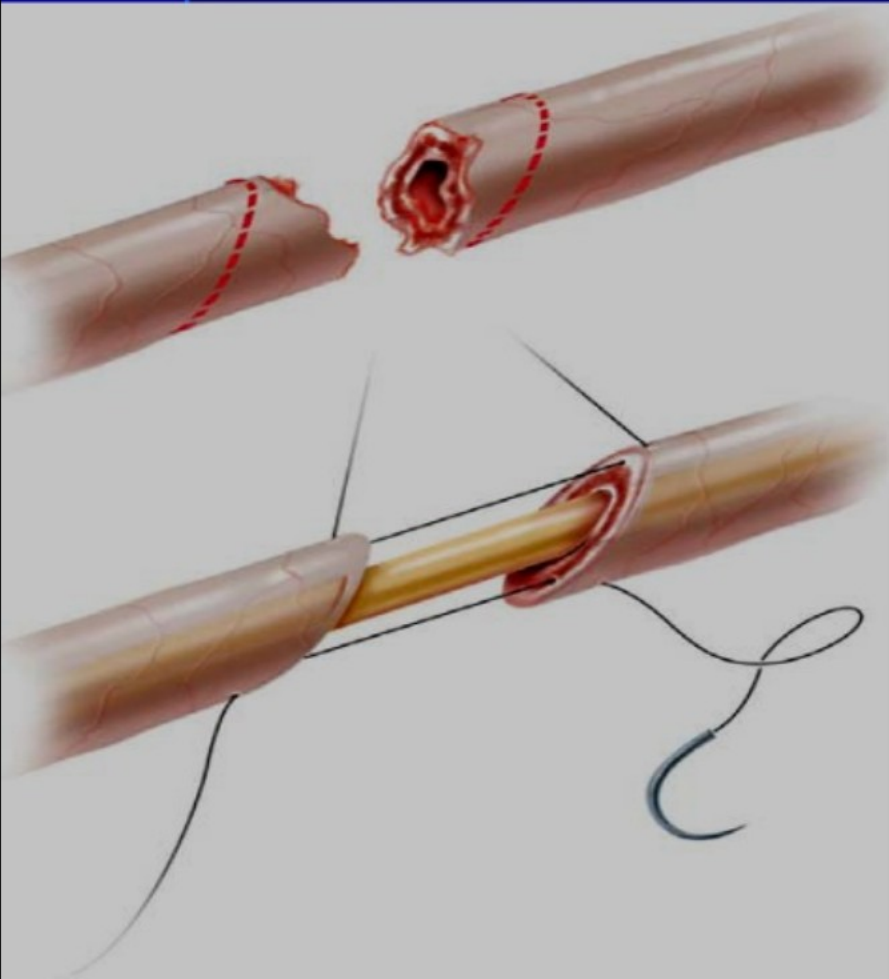


Above the iliac vein

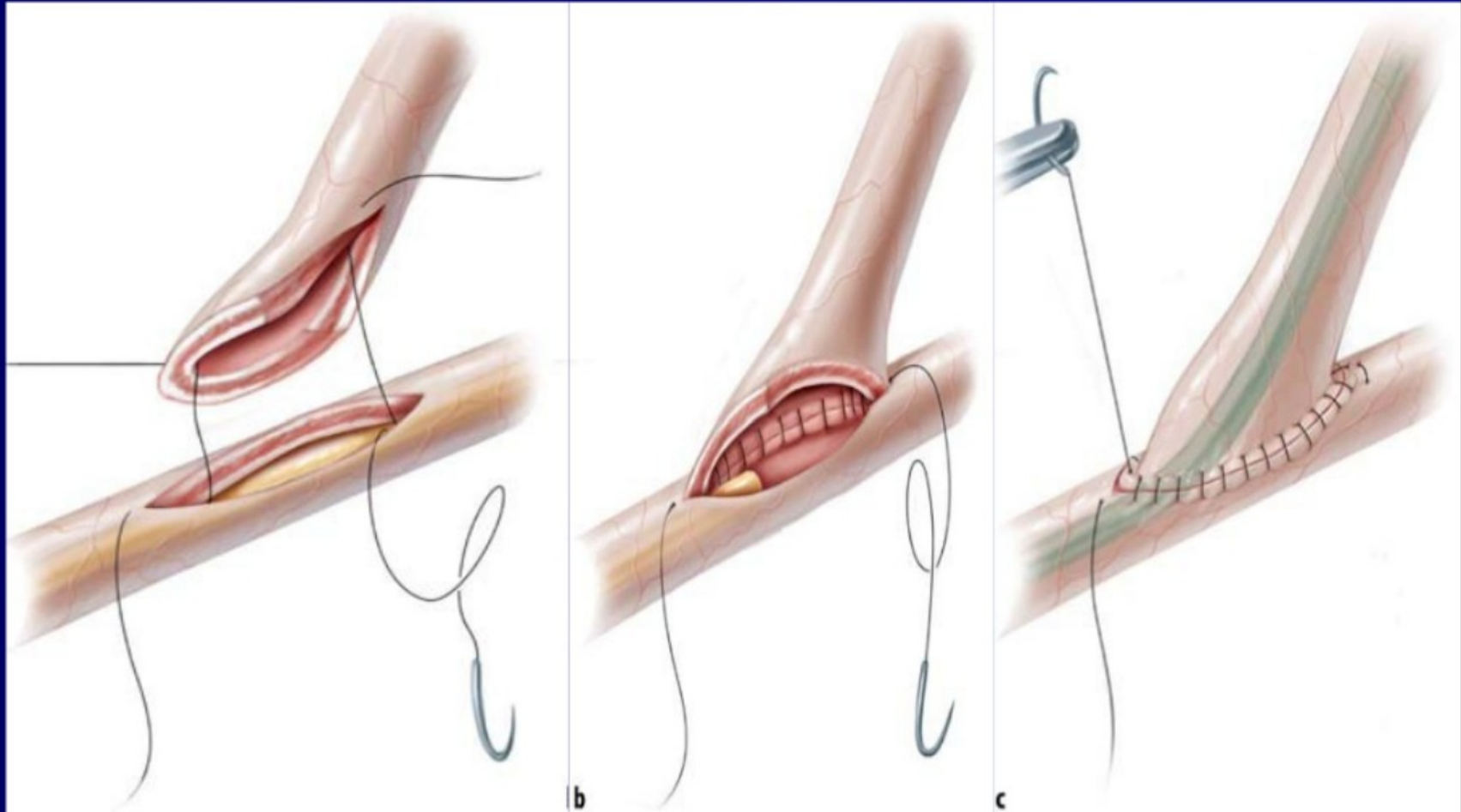
1. direct ureteroureterostomy
2. transureteroureterostomy
3. ilial replacement
4. autotransplantation

Below the iliac vein
reimplantation

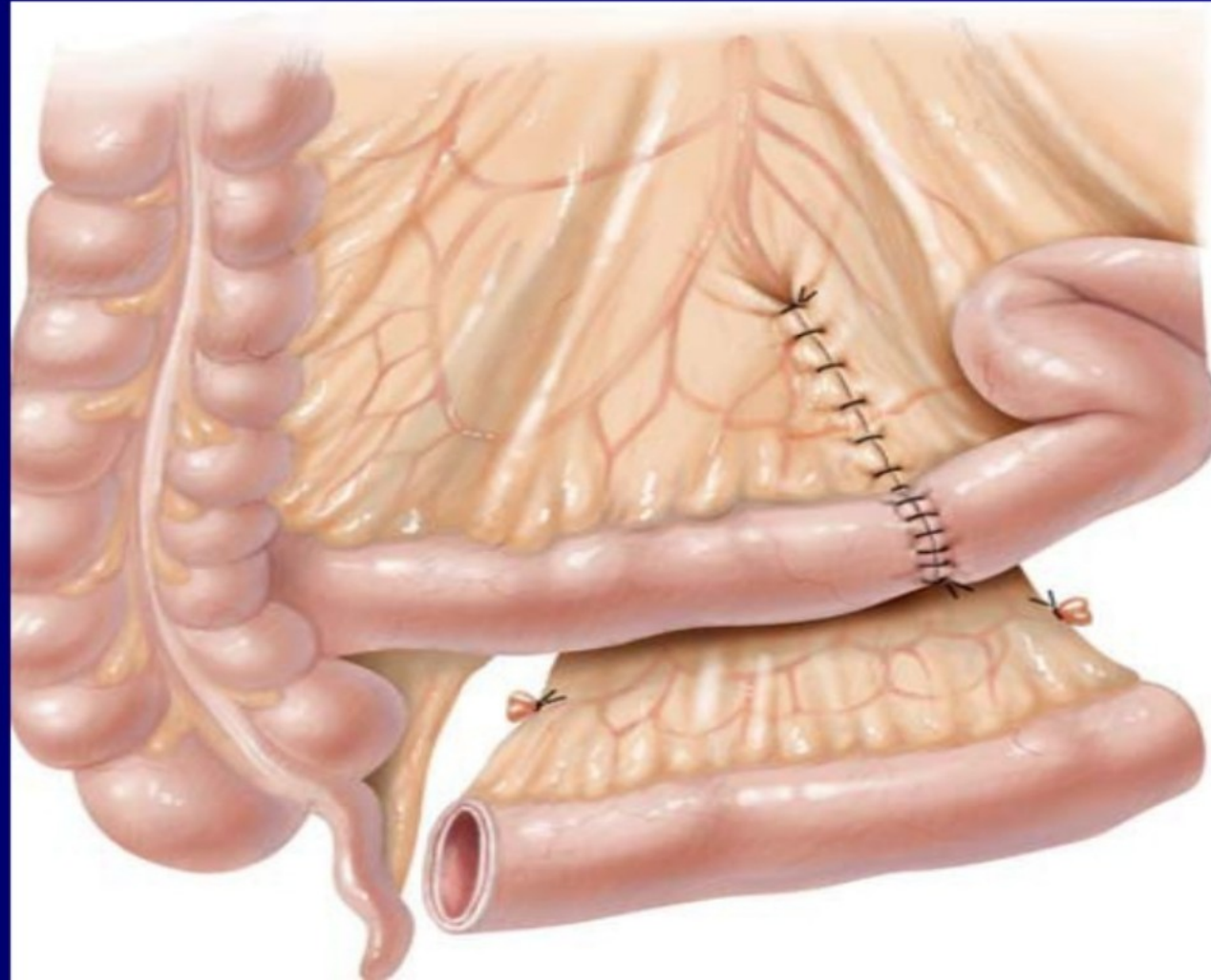
1-End to end anastomosis over JJ stent



2- Transureteroureterostomy

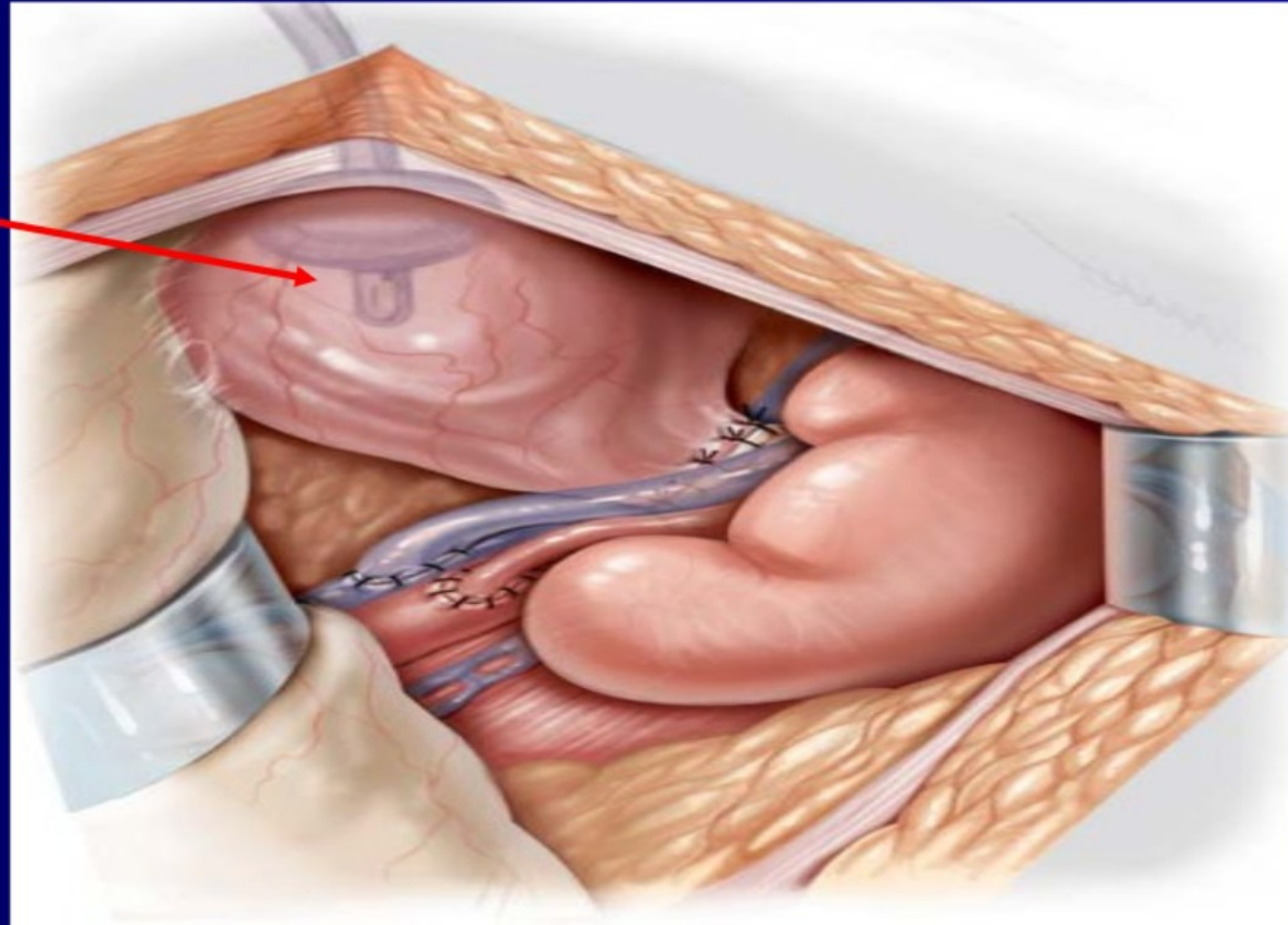


3- Iliac replacement



4- Auto transplantation

Bladder



Iatrogenic injury

- Up to 1w → exploration of ureter
- After 1 w → PCN. For 3 months & then evaluate

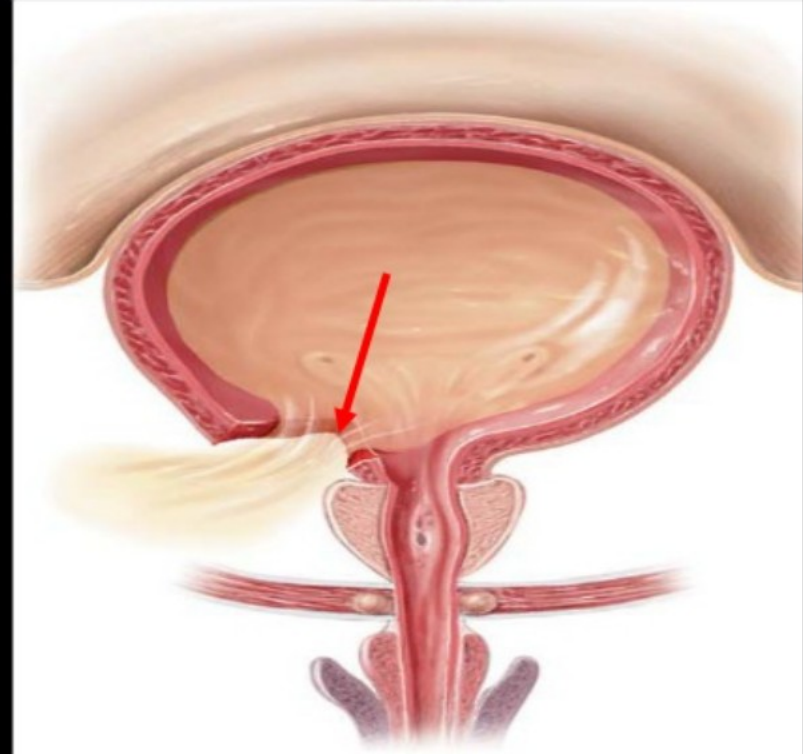
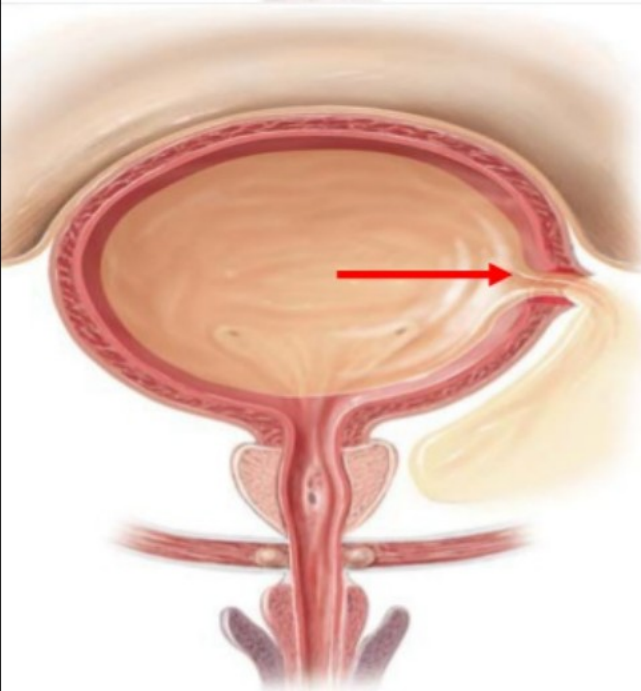
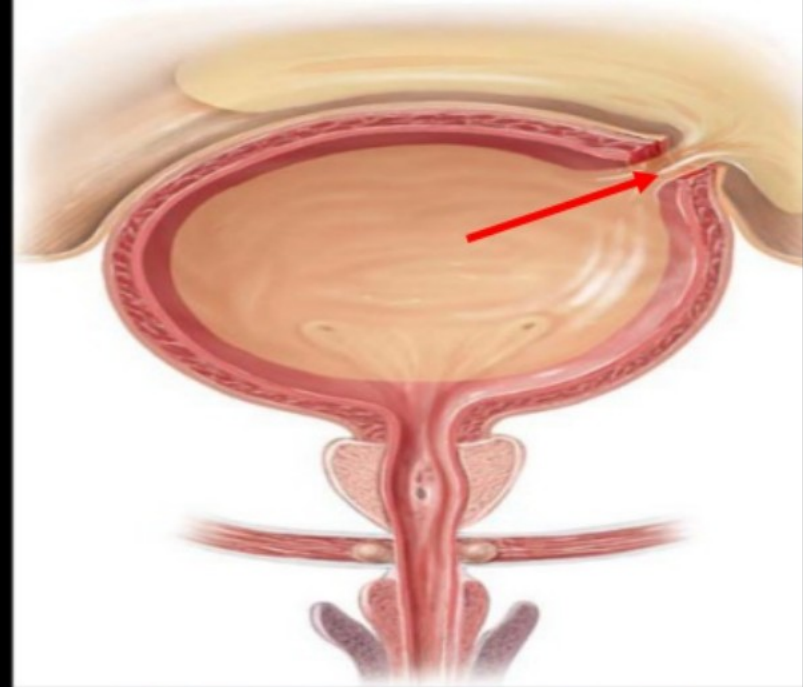
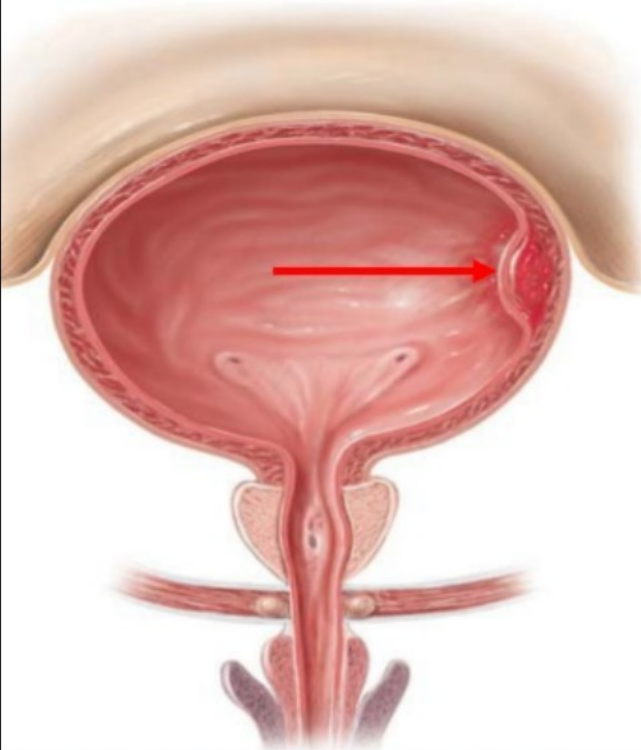
Bladder injuries/ causes

Penetrating injury

1. Gun shot
2. stab wound
3. Gynecological op.
4. Endoscopy

Blunt injury

1. Blow to the abdomen
2. Fracture pelvis
3. Fall from height



Classification

1. Intra-peritoneal rupture
 - Extra-peritoneal rupture
 - Combined intra & extra – peritoneal rupture

Dye in the peritoneum
Sunburst appearance

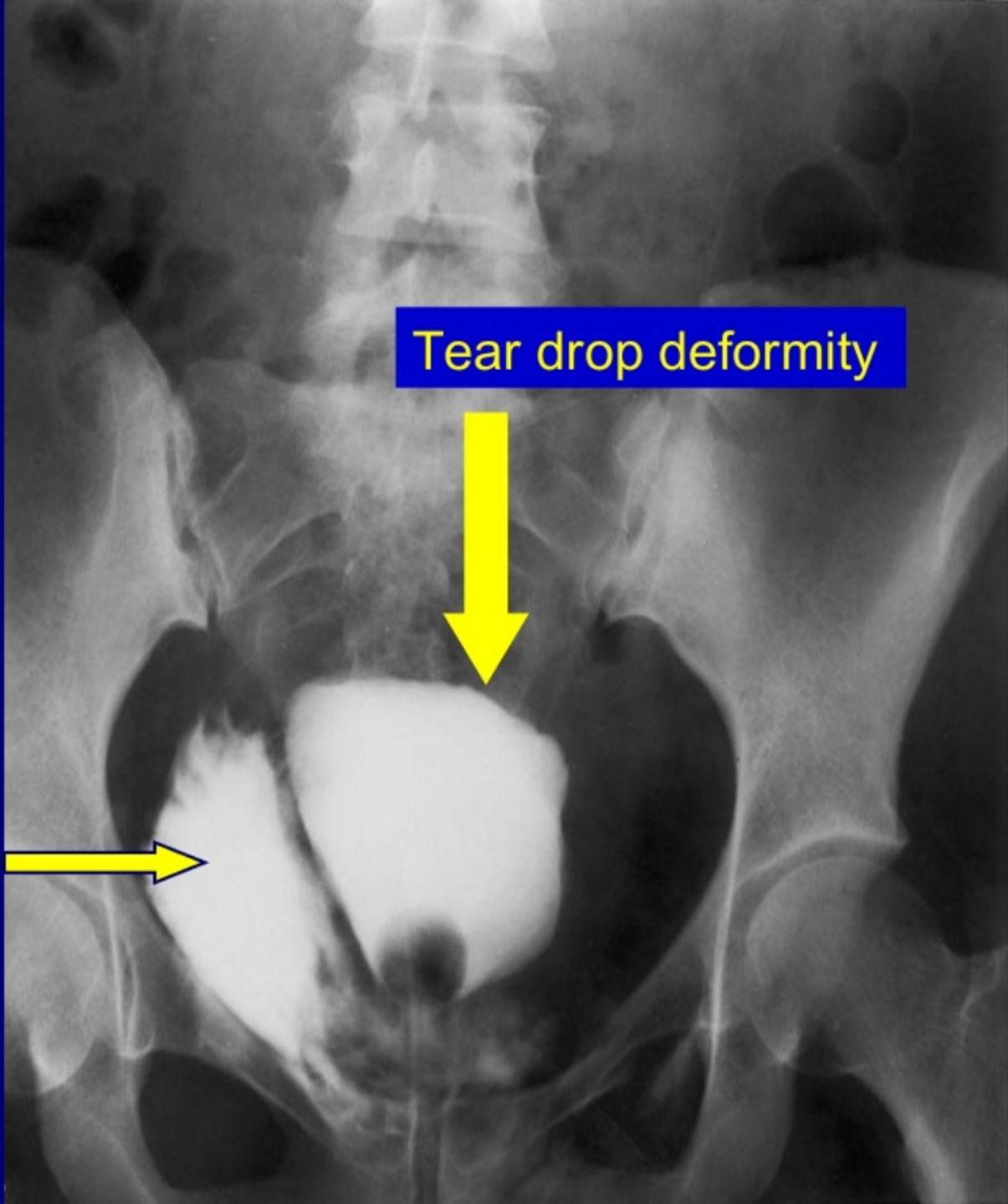
Intra peritoneal
rupture



Extraperitoneal rupture

Flame-shaped

Tear drop deformity



Treatment

Intra peritoneal rupture

Exploration & repair To prevent peritonitis

Extraperitoneal rupture

1- minor extravasations: urethral catheter for 10 days

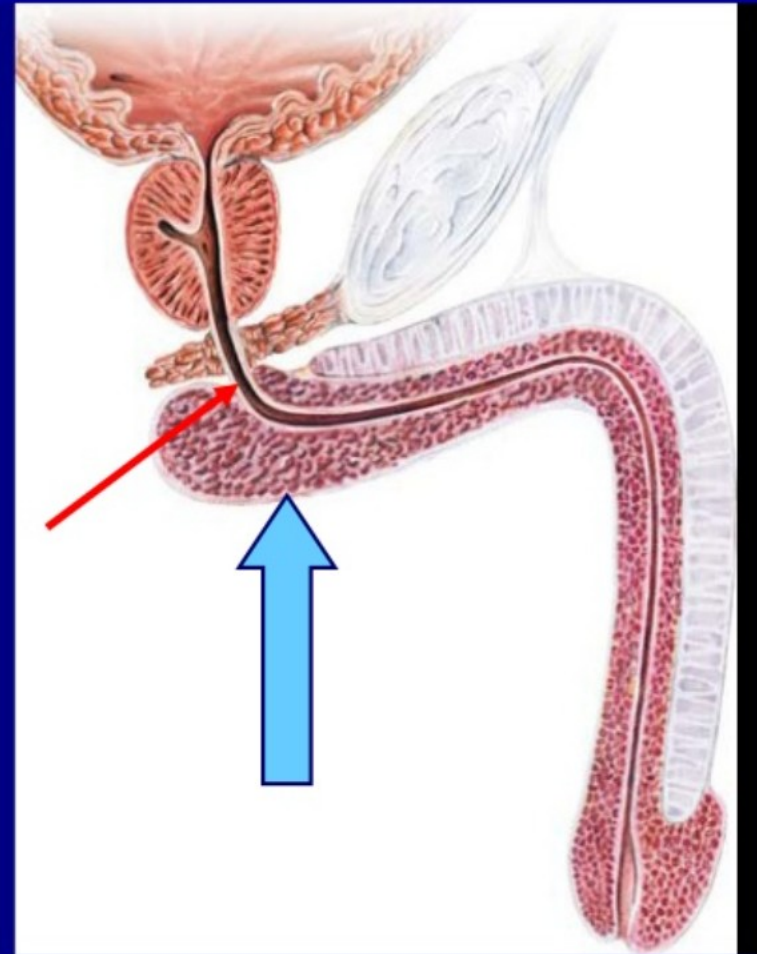
2- major extravasations or bladder neck involvement: exploration and repair

Urethral injuries

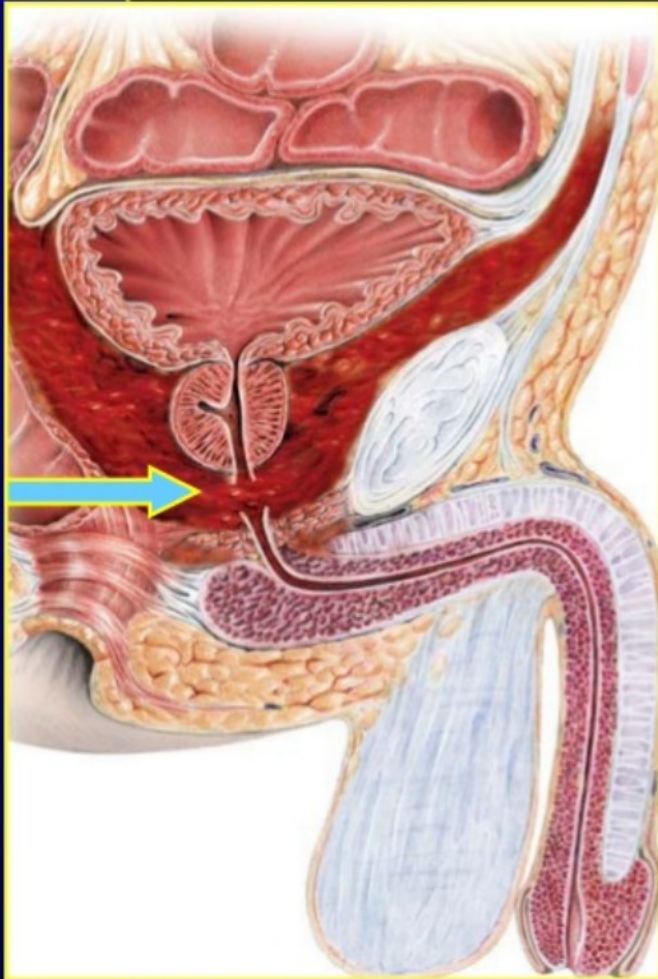
Causes :

- **Posterior urethra**
 1. Fracture pelvis
 2. Catheter introduction

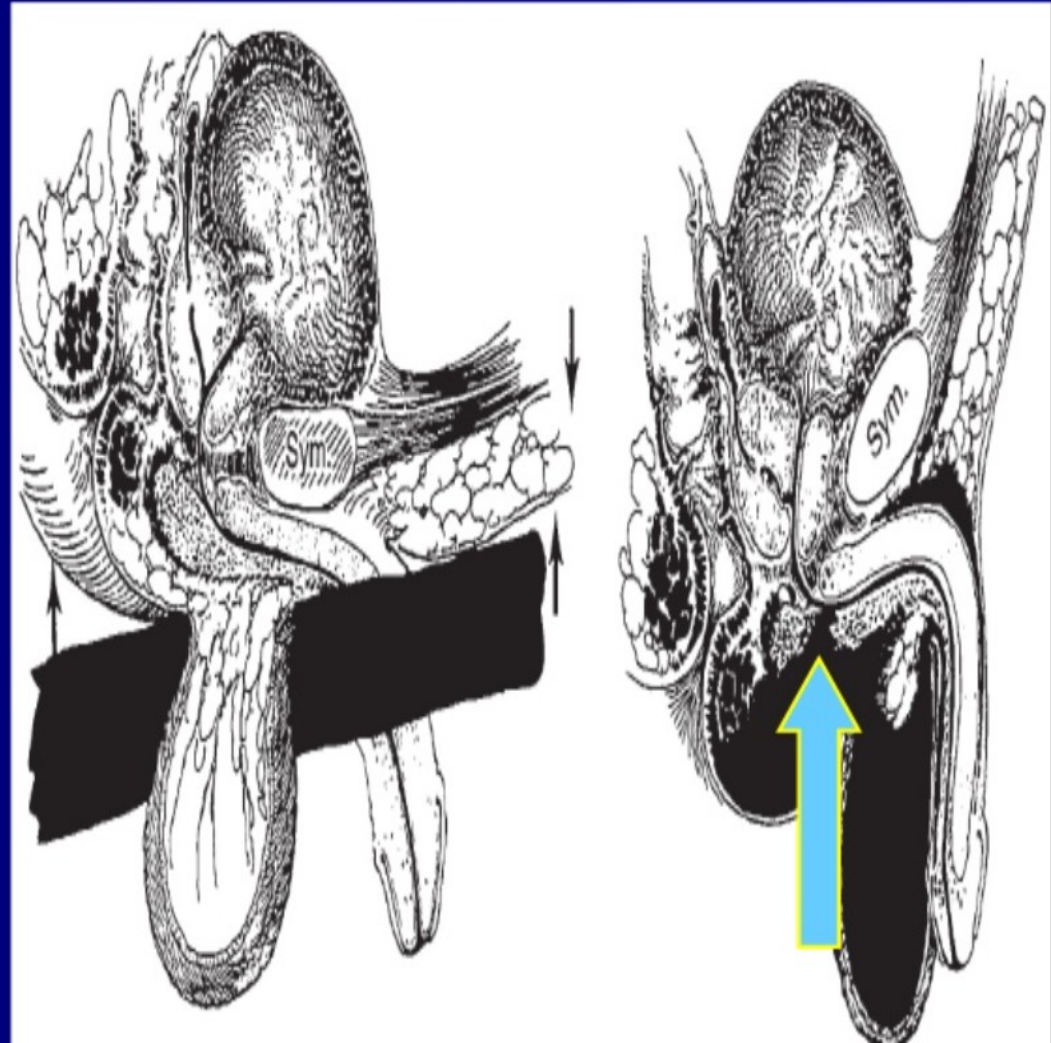
- **Anterior urethra**
 1. Falling astride
 2. External trauma



Post urethral inj




Anterior urethral inj. Falling astride



Fracture penis may be associated
with anterior urethral injury

Clinical features

- Blood at the external urethral meatus 
- Retention of urine
- Haematuria
- Swelling in the perineum , penis, scrotum

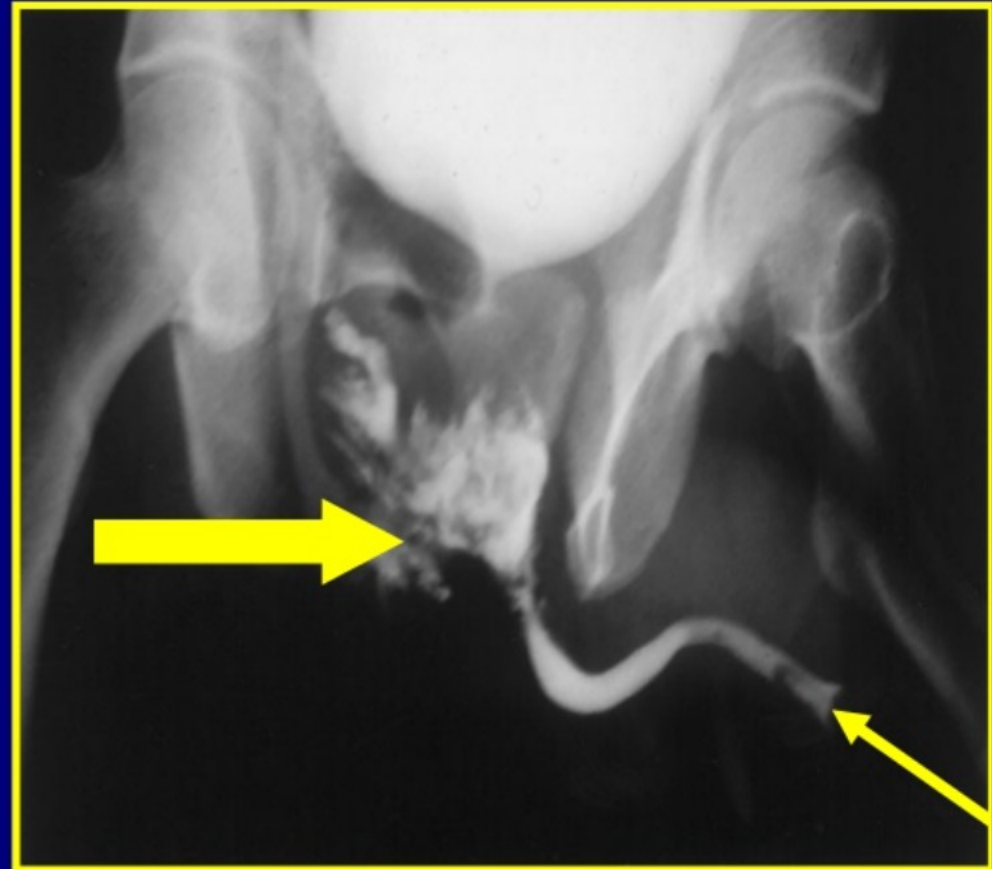
Radiological diagnosis

- No Catheterization *contraindicated*
- KUB. : identify Fr. Pelvis
- Ascending urethrogram

Antegrade & Retrograde cysto-urethrography

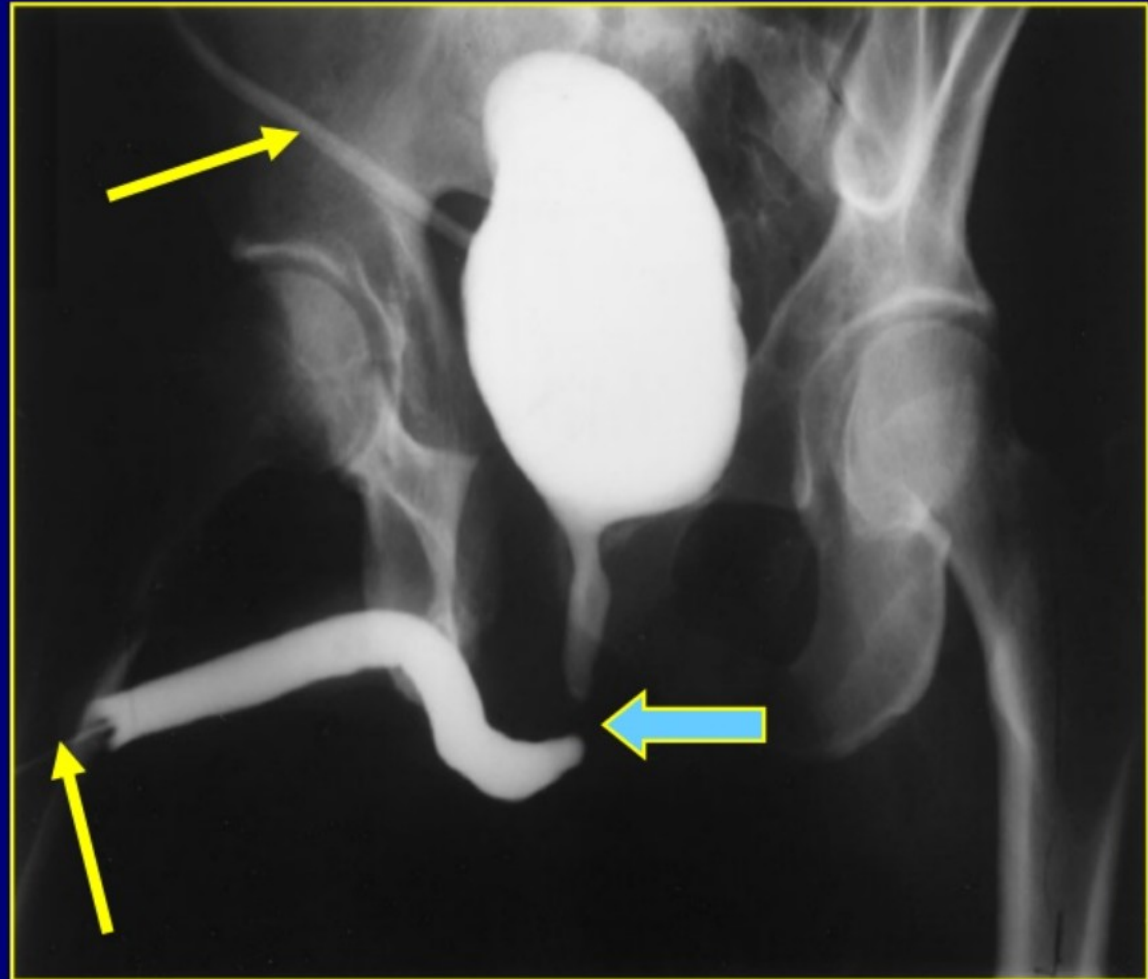
Posterior urethral
disruption&

Extravasation
S



Antegrade & Retrograde cysto-urethrography

Stricture urethra



Treatment of posterior urethral injury

1. Suprapubic catheter
2. Delayed surgical correction (3-6 m)

Why delayed correction?

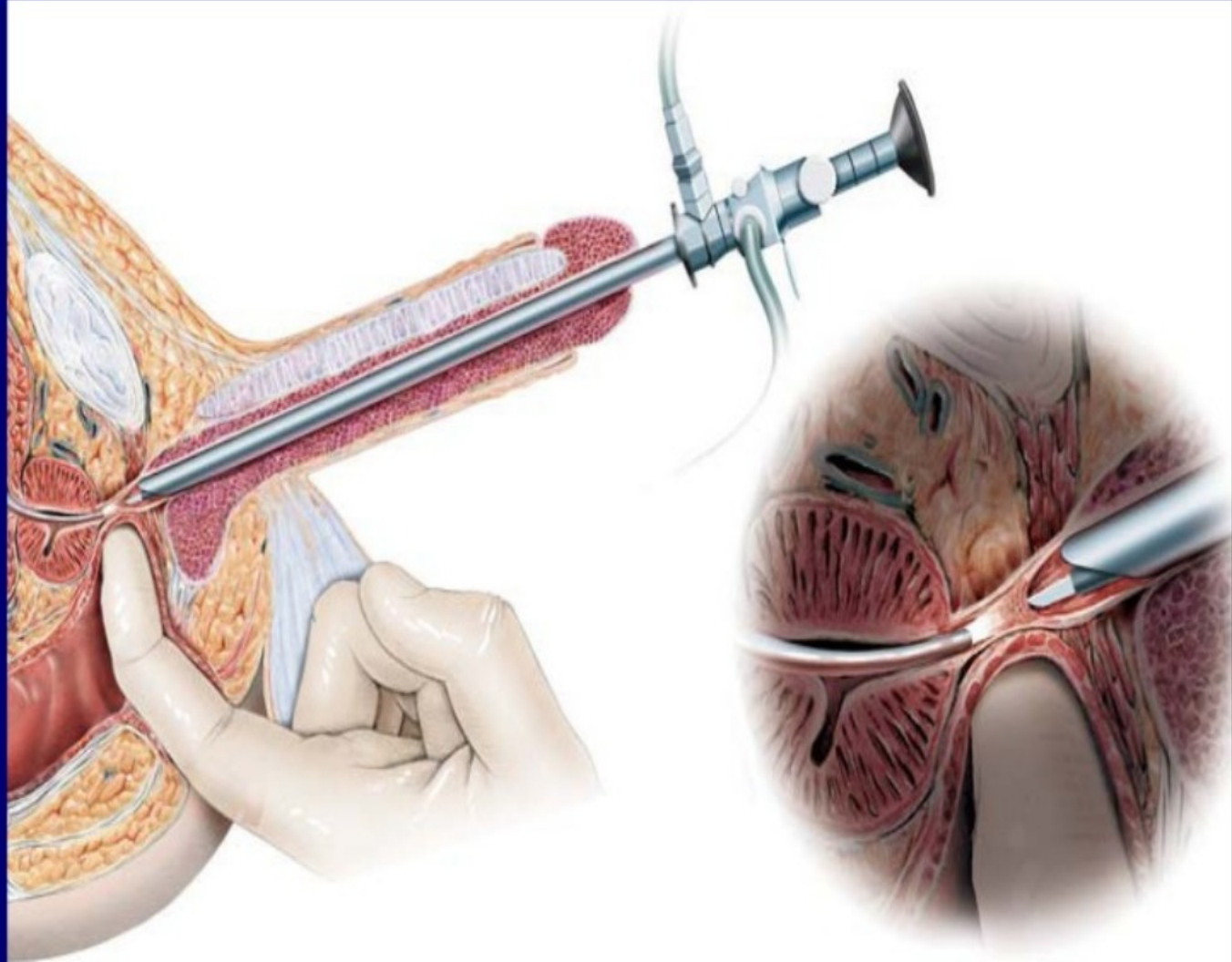
to decrease incidence of

1. Incontinence
2. Impotence
3. Stricture

Anterior urethral injury treatment

1. Suprapubic cystocath
2. Follow up urethrography after 2-3 wks
----- surgical repair or VU
3. Immediate surgical correction in certain cases e.g. Fracture Penis

Visual internal urethrotomy (VIU)



End to end urethroplasty

