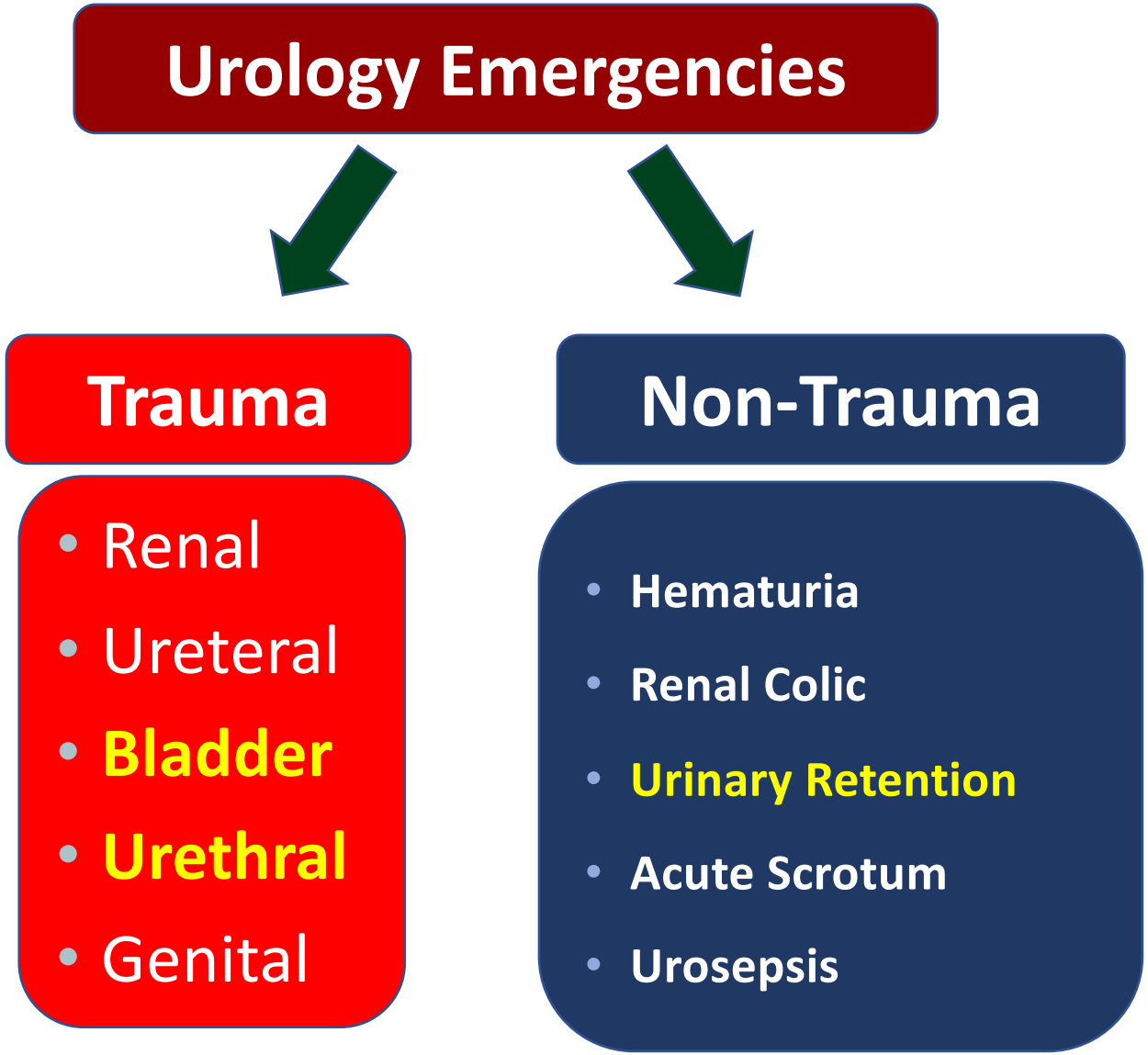
Emergency In Urology

dr. Astarin Ardiani Sp.U

Emergency Urology



Advanced Trauma Life Support (ATLS)

- Prinsip evaluasi dan penatalaksanaan trauma urogenital

→ **ATLS**

Primary Survey
- A Airway
- B Breathing
- C Circulation
- D Disability
- E Exposure

Secondary Survey
- Anamnesis
- Physical Examination
- Radiologic and laboratory

Urology Emergency

- **Trauma**
  - Sekitar 5 – 10% trauma abdomen mengakibatkan trauma dari traktus urogenital
  - Berdasarkan organ yang terkena
  - Ginjal
  - Ureter
  - **Buli-buli**
  - **Uretra**
  - Penis
  - Testis

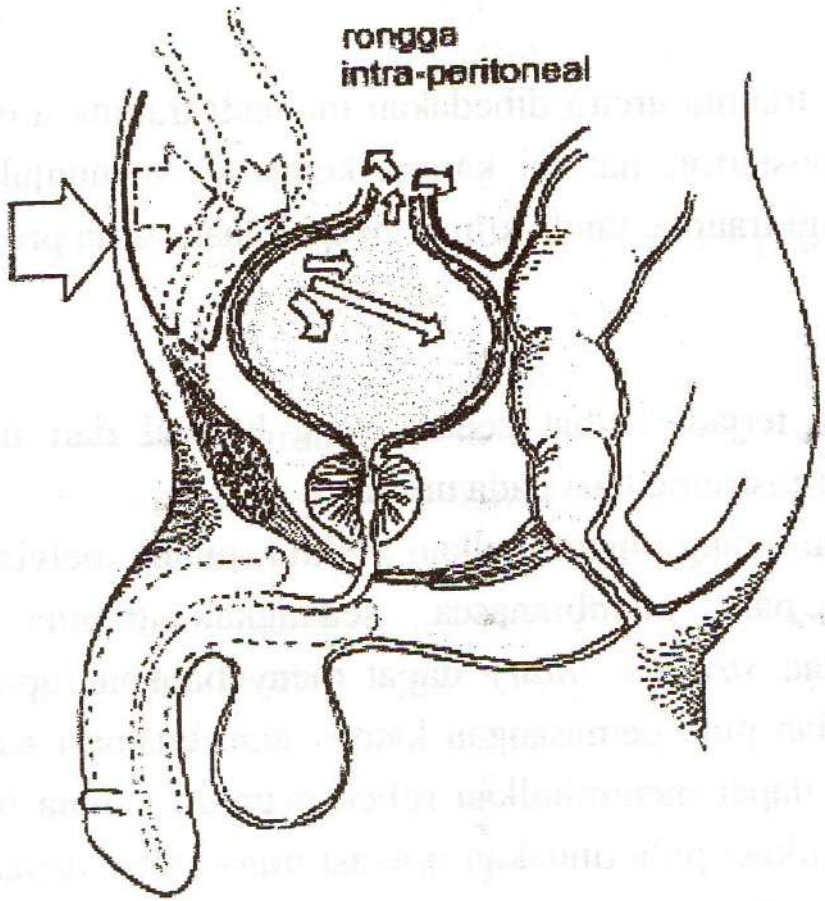
Trauma Buli-buli

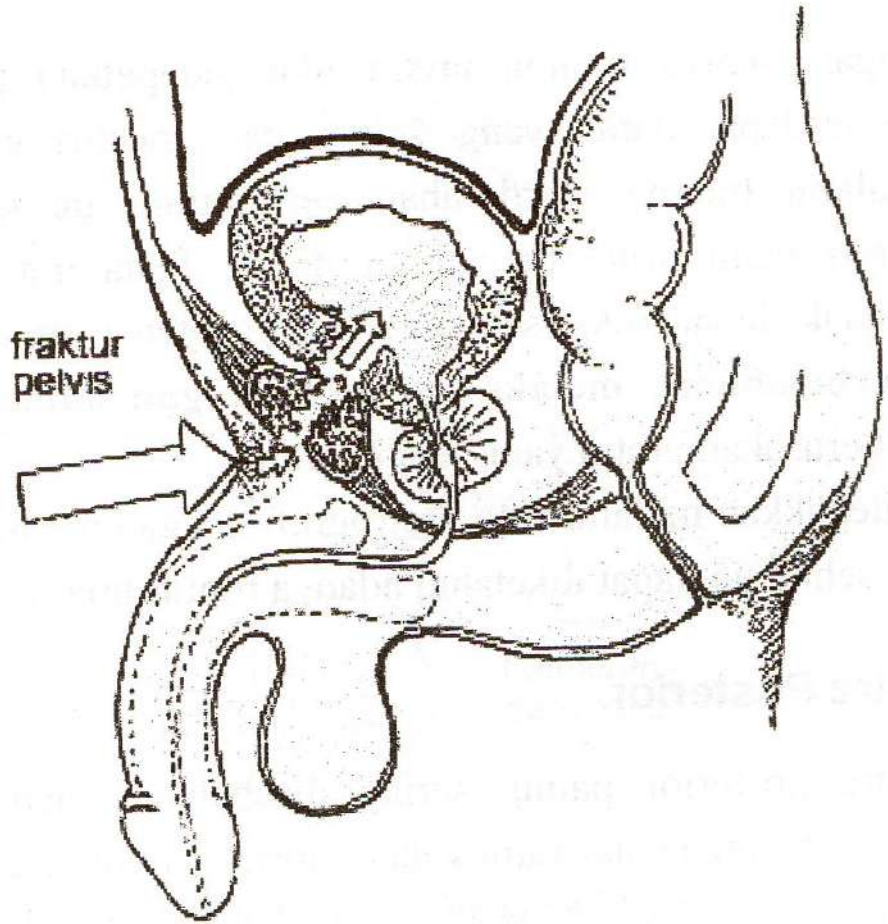
- Jarang terjadi → 1.6 % pada pasien dengan trauma abdomen

- Dapat diakibatkan trauma tumpul maupun tajam
  - Ruptur intraperitoneal
  - Ruptur ekstraperitoneal

- Fraktur pelvis → curigai cedera buli-buli
  - 87 % ruptur buli diakibatkan oleh fraktur pelvis
  - 8.7 % fraktur pelvis mengakibatkan ruptur buli
    - berkaitan dengan ruptur urethra

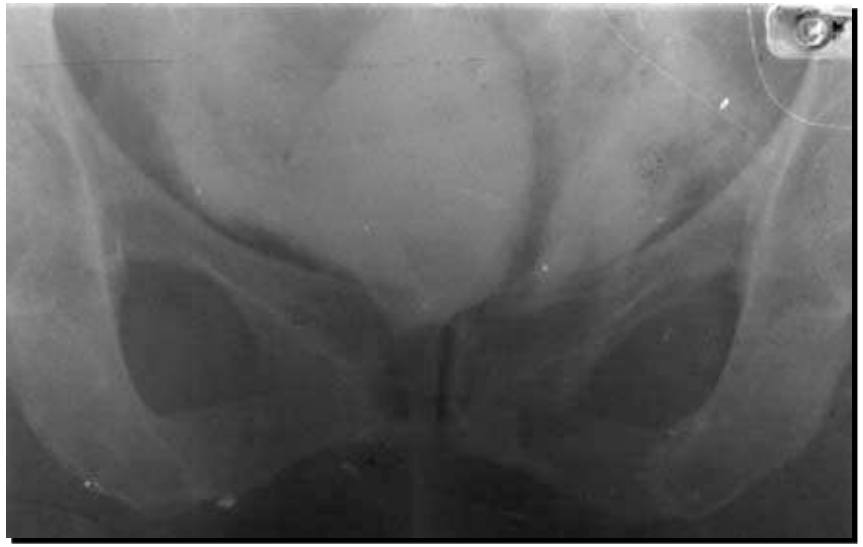
- Trauma buli-buli :
  - *hematuria, jejas suprapubik, nyeri, distensi abdomen, tidak bisa BAK, peritonitis*

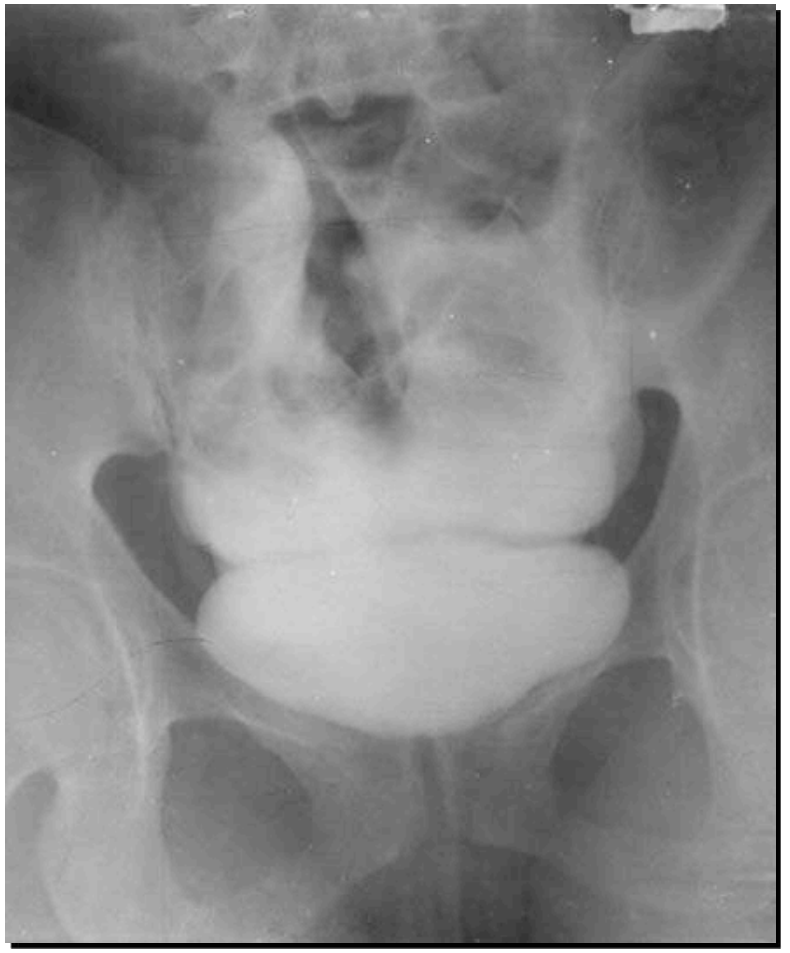

rongga
intra-peritoneal


fraktur
pelvis

Diagnosis Trauma Buli-buli

- Sistografi :





Klasifikasi Trauma Buli-buli

Table 6: Bladder injury scale[1]

Grade*	Description	
I	Hematoma	Contusion, intramural hematoma
	Laceration	Partial thickness
II	Laceration	Extraperitoneal bladder wall laceration < 2 cm
III	Laceration	Extraperitoneal (> 2 cm) or intraperitoneal (< 2 cm) bladder wall laceration
IV	Laceration	Intraperitoneal bladder wall laceration > 2 cm
V	Laceration	Intraperitoneal or extraperitoneal bladder wall laceration extending into the bladder neck or ureteral orifice (trigone)

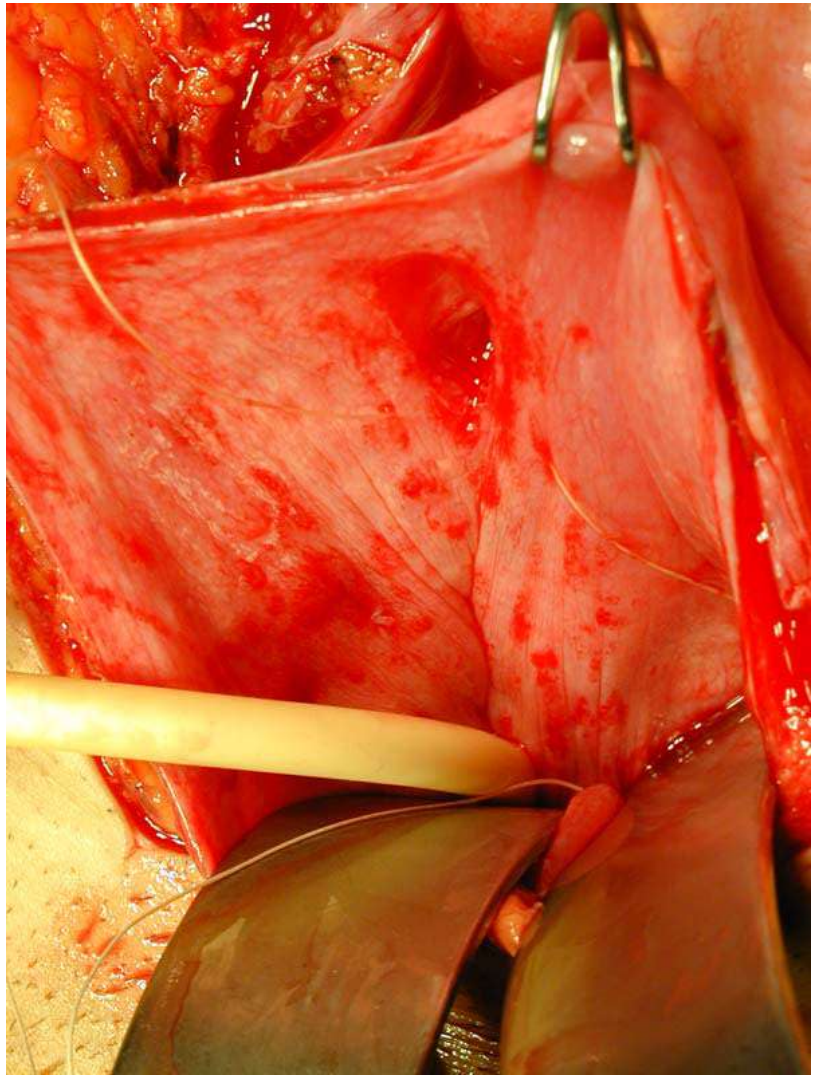
**Advance one grade for multiple injuries up to grade III.*

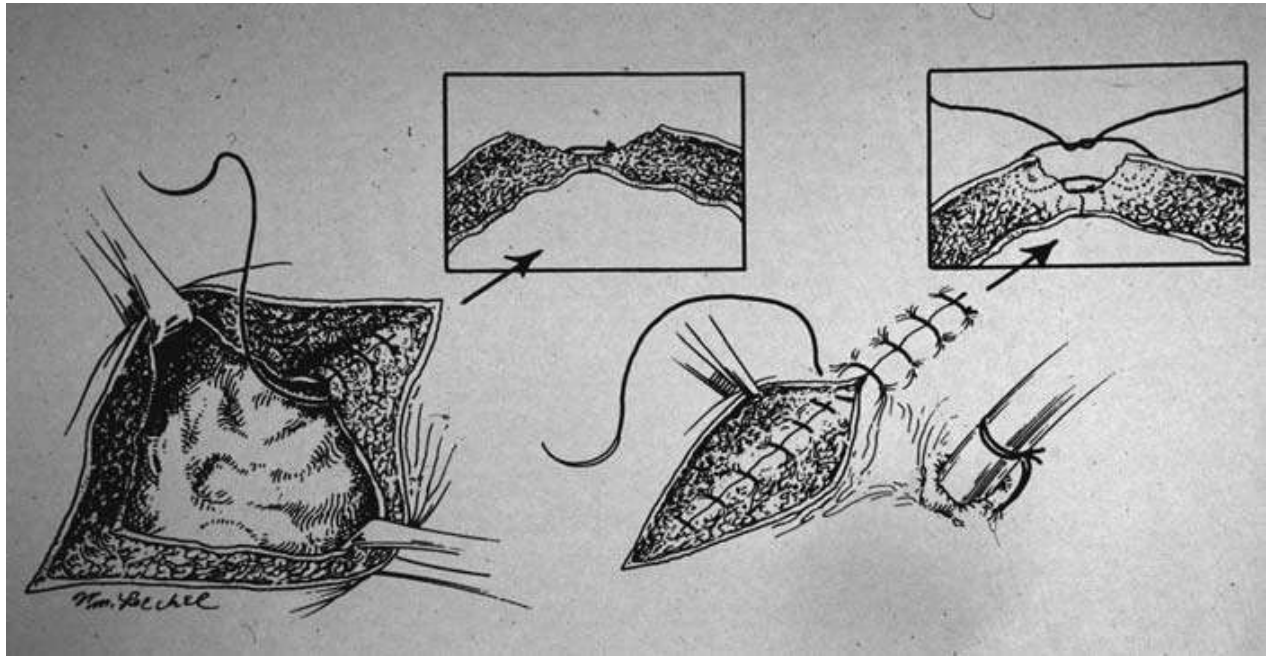
[1] Adapted from the AAST.

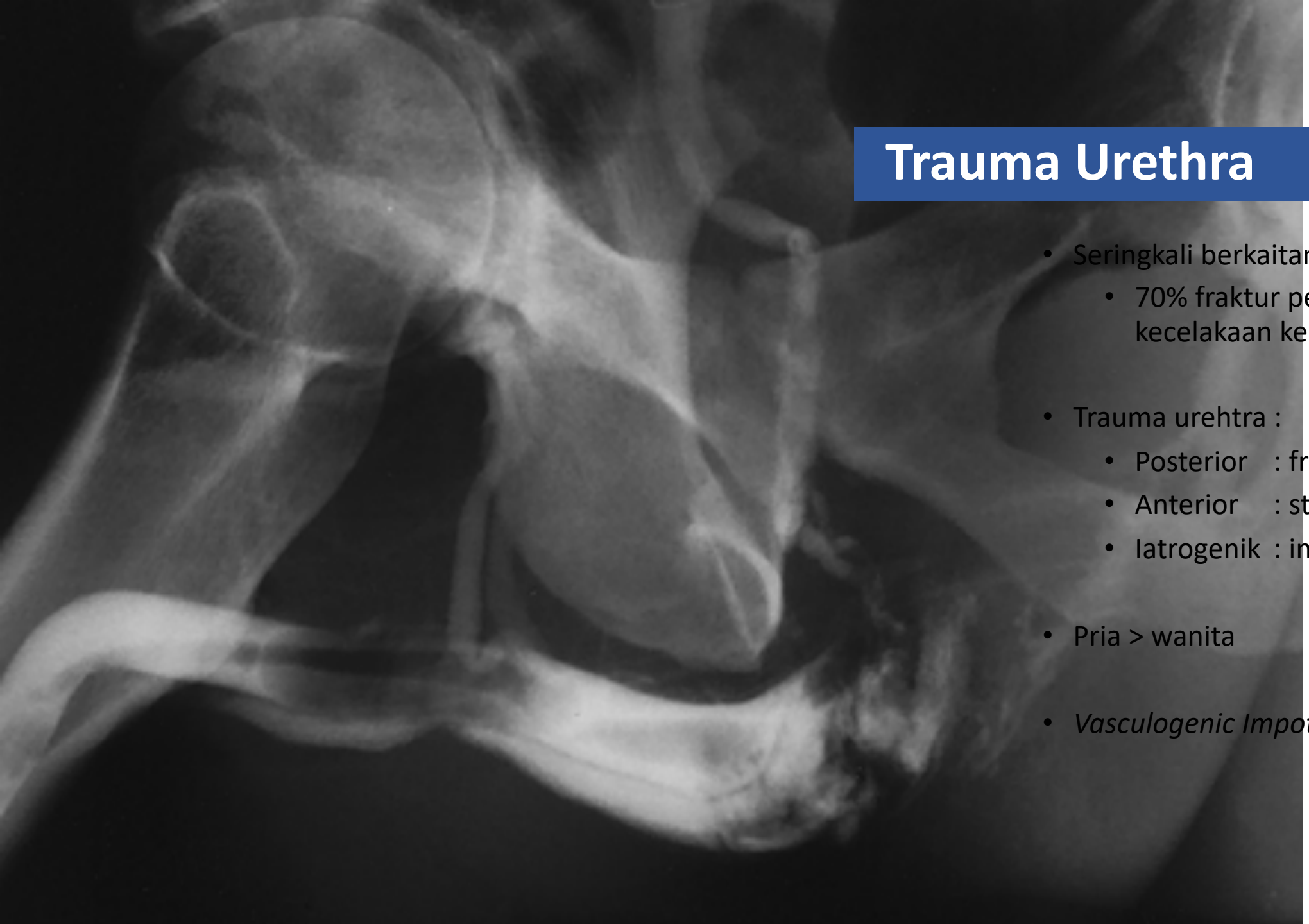
Tatalaksana Trauma Buli-buli

- Ruptur buli extra peritoneal :
  - Pasang kateter
  - Non operatif management, kecuali ada ruptur dari leher buli-buli
- Ruptur buli intra peritoneal
  - Laparotomi eksplorasi
  - Repair buli
- Evaluasi sistografi 7-10 hari sebelum kateter dilepas

Tatalaksana Trauma Buli-buli







Trauma Urethra

- Seringkali berkaitan dengan fraktur pelvis
  - 70% fraktur pelvis diakibatkan karena kecelakaan kendaraan bermotor
- Trauma urehtra :
  - Posterior : fraktur pelvis
  - Anterior : straddle injury
  - Iatrogenik : instrumentasi urethra
- Pria > wanita
- *Vasculogenic Impotence* (10 – 20 %)

Trauma Urethra

- Anterior
- Posterior

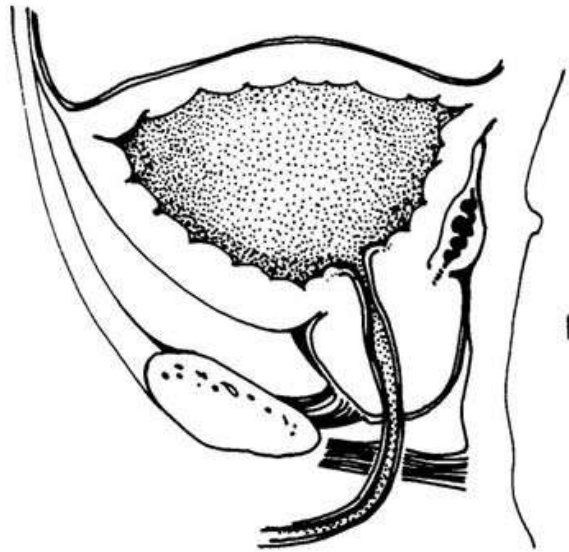
- Gambaran klinis
  - *Bloody urethal discharge*
  - Retensi urine
  - Floating prostate
  - Lakukan Uretrografi

tidak diperbolehkan memasang kateter uretra → kateter sistostomi

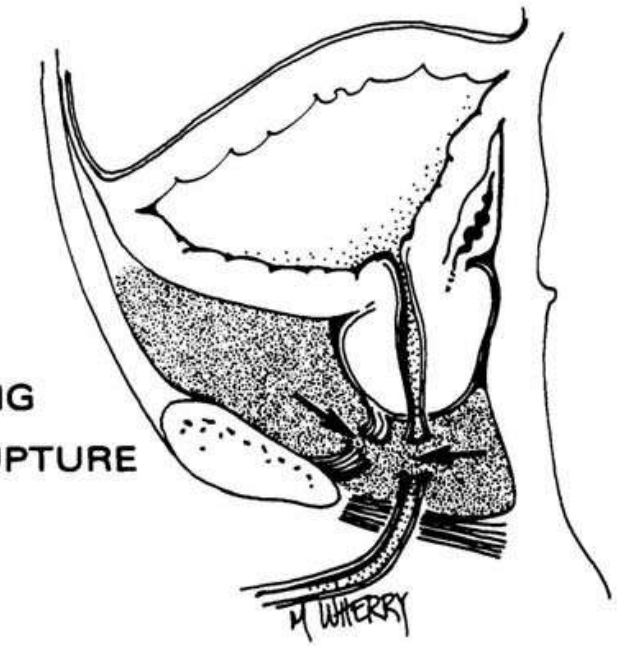
Trauma Urethra

Grade*	Injury type	Description of injury
I	Contusion	Blood at urethral meatus; retrography normal
II	Stretch injury	Elongation of urethra without extravasation on urethrography
III	Partial disruption	Extravasation of urethrography contrast at injury site with visualization in the bladder
IV	Complete disruption	Extravasation of urethrography contrast at injury site without visualization in the bladder; <2cm of urethra seperation
V	Complete disruption	Complete transaction with ≥2 cm urethral separation, or extension into the prostate or vagina

American Association for the Surgery of Trauma /AAST Scoring on urethral injury



NORMAL POSITION

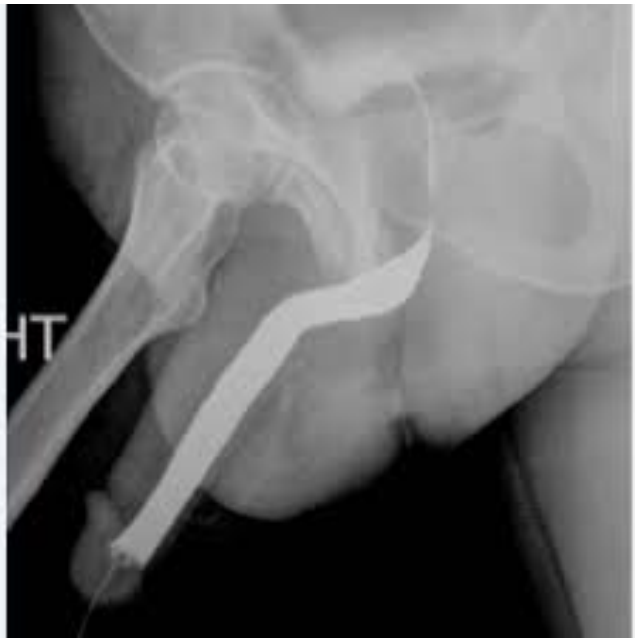


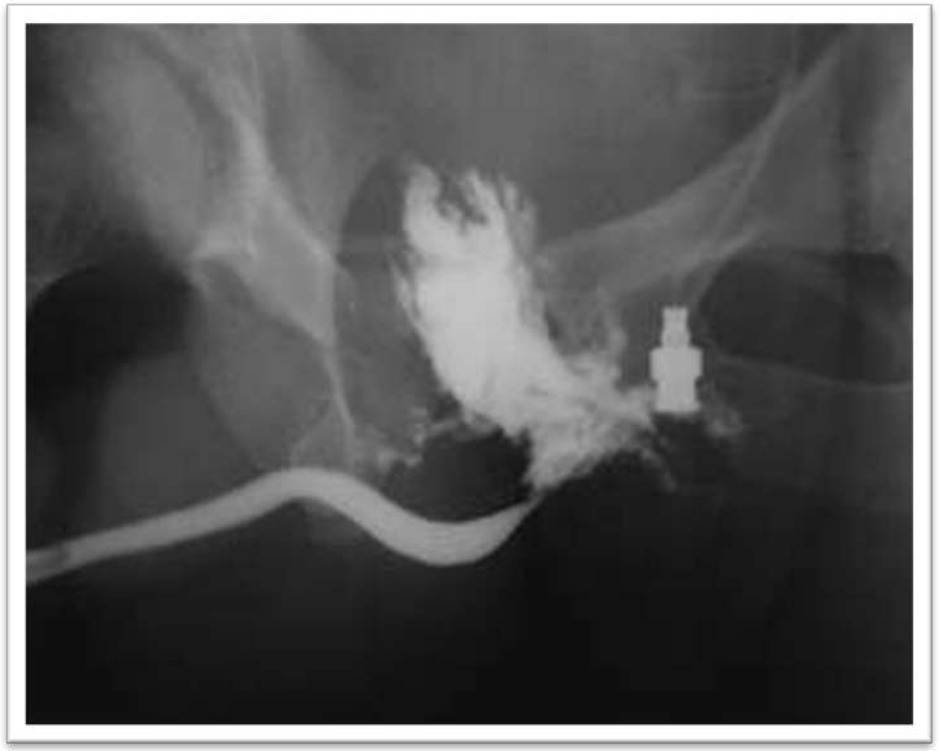
FOLLOWING
COMPLETE RUPTURE

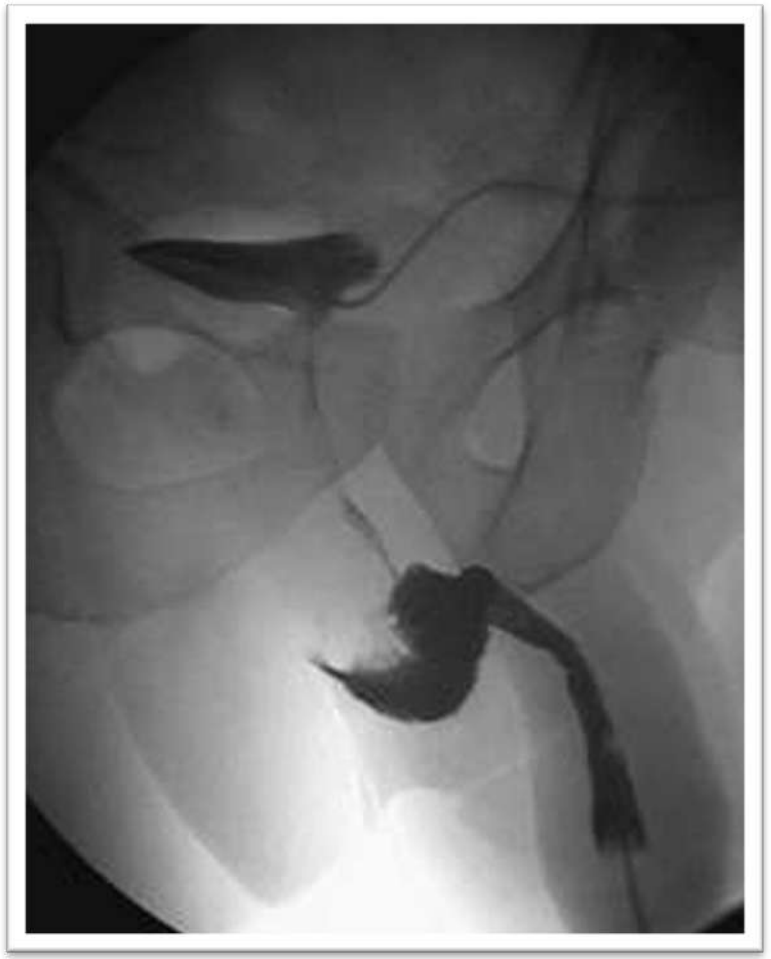
Trauma Urethra

Retrograde Urethrography

Normal RGU



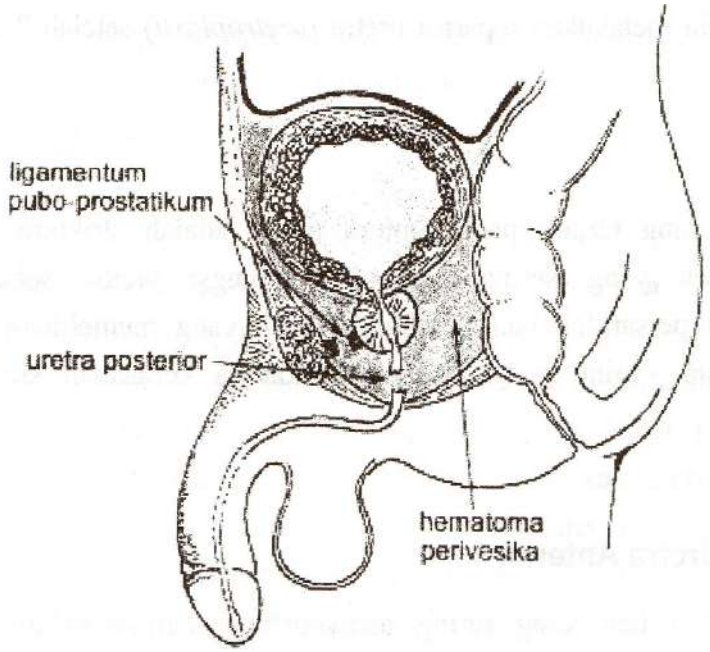




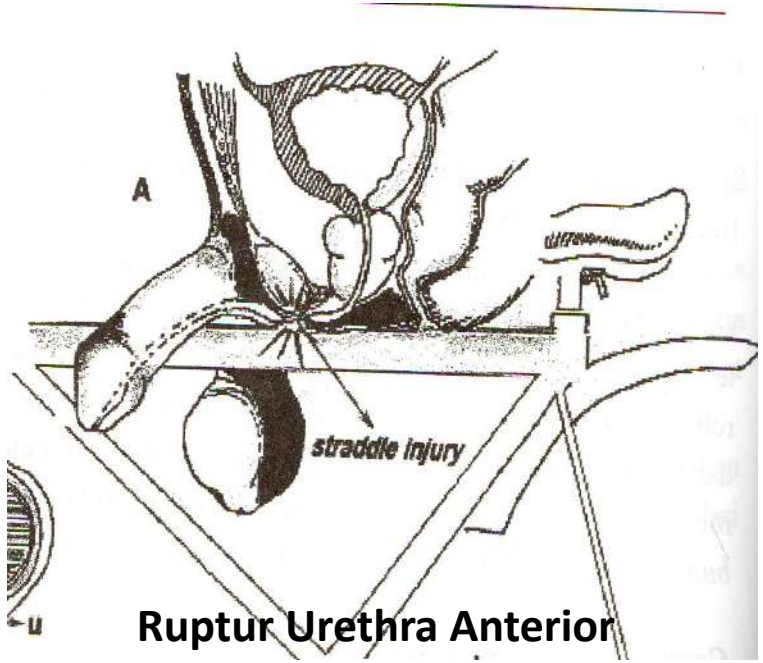
RGU in Urethral Trauma

Trauma Urethra

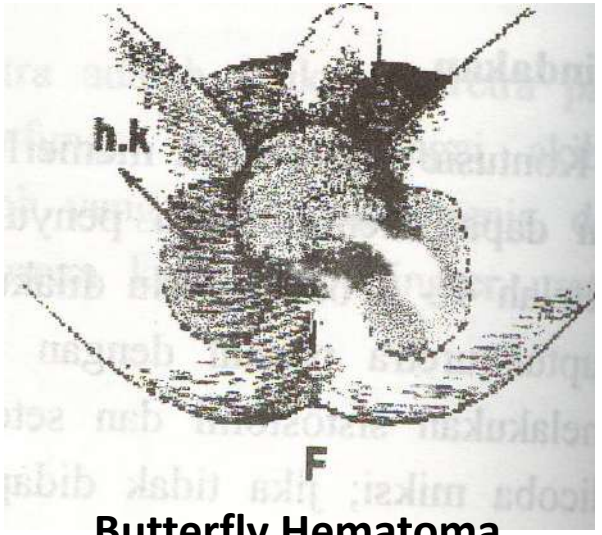
Gambar jenis/model ruptur uretra



Ruptur Urethra Posterior



Ruptur Urethra Anterior



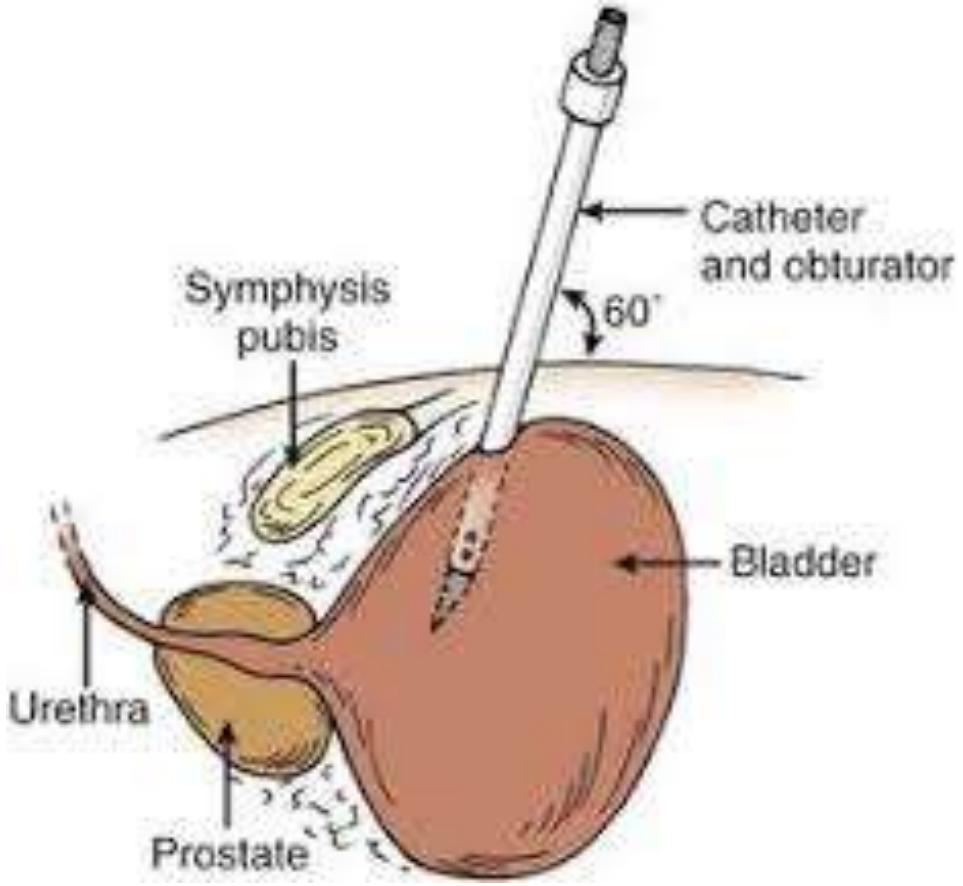
Butterfly Hematoma

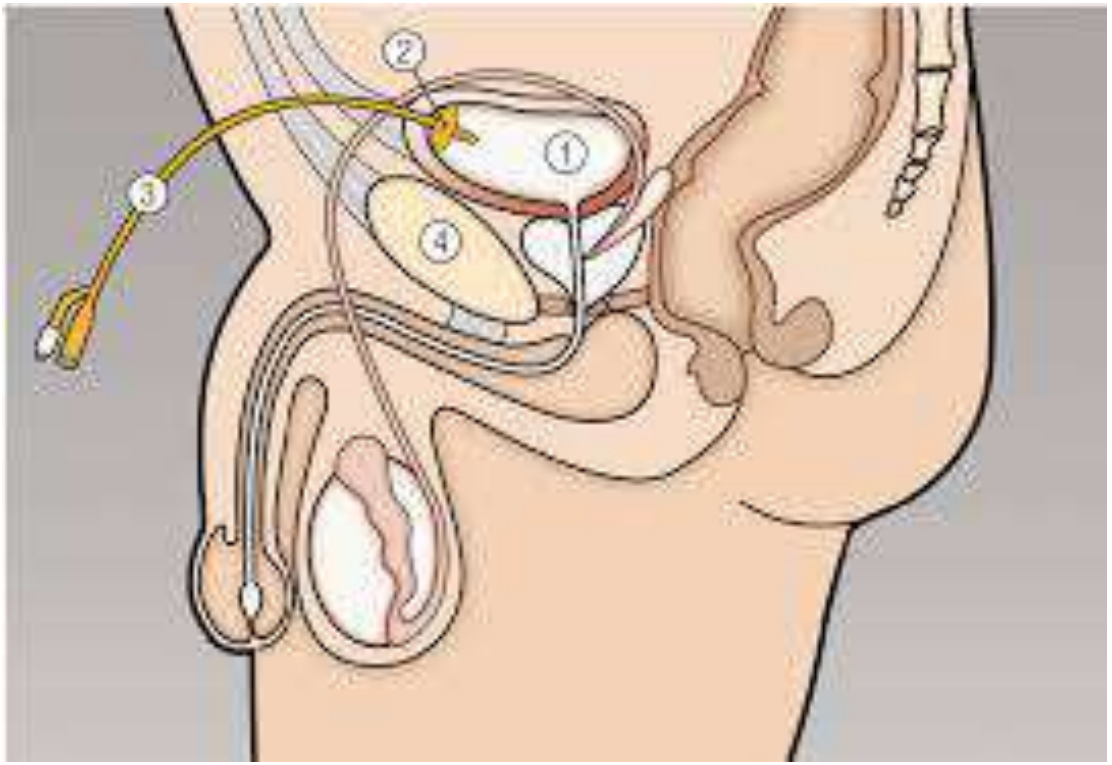
Trauma Urethra

Tatalaksana

- Awal : sistostomi → diversi urine
- *Early repair* (bila memungkinkan) :
  - Primary Endoscopic Realignment (PER) < 2 minggu pasca trauma
- *Delayed repair*
  - Posterior anastomosis, >3 bulan pasca trauma
- *Early definitive repair* → tidak direkomendasikan

Gambar pemasangan kateter sistostomi





Trauma Urethra

- Trauma urethra memiliki konsekuensi jangka panjang → striktur urethra
  - Angka kekambuhan tinggi
  - Kualitas hidup menurun
  - Penatalaksanaan yang sulit

- Jangan melakukan pemasangan kateter bila dicurigai adanya ruptur urethra
  - Fraktur pelvis
  - Bloody meatal discharge
  - Floating prostate
  - Retensi urine

Kegawatan Non Trauma

- Retensi urine
- Priapismus
- Strangulasi
- Hematuria
- Urosepsis
- Obstruksi urine

Urinary Retention : Etiology

Men:

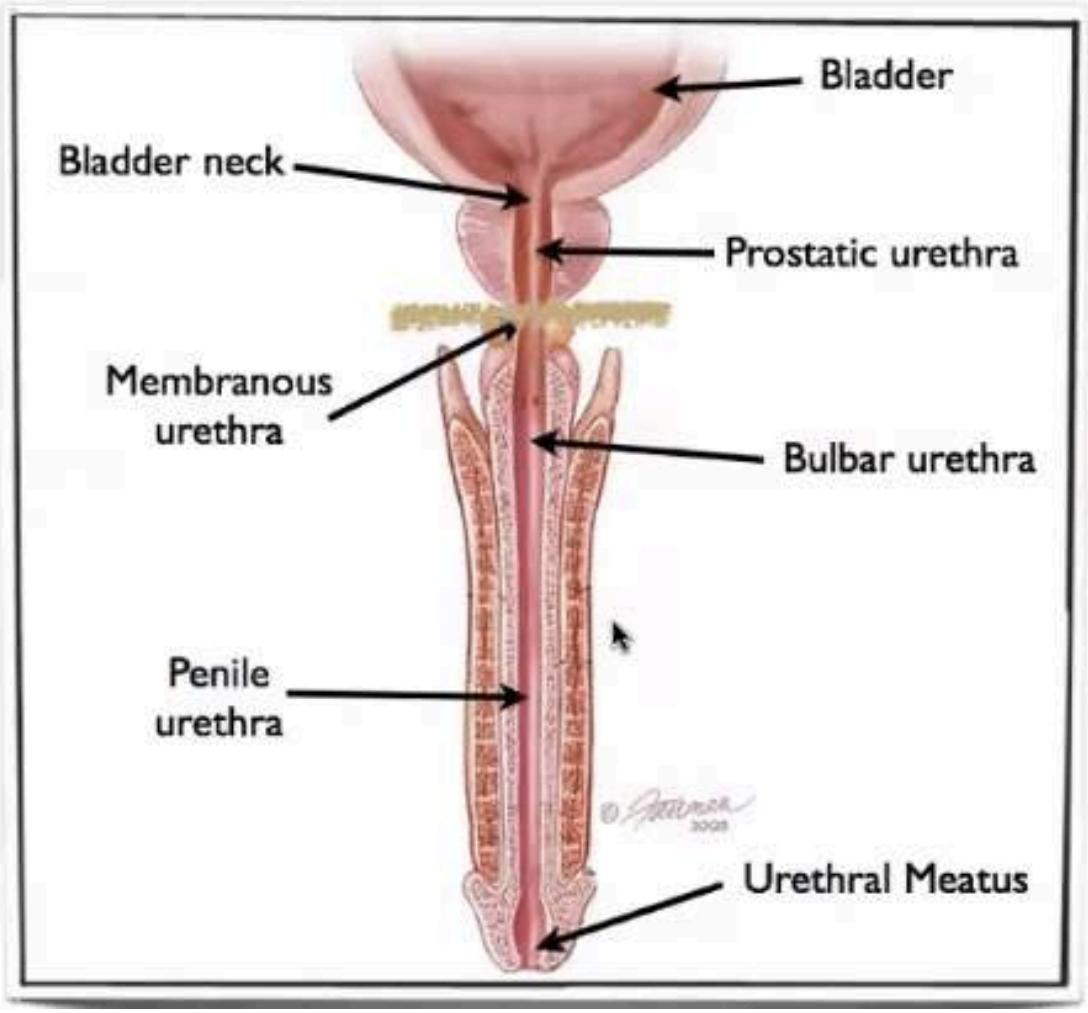
- Benign prostatic enlargement (BPE) due to BPH
- Carcinoma of the prostate
- **Urethral stricture**
- Prostatic abscess

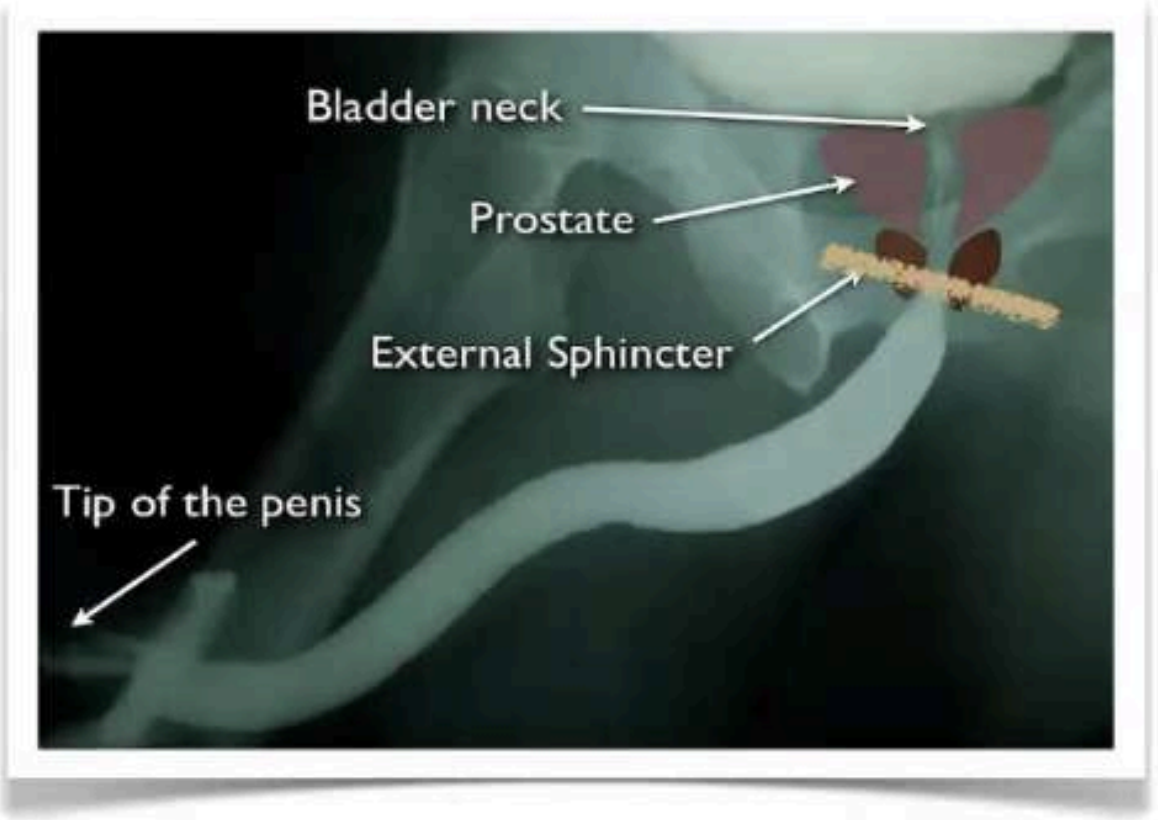
Women:

- Pelvic prolapse (cystocoele, rectocoele, uterine)
- Urethral stricture
- Urethral diverticulum
- Post surgery for 'stress' incontinence
- Pelvic masses (e.g ovarian masses)

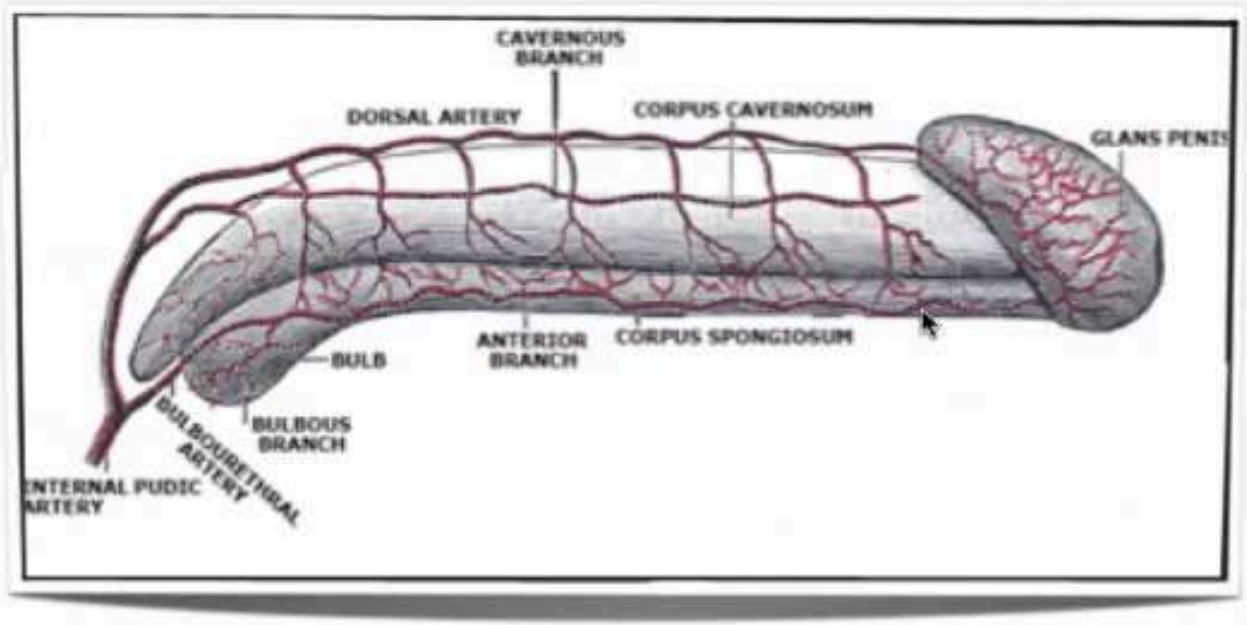
Urethral Stricture

BASIC : Anatomy

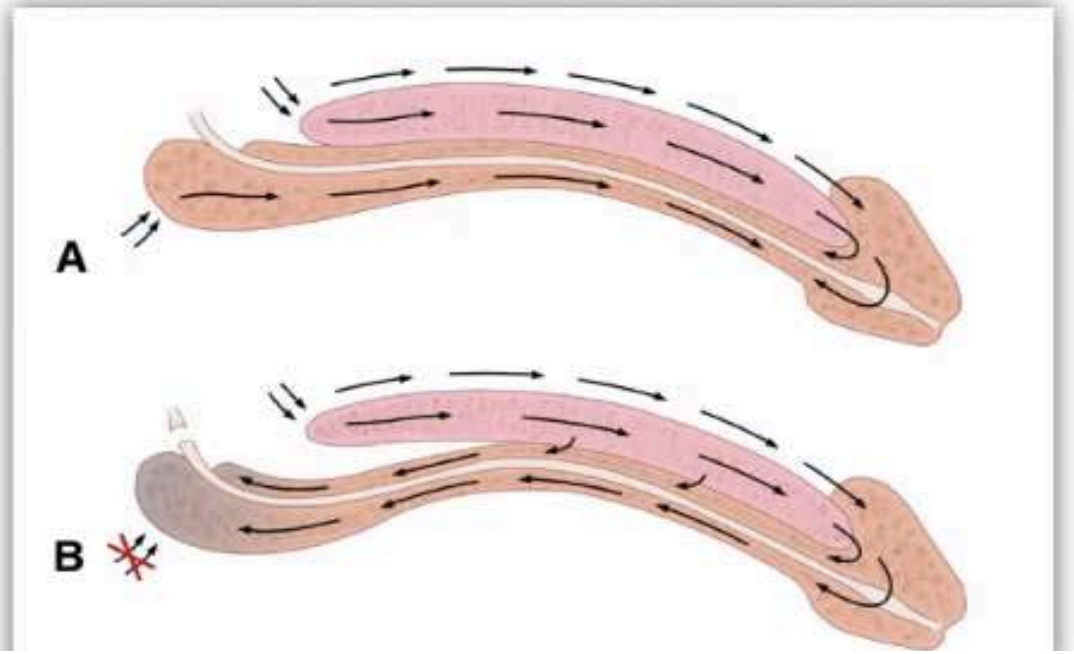




Urethral Stricture



Penile Vascularization

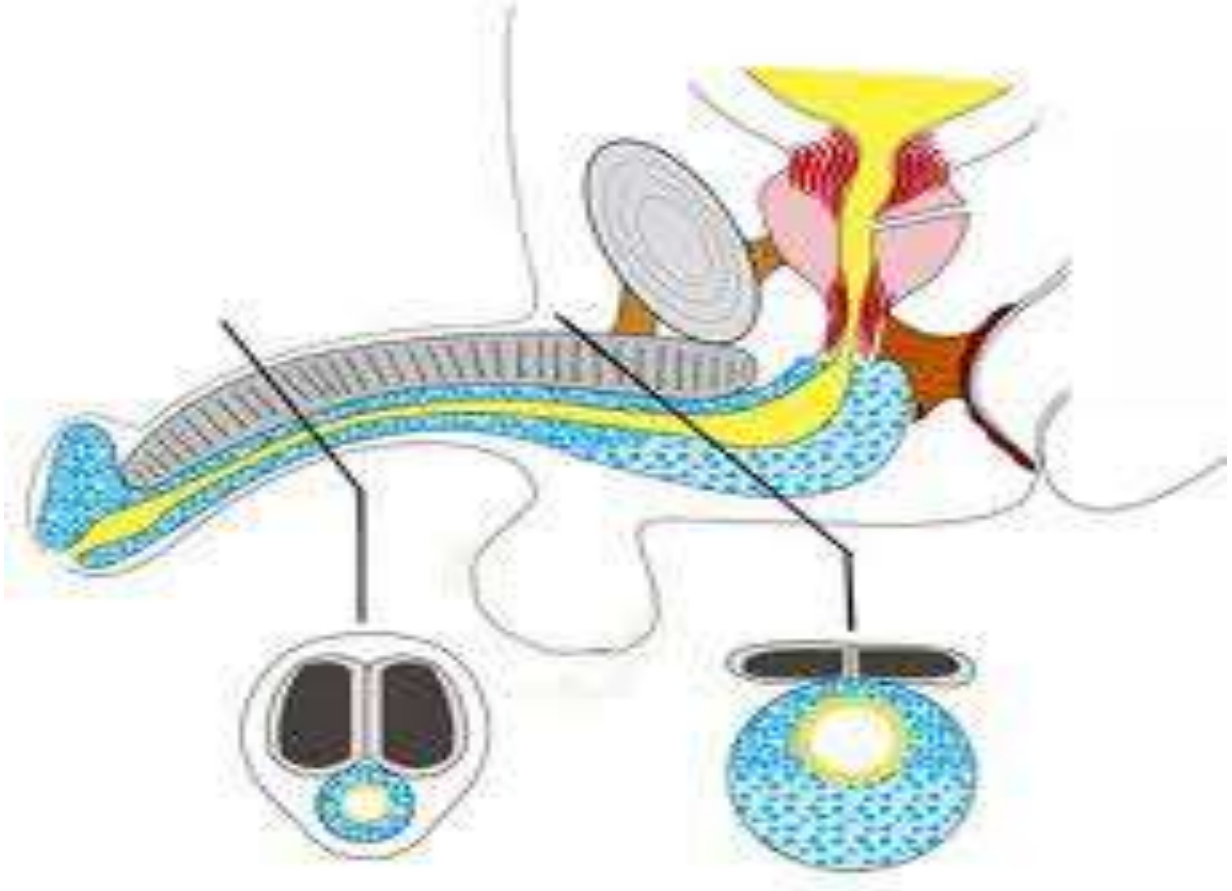


Abdominal aorta → Common illiac artery → internal illiac artery → Internal Pudendal artery → Common Penile artery → cavernosal, dorsal penile, bulbourethral artery

- Cavernosal artery, dorsal penile artery (circumflex artery)→ retrograde fashion
- Bulbourethral artery → antegrade

Urethral Stricture

Corpus spongiosum

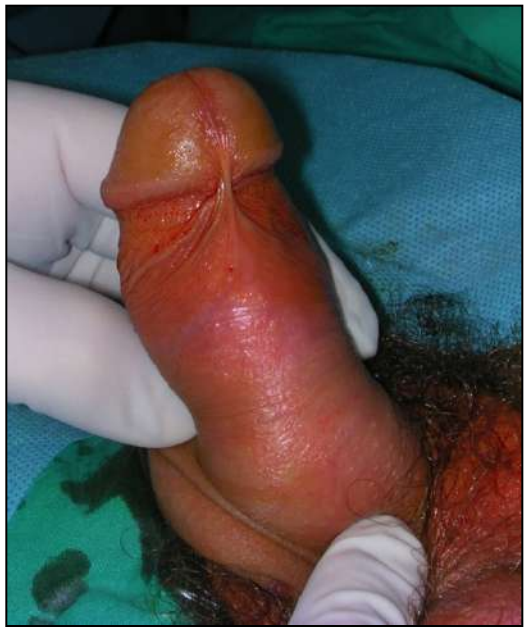


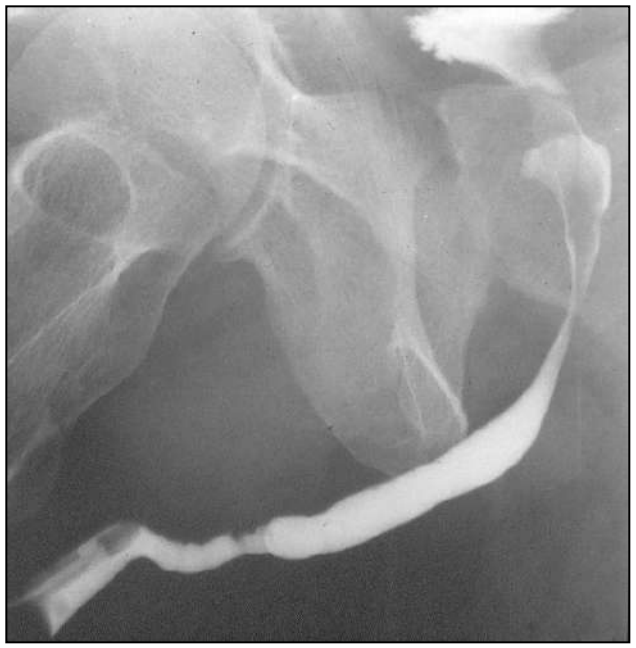
- Urethral Stricture → Spongiofibrosis → anterior urethra
- Stenosis → Posterior urethra
- Thickness of spongiosum body → thinner towards external urethral orifice (MUE) and thicker toward proximal bulbar (near external sphincter)

Urethral Stricture : Etiology

- Lichen sclerosus (never use LS skin for urethroplasty)
- Urethritis
- Instrumentation
- Trauma
- Failed hypospadias repair
- Idiopathic

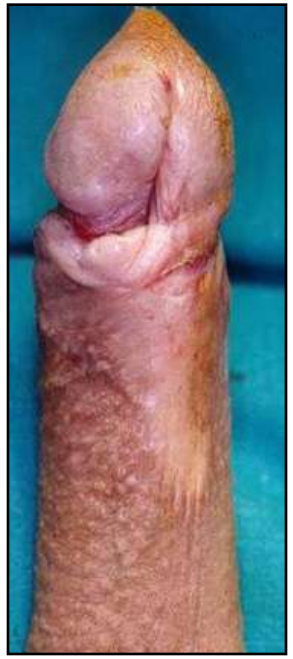
Simple urethral stricture

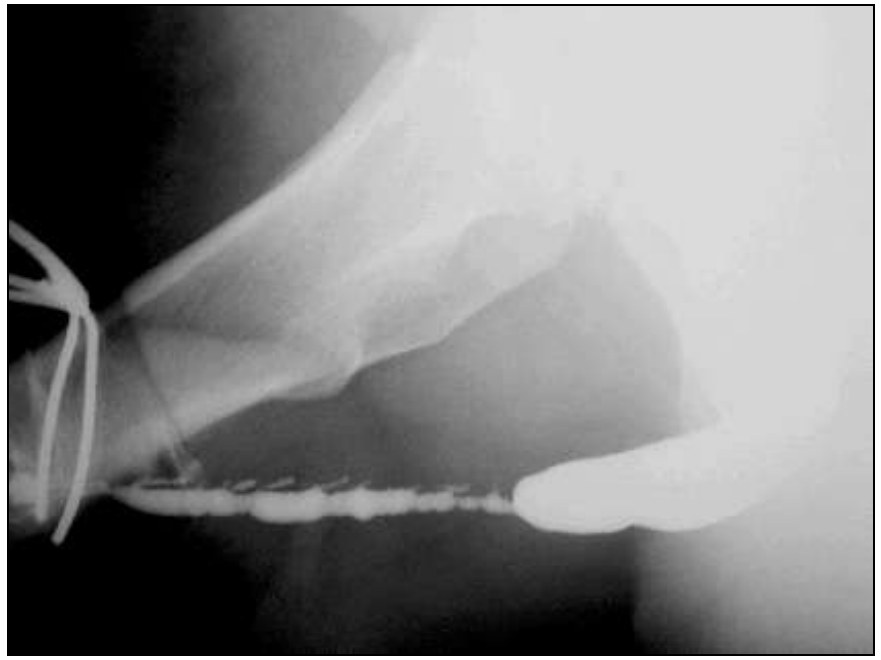




1. The penis and genitalia are normal
2. Reasonablee urethral plate
3. No failed hypospadis repair
4. No prior failed urethroplasty

Complex urethral stricture





1. Failed hypospadias repair
2. Prior failed urethroplasty
3. No practicable urethral plate

Urinary Retention

Inability to empty the bladder to completion

Acute (AUR)

Precipitated

Triggered by events:

- Surgical procedures
- Excessive fluid intake
- Bladder overdistension
- Urinary tract infections (UTIs)
- Prostatic inflammation
- Excessive alcohol intake
- Use of drugs with sympathomimetic or anticholinergic drugs

Spontaneous

No triggering event:

Associated with benign prostatic hyperplasia (BPH) and is regarded as a sign of progression

Chronic (CUR)

(refer to detrusor pressure at the end of micturition)

High Pressure

Bladder outlet obstruction

↓

Raised bladder pressure

↓

Backward pressure during storage and voiding

↓

Hydronephrosis

Low Pressure

Large-volume retention with no hydronephrosis or renal failure

Urinary Retention : Management

Initial

Urethral Catheterization

Contraindication: Urethral Injury

Suprapubic Catheterization

Percutaneous

If urethral catheterization was failed dt:
urethral stricture
urethral rupture
Impacted urethral stone

CONTRAINDICATION
All patient with:
Scar and fibrotic
Suspicious of bladder malignancy
Unclear cause of gross haematuria

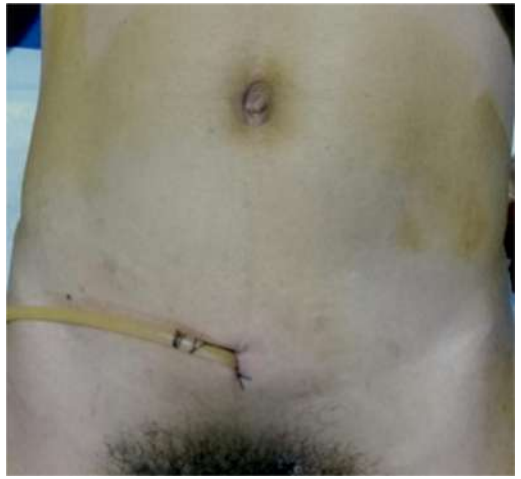
Open

Suspicious of abnormal anatomy of bladder (operation scars, high riding of prostate)

CONTRAINDICATION
All patient with:
Suspicious of bladder malignancy
Unclear cause of gross haematuria

Late

Treating the underlying cause



URETHRAL STRICTURE MANAGEMENT ALGORITHM

InaGURS

ANTERIOR STRICTURE

TRAUMATIC

- End to End Anatomosis
- Augmented Anastomosis

NON-TRAUMATIC

BULBAR

1 attempt of DVIU / Dilatation

PROXIMAL

One Stage Repair BMG

- Ventral Onlay
- Dorsal Inlay
- Dorsal Onlay (Classic Barbagli, One Side Dissection Kulkarni)
- Double Face (Dorsal Inlay with Ventral Onlay, Dorsal Onlay with Ventral Inlay)
- Non Transecting

DISTAL

One Stage Repair BMG

- Dorsal Onlay (Classic Barbagli, One Side Dissection Kulkarni)
- Dorsal Inlay (Asopa)

PENILE

SIMPLE

One Stage Repair BMG

- Wide Urethra → Dorsal Inlay (Asopa)
- Dorsal Onlay (Classic Barbagli, One Side Dissection Kulkarni)

COMPLEX

Two Staged Repair

- Johansson Staged Repair
- Dorsal Inlay BMG (Asopa) Second Stage

POSTERIOR STRICTURE / STENOSIS

TRAUMATIC

End to End Anastomosis

- Simple Anastomosis
- Crural Separation
- Inferior Pubectomy
- Suprapubic Approach (Posterior Pubectomy, Omental Wrap)

Urethral Stricture : Management

Urethrotomy/dilatation

- Anterior :
  - Short
  - Simple (non obliterted)
  - Primary
- Posterior :
  - No urethrotomy

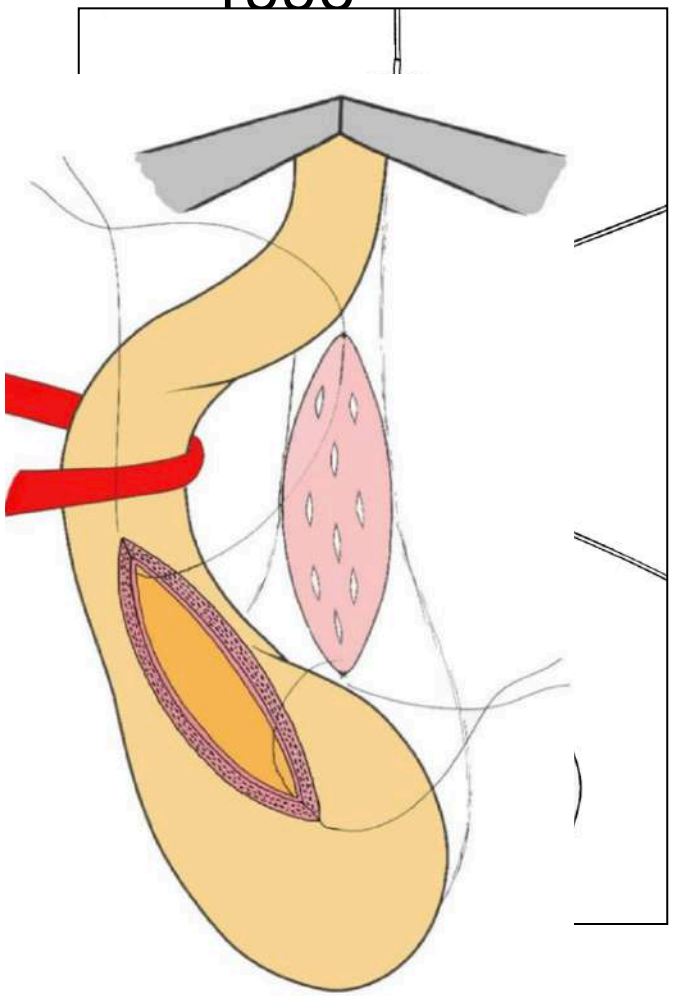
Santucci, 2009 :

- Long term success for 1st urehtrotomy : 9%
- Second : close to 0

Urethral Stricture : Management

Barbagli

1996

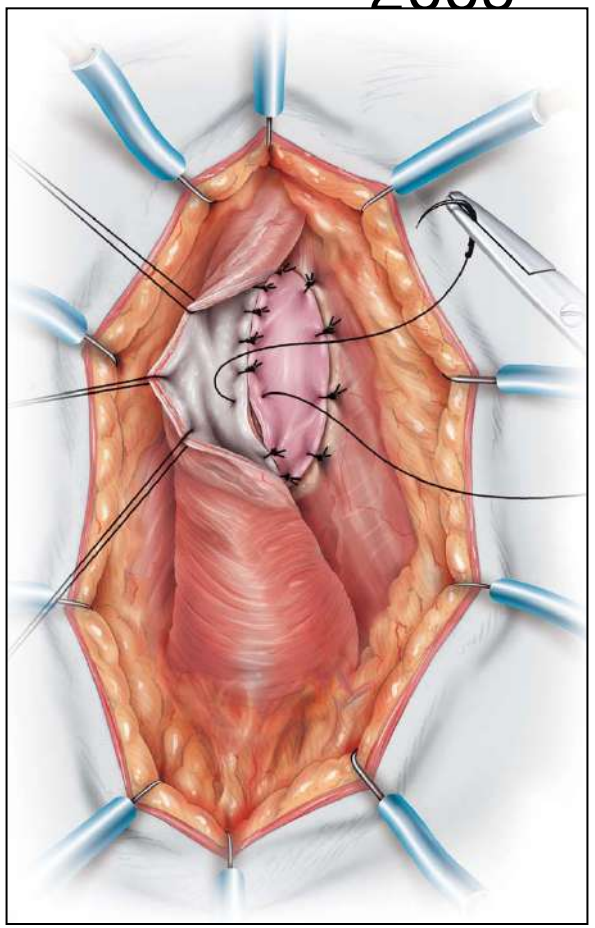


Asopa

2001

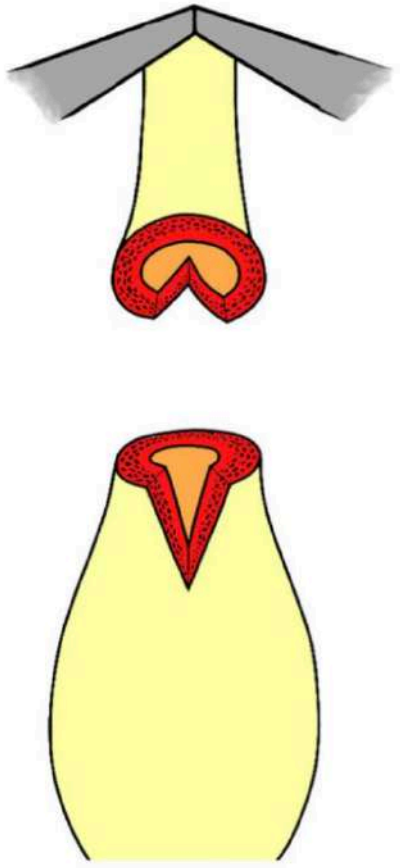
Kulkarni

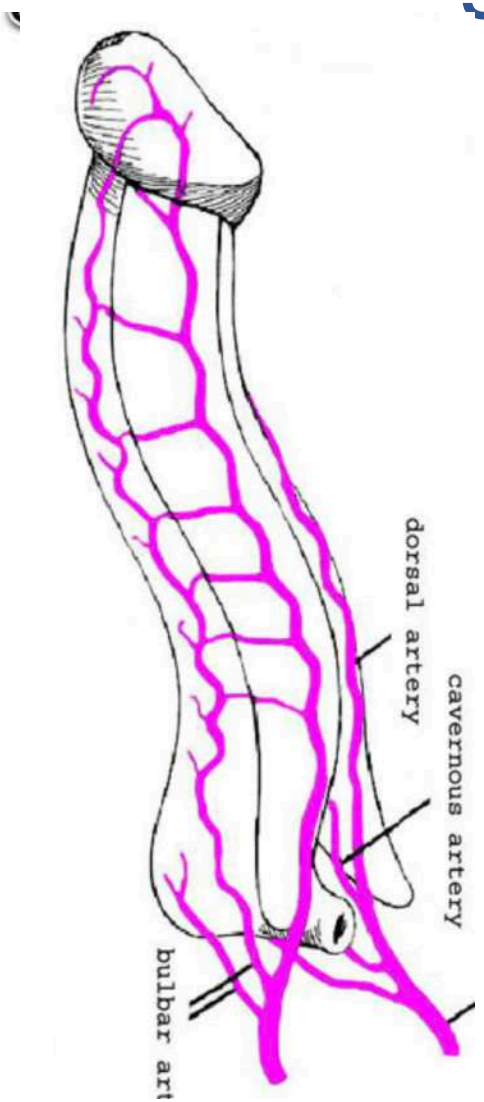
2009

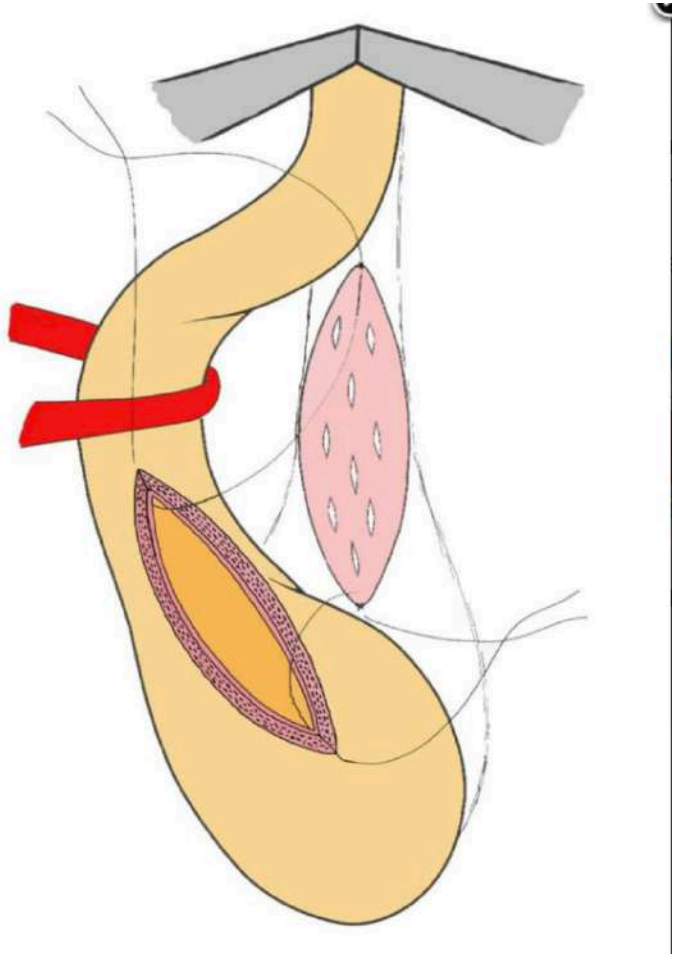


Urethral Stricture : Management

Anastomosis Vs Augmentation



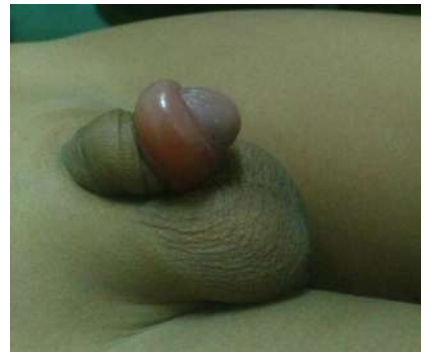


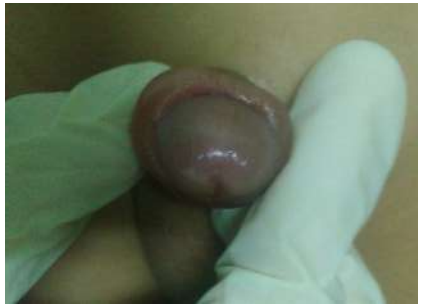


Paraphimosis

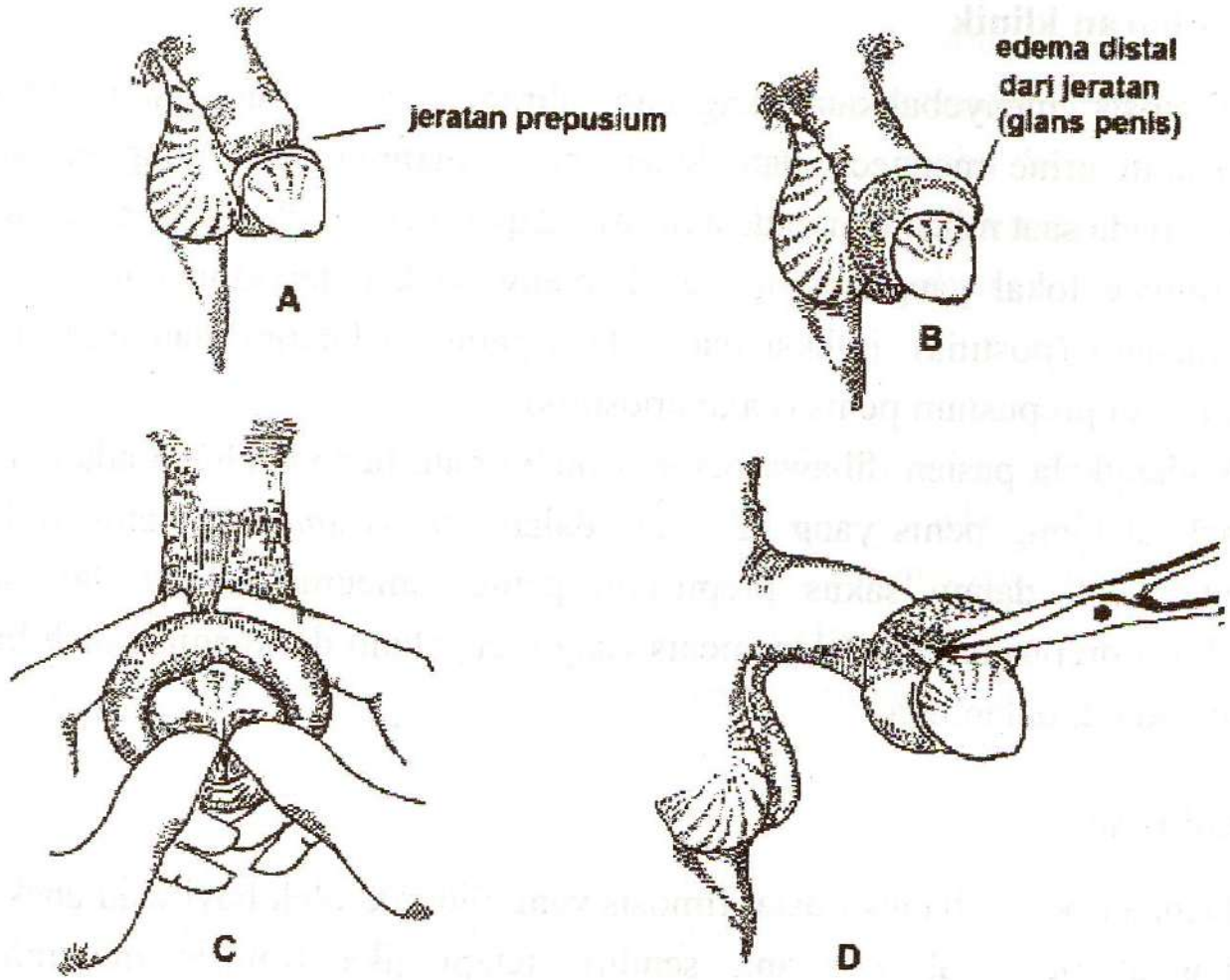
The foreskin becomes trapped behind the glans penis, and cannot be reduces

- Manual reposition → massage glans
- Dorsumsisi/circumcision





Paraphymosis



Gbr 8-1 : Parafimosis : A. Menimbulkan jeratan prepusium pada sulkus koronarius, B. Timbul edema, C. Reposisi manual, D. Dorsumsisi

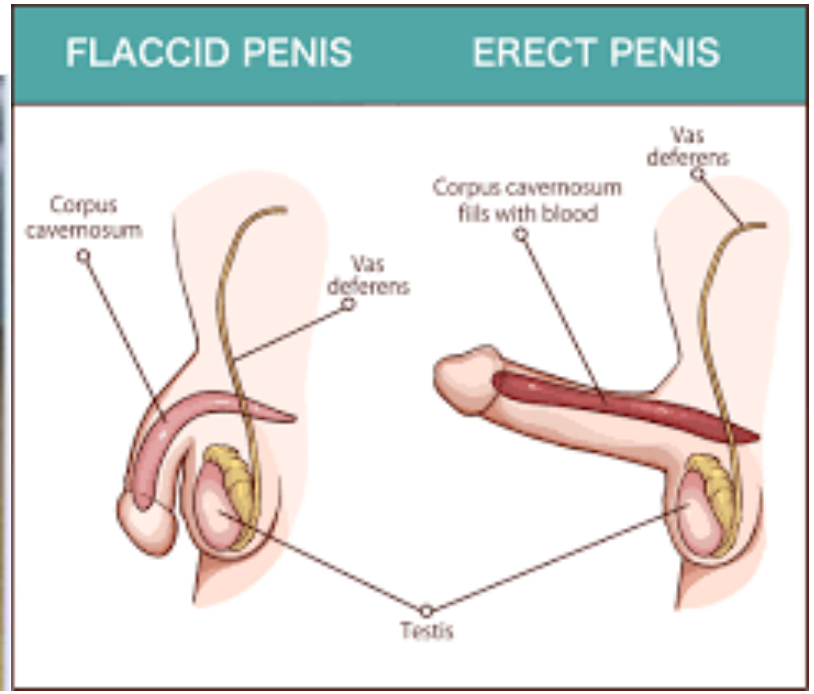
Paraphymosis : Management

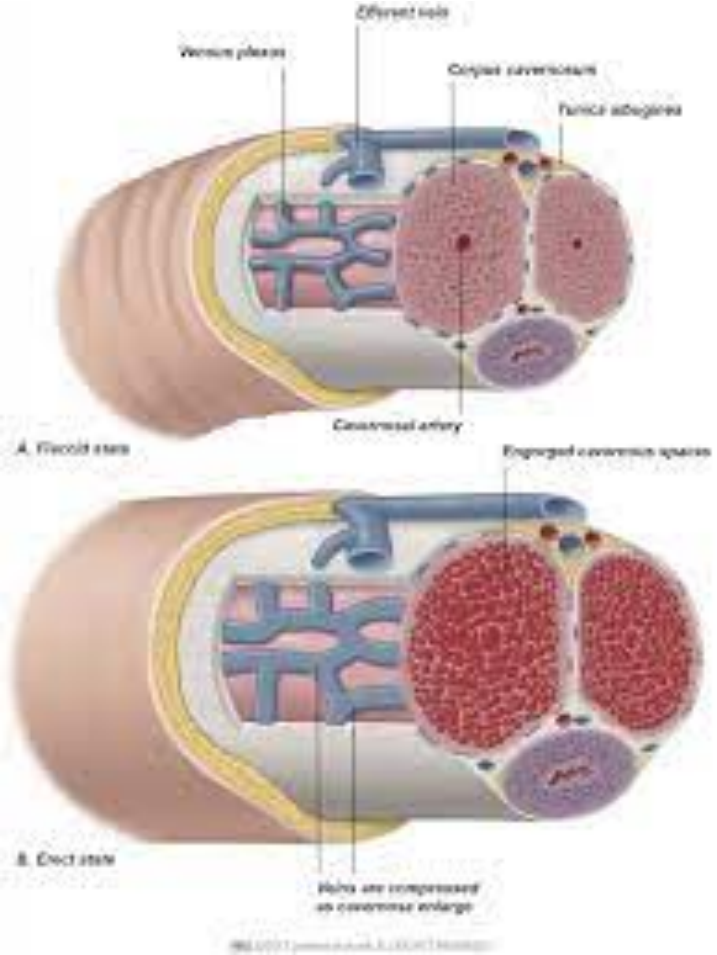
- Manual Reduction
- Medical therapy : Hyaluronidase agent injection
- Minimal invasive : puncture technique
- Surgical : dorsal slit

Priapismus

- Priapism is an erection of the penis that lasts for more than 4 hours without physical and mental stimulation.
- It develops when blood becomes trapped in the penis and is unable to drain.
- It is often painful.
- Priapism is relatively rare in general (less than 1 case per 100 000 people each year).

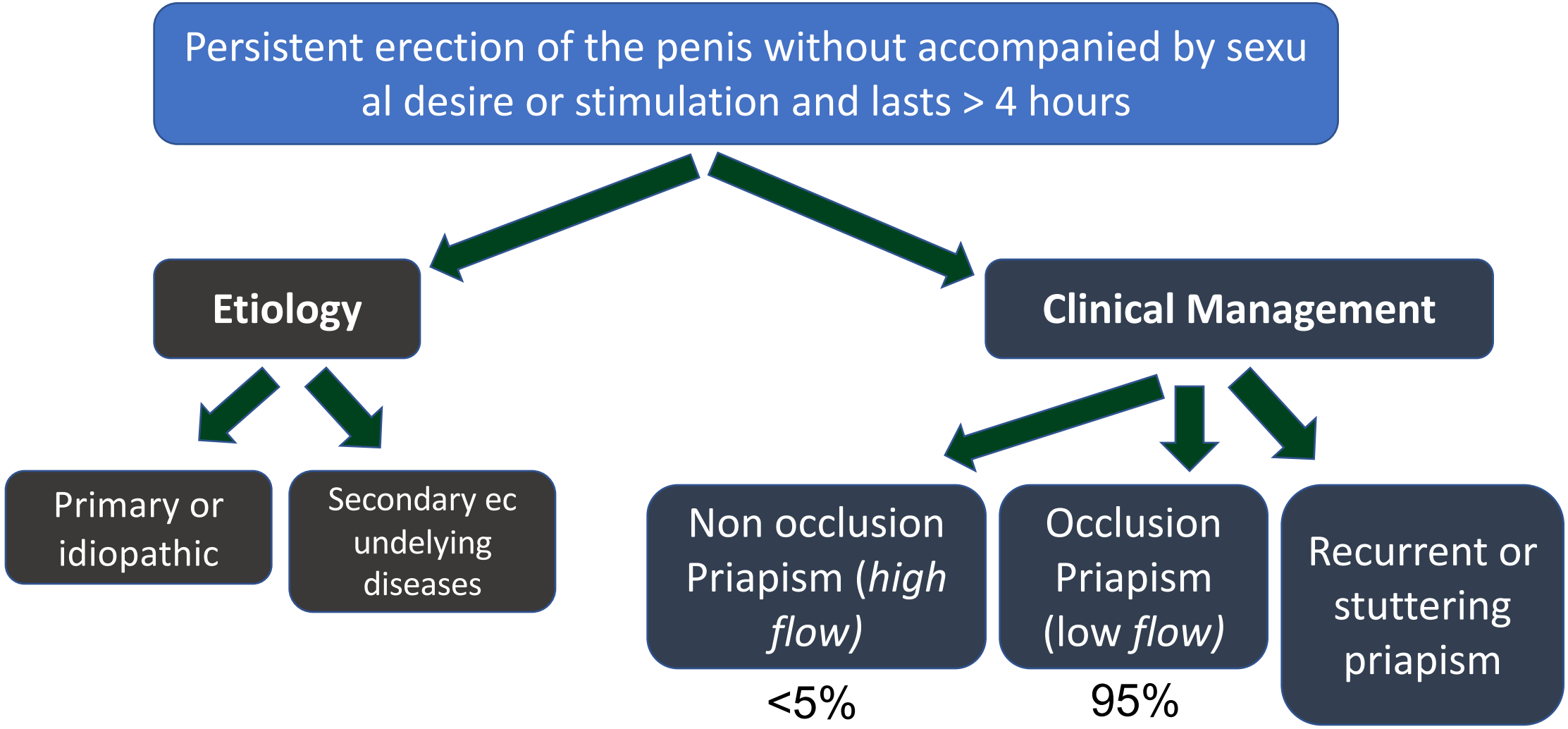
Priapismus





EAU . 2021

Priapismus



Mc Aninch J, et al, 2013, Disorders of the penis & male urethra. In: Tanagho EA, Mc Aninch J, editors, Smith's General Urology. 18th Edition.

Priapismus

Non occlusion Priapism (*high flow*)

- Caused by unregulated cavernous arterial inflow
- Disruptions of the cavernous arterial supply (injury), arterial aneurysm, arterio-venous fistula, iatrogenic needle injury, pelvic trauma

Occlusion Priapism (low *flow*)

- Most commonly observed in patients with Sickle cell anemia
- Decreased or absent cavernous blood flow, corporal rigidity, and pain
- Enclosed cavernosal space and compressed circulation
- Increased pressure → compartment-like syndrome

Recurrent or stuttering priapism

- Repeated episodes of ischemic priapism with intervening periods of detumescence

Mc Aninch J, et al, 2013, Disorders of the penis & male urethra. In: Tanagho EA, Mc Aninch J, editors, Smith's General Urology. 18th Edition.

Priapismus

Occlusion Priapism (low *flow)*

History

- Prolonged pain
- Duration
- Onset
- Co-morbid (Sickle Cell Anemia or coagulation disorders)
- History of previous episodes
- Pharmacotherapy Alleviating maneuvers
- Prior treatments
- Previous erectile function

Physical examination

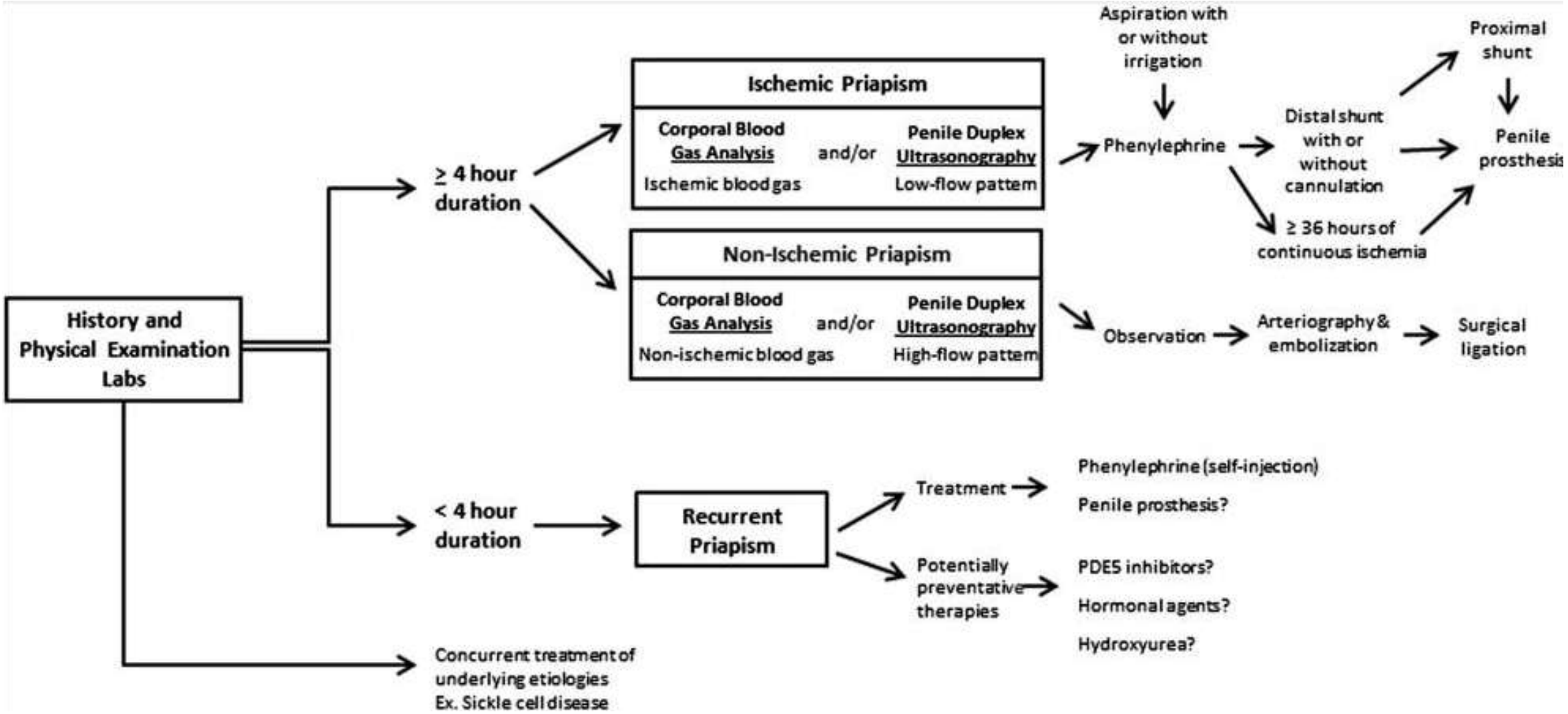
- Evaluation of the phallus by inspection and palpation to determine the extent of tumescence
- Rigidity and tenderness of the cavernosal bodies with absence of glans/penis
- Sign of trauma

Laboratory Testing

Corporal aspiration and blood-gas analysis from the priapic penis shows acidosis, hypoxia, and hypercapnia (pH <7.25, PO_2 <30 mm Hg, and PO_2 >6 mm Hg)

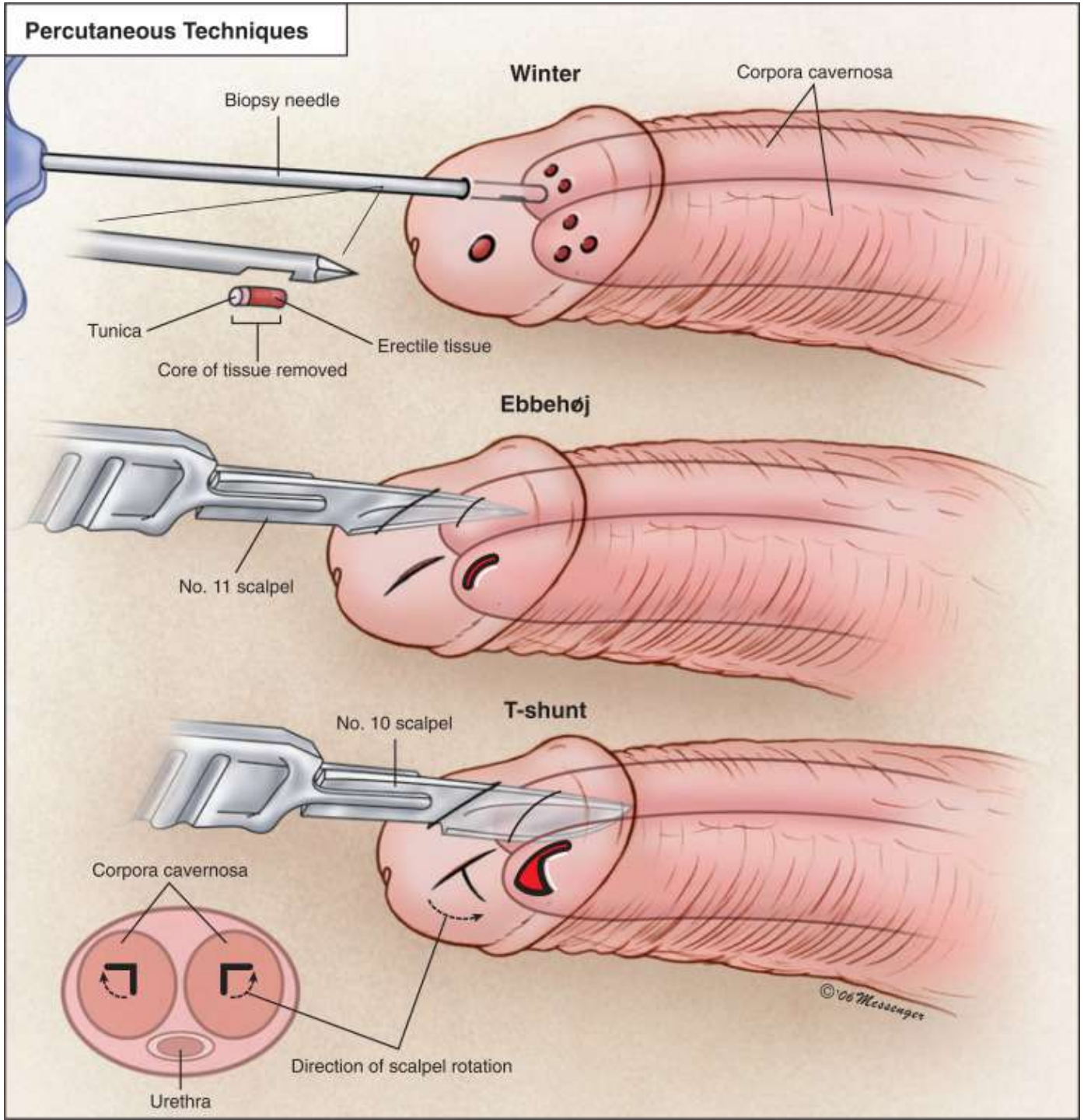
Anele UA, Le BV, Burnett AL. *How I Treat Priapism*. The American Society of Hematology. 2015. Jun 4;125(23):3551–58.

Priapismus



Anele UA, Le BV, Burnett AL. *How I Treat Priapism*. The American Society of Hematology. 2015. Jun 4;125(23):3551–58.

Priapismus Management



Broderick, G. A. *et al.* (2010) 'Priapism: Pathogenesis, Epidemiology, and Management', *The Journal of Sexual Medicine*, 7(1, Part 2), pp. 476–500. doi: https://doi.org/10.1111/j.1743-6109.2009.01625.x.


ANY QUESTIONS?