

Center for Reconstructive Urethral Surgery



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Tunisian Urological Society

European School of Urology

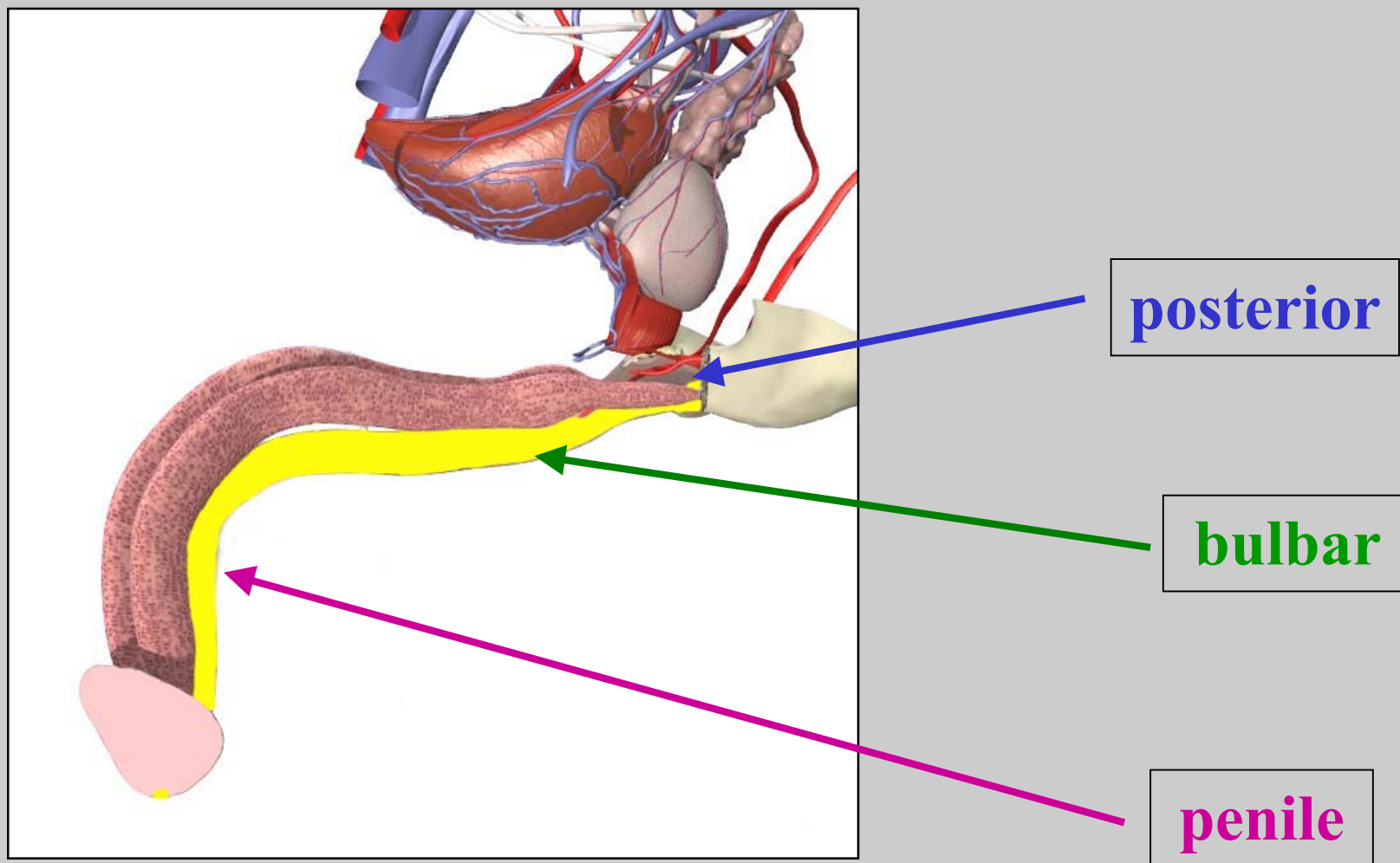
**Course on:
Evaluation of male sexual dysfunction and
urethral stricture surgery**

Tunis - Tunisia

May 29, 2009

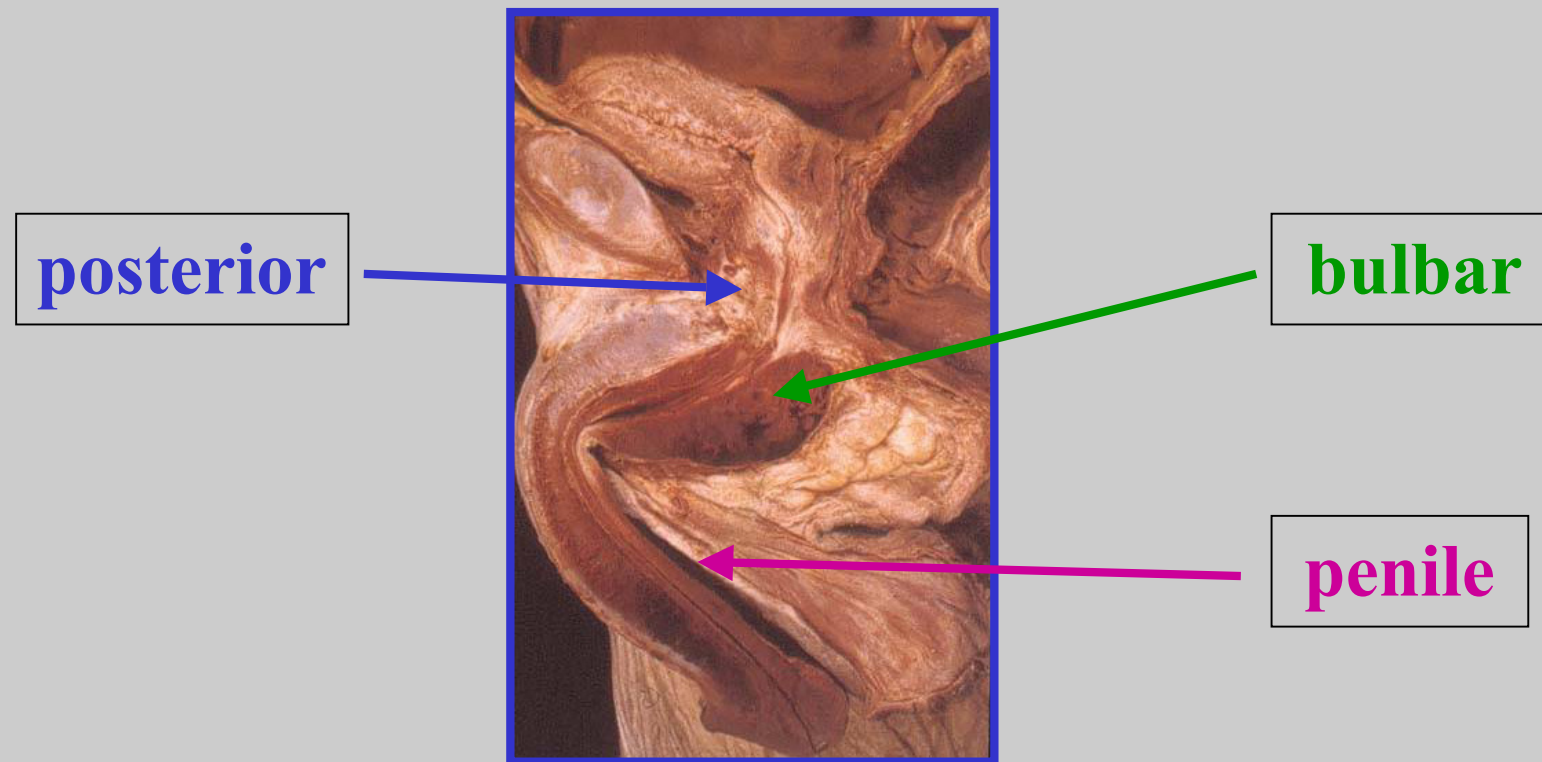
Management of urethral trauma

Anatomy of male urethra



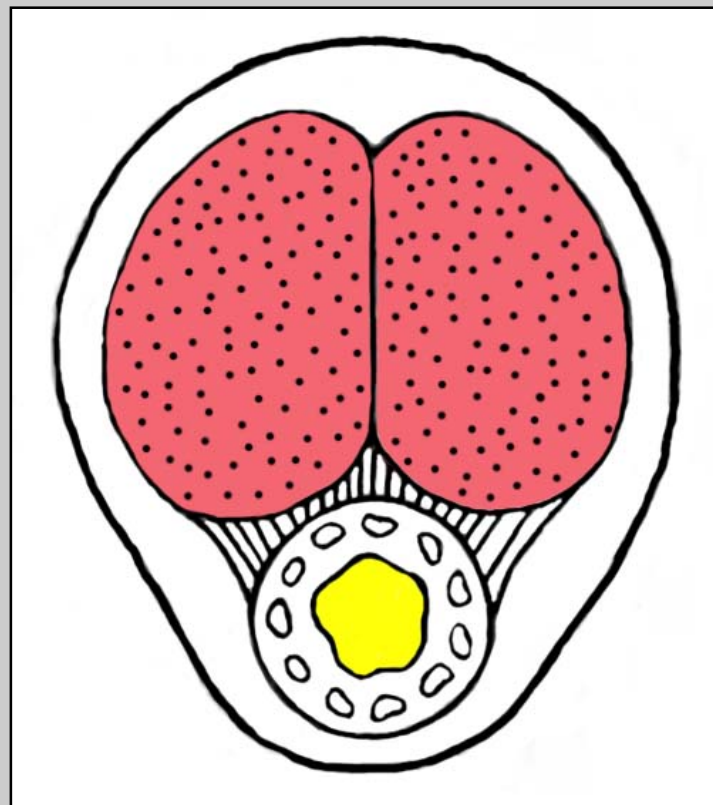
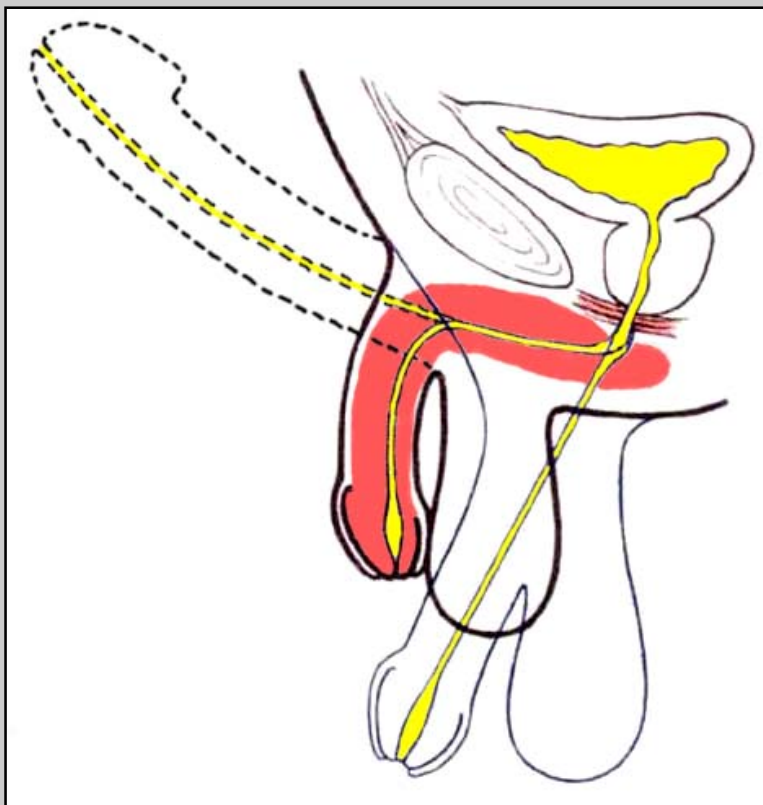
Urethral trauma

Etiology and treatment of urethral trauma are basically related and conditioned by the anatomical site of the primary injury



Penile urethral trauma

Penile urethra is mobile and close to the corpora cavernosa



Etiology of penile urethral trauma

Injury during sexual intercourse

Penetrating injury

Gunshot – stab wounds

Penile amputation or mutilation

Iatrogenic injury: penile surgery, instrumentation, constriction bands (paraplegics)



**Self-inflicted
Assault
Incidental**

Penile urethral trauma



Penile trauma are associated with urethral injury in 3 – 38% cases

Treatment of penile urethral trauma

Penile urethral trauma require immediate surgical exploration to repair corpora cavernosa and to carry out debridement

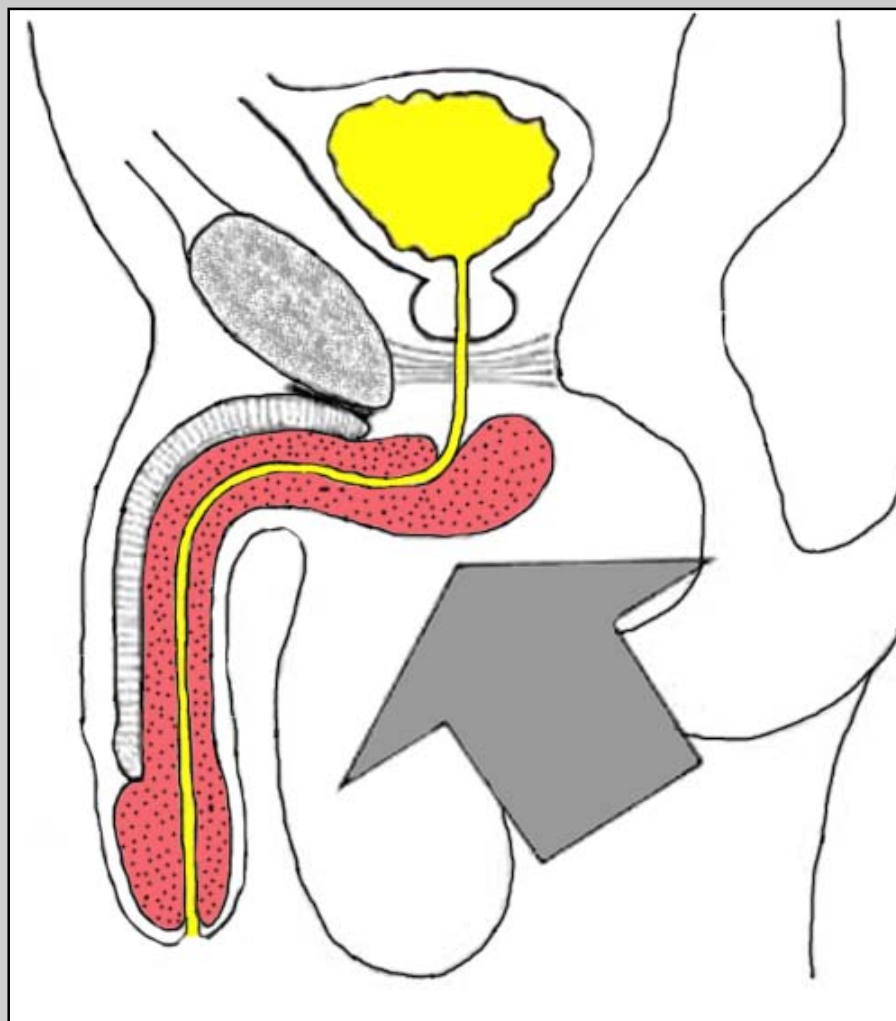
Urethral suture over catheter

Debridement of urethral edges and anastomosis

Two-stage repair

Penile reimplantation

Bulbar urethral trauma



Etiology of bulbar urethral trauma

Blunt perineal trauma

Gunshot – stab wounds

Iatrogenic injury: instrumentation

Treatment of bulbar urethral trauma

Bulbar urethral trauma require immediate surgical exploration only in selected cases:

Associated lesions (corpora cavernosa – testes – other)

Urethrorrhagia that cannot be stopped

Increasing haematoma

Treatment of bulbar urethral trauma

All patients with bulbar urethral trauma require immediate suprapubic urinary diversion



**Retrograde urethrography
may to overestimate the
extent of the urethral
trauma**

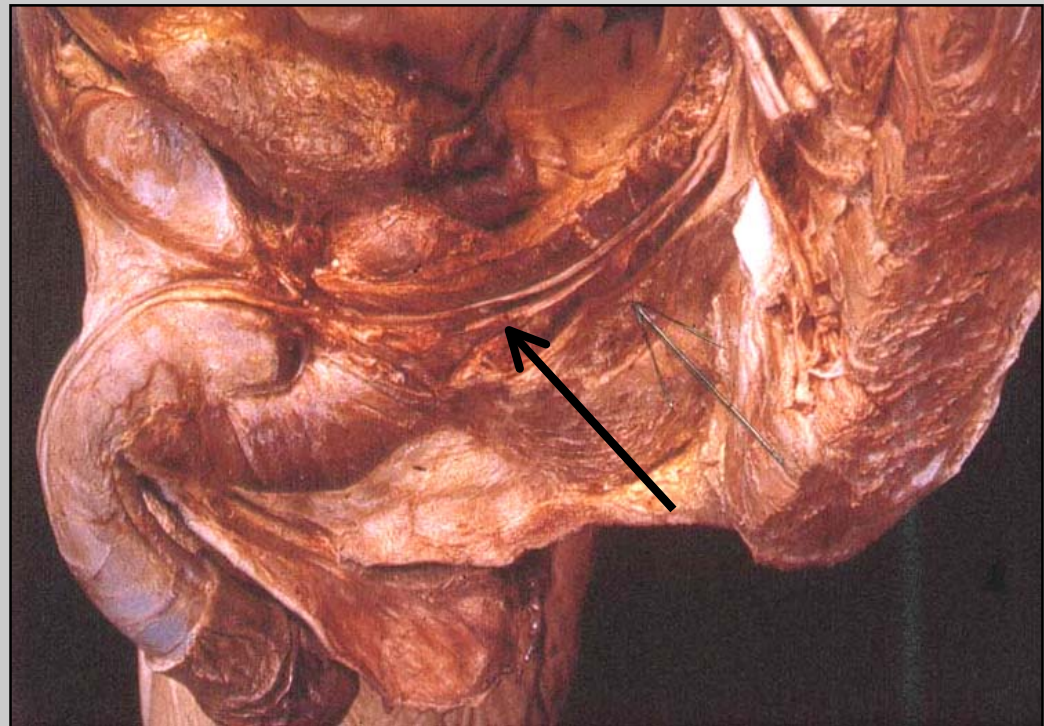
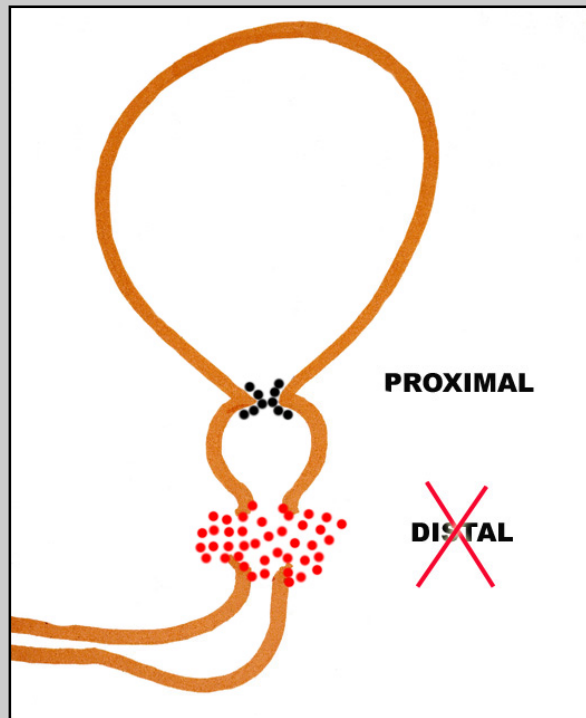
Treatment of bulbar urethral trauma

**All patients with bulbar urethral trauma require to be re-evaluated
15 days following trauma by voiding urethrography**



Posterior urethral trauma

Posterior urethra is fully involved in the mechanisms of urinary continence and penile erection



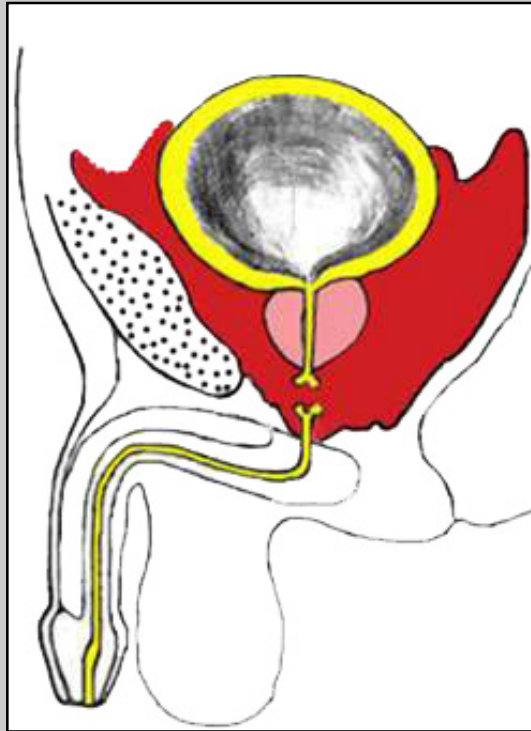
Etiology of posterior urethral trauma

Pelvic fracture

Iatrogenic injury: instrumentation - surgery

Gunshot wounds

Traumatic posterior urethral disruption

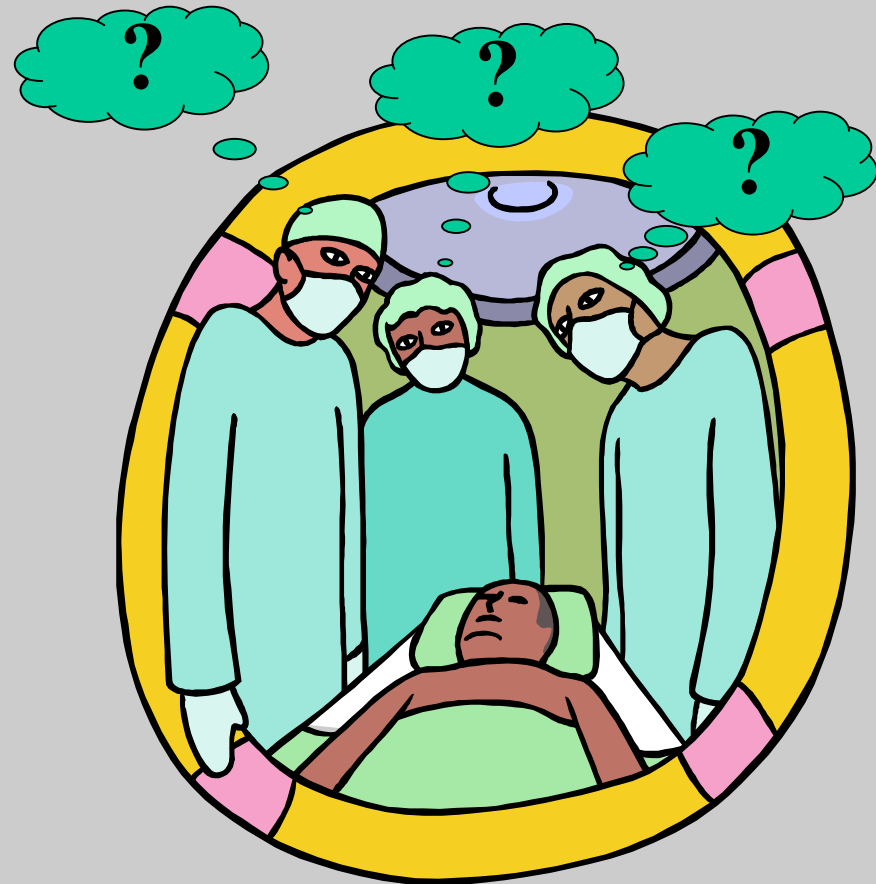


PFUDD

Pelvic fracture urethral distraction defects

Pelvic fracture urethral distraction defects PFUDD

- orthopedic surgeon
- general surgeon
- vascular surgeon
- thoracic surgeon
- **urologic surgeon**



Mr. Richard Turner-Warwick

**“... It is the urologist who will have to share, with the patient,
the burden of any residual urological disability
when the thoracic, the abdominal, and even the
orthopaedic aspects are probably long forgotten ”**

Urol Clin North Am 1989, 16: 335-358

Emergency treatment of posterior urethral trauma

suprapubic urinary diversion
immediate

endoscopic urethral realignment
7 – 15 days following trauma

delayed urethroplasty
4 months following trauma

Initial management of patient in the emergency room



Young urologists

Goal of the initial evaluation and management of the patient with PFUDD

The immediate concern, in the patient with PFUDD, is resuscitation of the patient to preserve life

Divert urine away from the site of injury

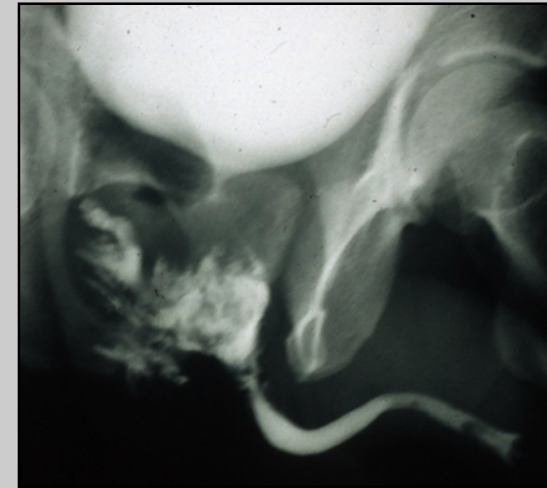
Preserve the residual sphincter mechanism at the bladder neck

Avoid jeopardizing sexual function residual to the trauma

Pelvic fracture urethral distraction defects



PFUDD



Diagnosis of posterior urethral disruption requires a high index of suspicion and should be excluded **before the urethral catheter is inserted !**

Pelvic fracture urethral distraction defects

PFUDD



- Blood at the external urethral meatus
- Inability to pass urine
- Palpable distended bladder
- Scrotal and/or perineal butterfly hematoma
- High-riding prostate on DRE

Pelvic fracture urethral distraction defects PFUDD

**Absence of these signs or symptoms does not exclude the
diagnosis of PFUDD !**

**Rectal examination helps to exclude a dislocated prostate,
but is more important as a tool to screen for rectal injury**

Pelvic fracture urethral distraction defects

PFUDD

Whilst clinical history and examination are important in the initial assessment of patients, imaging techniques should confirm the diagnosis

Imaging techniques

- Anteroposterior pelvic X-ray
- Abdominal and pelvic ultrasonography
- Retrograde urethrography

- Abdominal and pelvic CT scan

- Pelvic MRI

Radiological investigation in the patient with PFUDD should be arranged according to the patient clinical status

Imaging techniques



**92% of male subjects with pelvic fracture and urethral injury
had specific inferomedial pubic bone fractures or pubic
symphysis diastasis**

Basta AM. et al. J Urol 2007; 177: 571-575

Imaging techniques

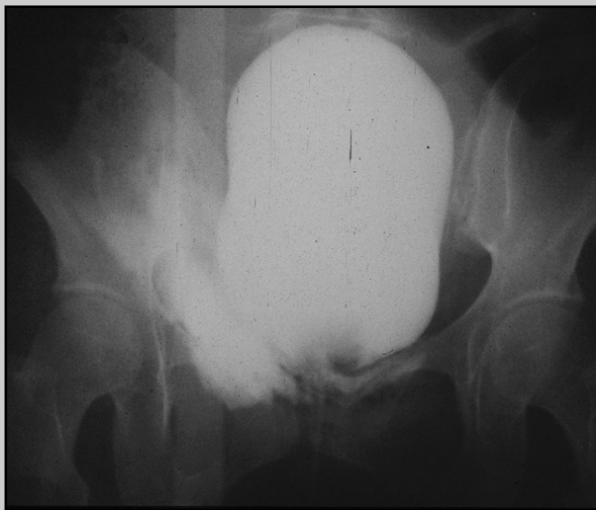
Associated lesions

Site of lesions

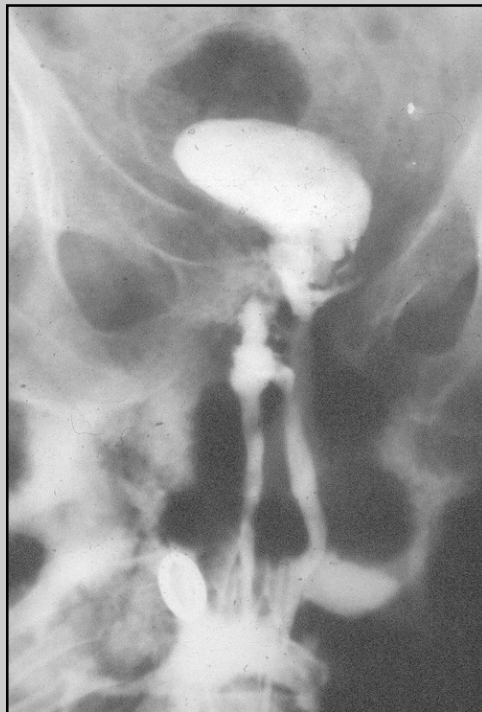
Type of lesions

Imaging techniques

Associated lesions



bladder

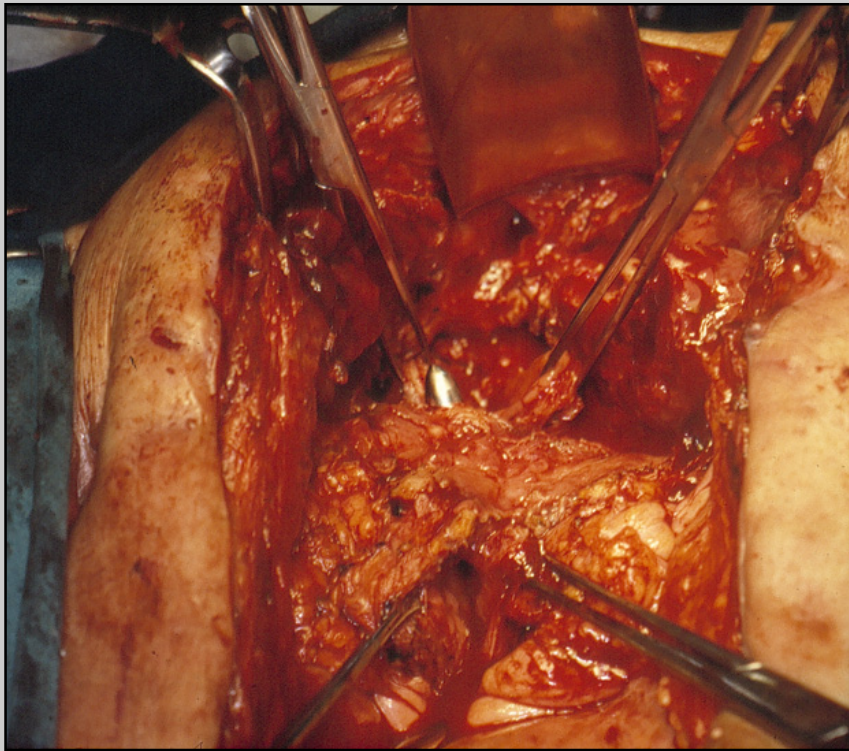


bladder neck



rectum

Immediate management of urethral trauma with associated lesions



- bladder rupture
- bladder neck lesions
- rectal tear



Immediate surgical exploration

Imaging techniques

Site of lesion

membranous



adult

prostatic



children

Imaging techniques

Type of urethral lesion



stretched

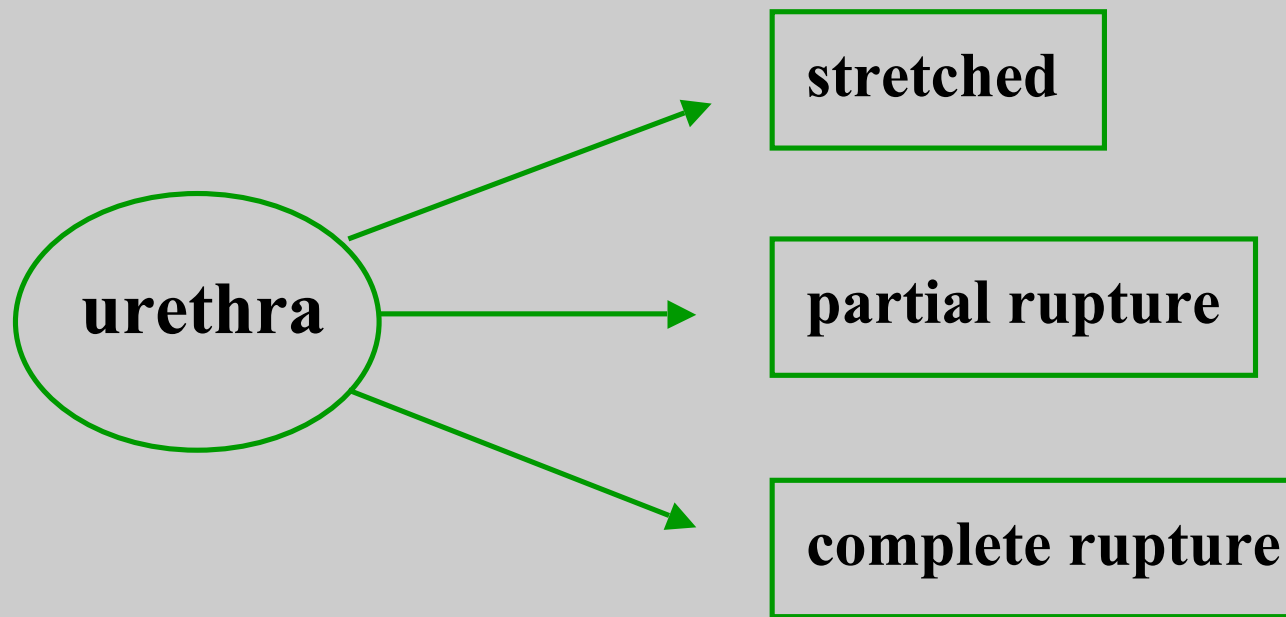


partial rupture



complete rupture

Immediate management of posterior urethral trauma without associated lesions



**Percutaneous suprapubic cystostomy
under ultrasonographic guidance**

Why ?

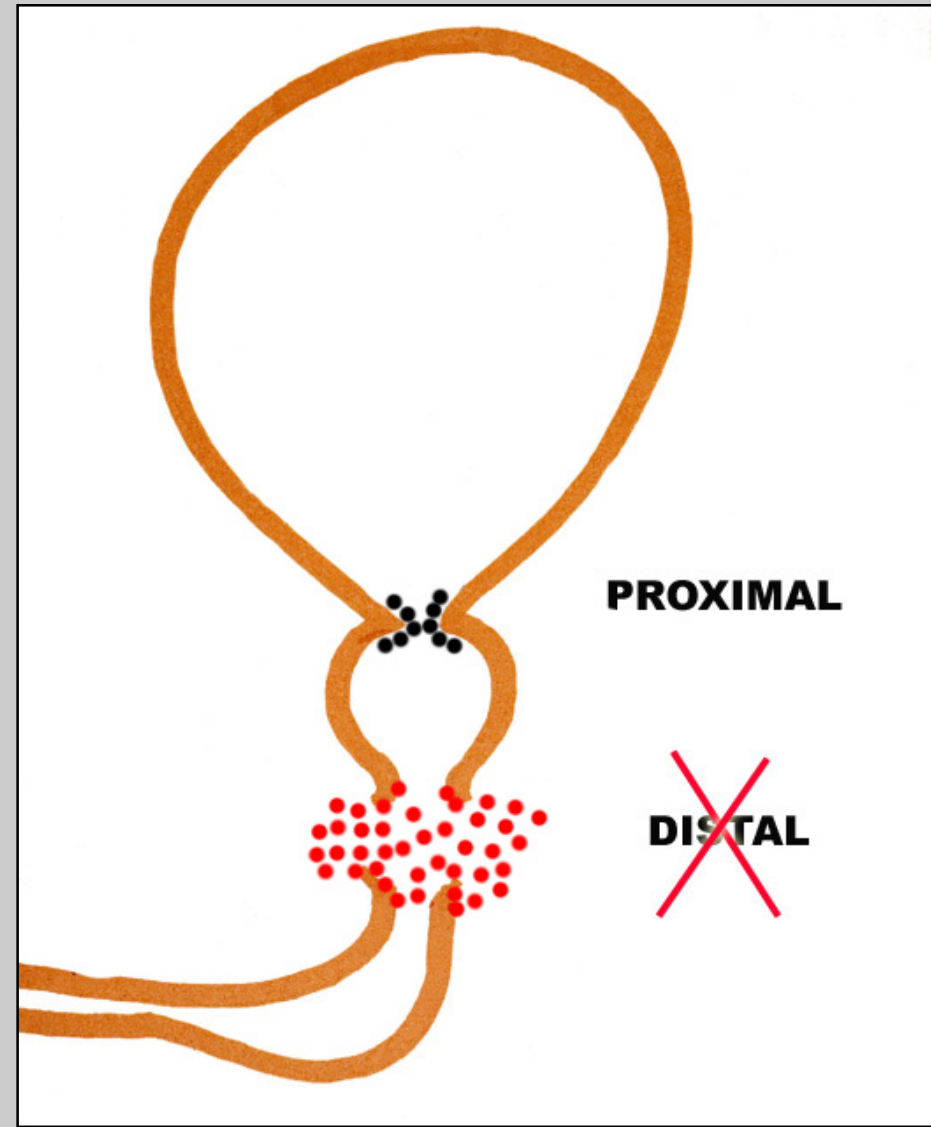
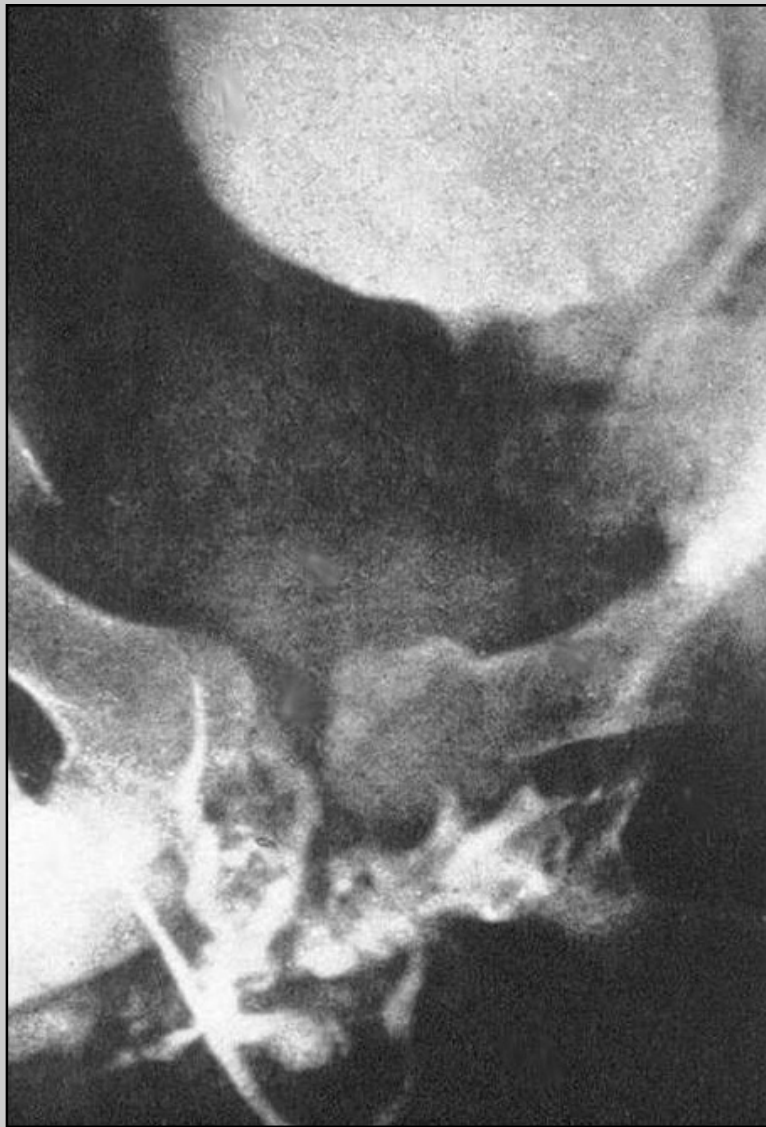
Goal of the initial evaluation and management of the patient with PFUDD

The immediate concern, in the patient with PFUDD, is resuscitation of the patient to preserve life

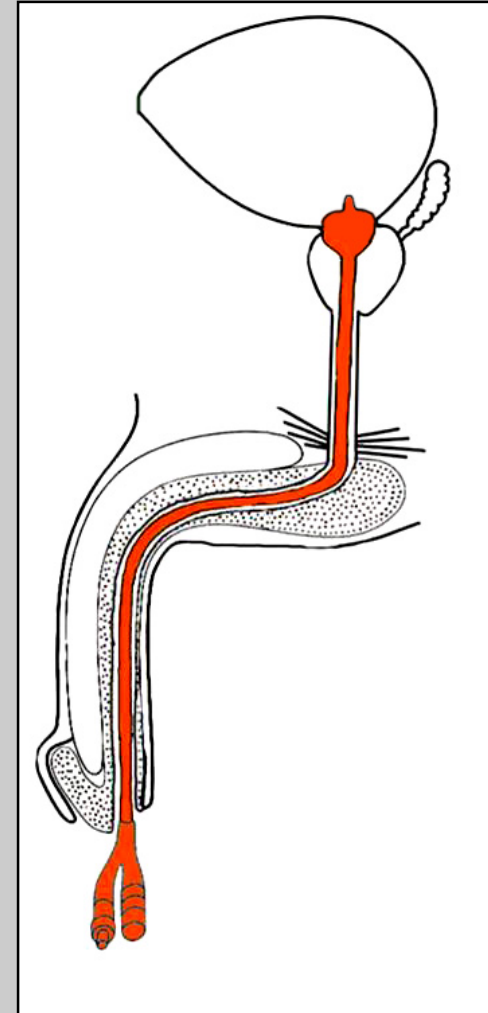
Divert urine away from the site of injury

Preserve the residual sphincter mechanism at the bladder neck

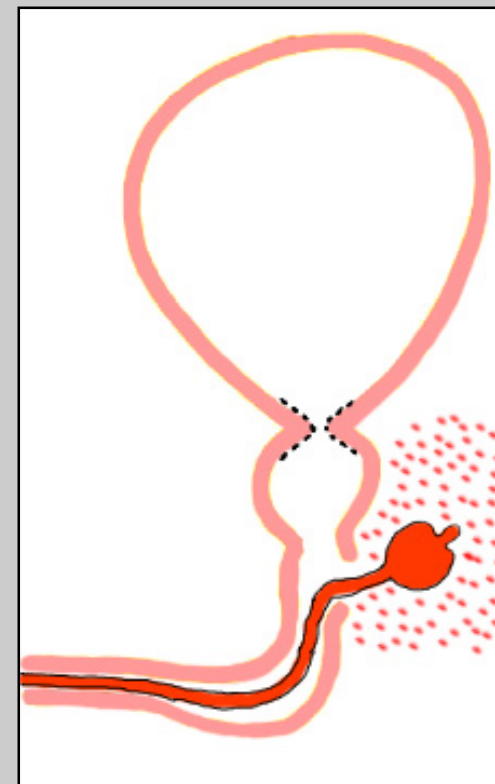
Avoid jeopardizing sexual function residual to the trauma



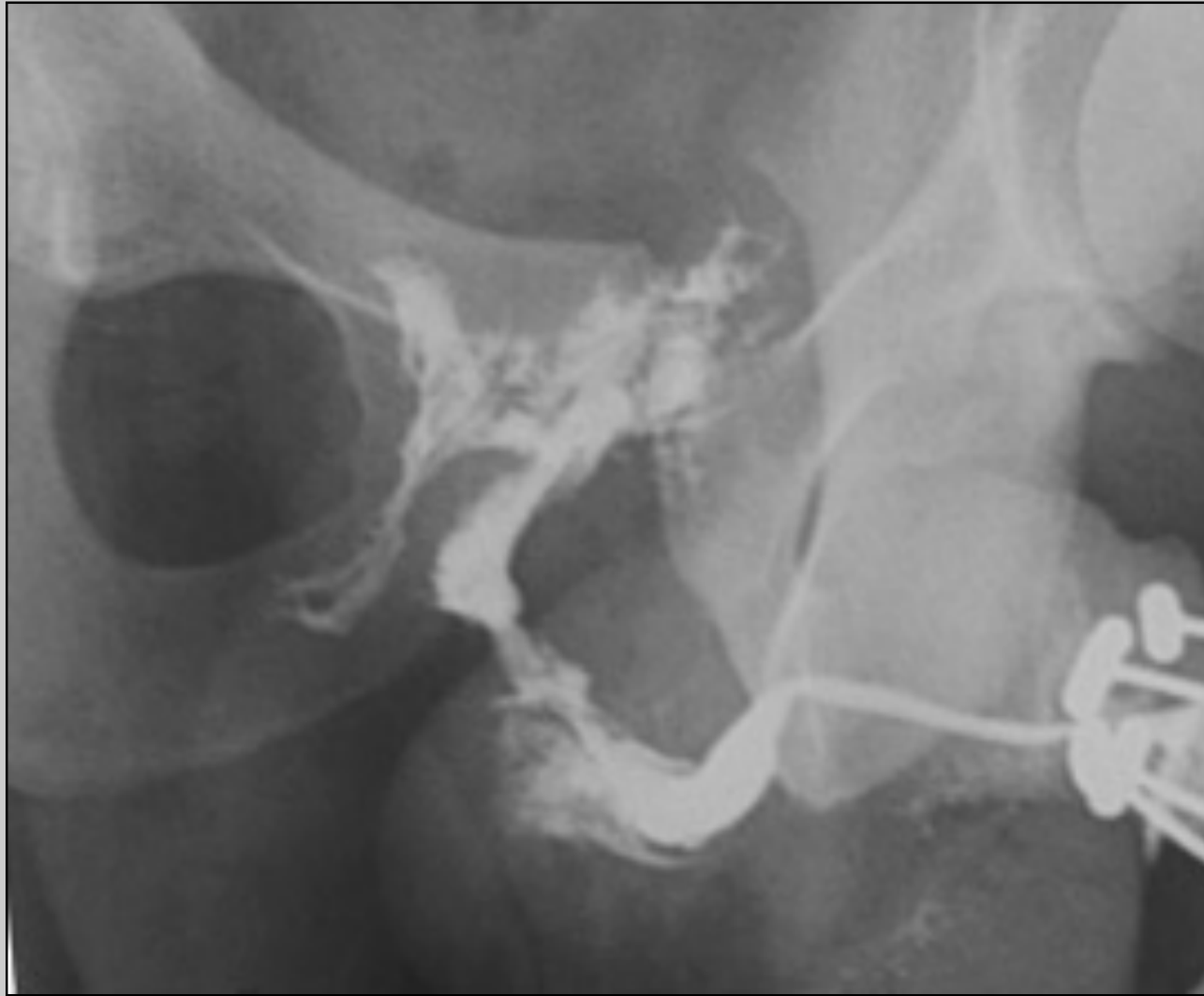
Urethra: stretched

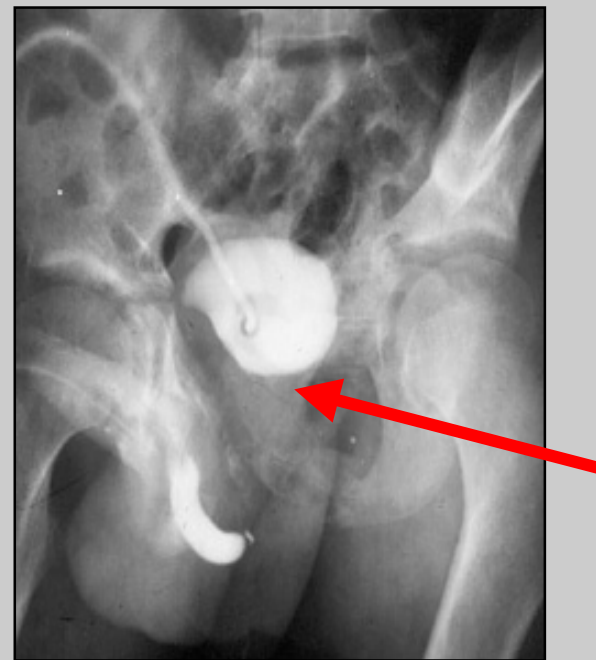
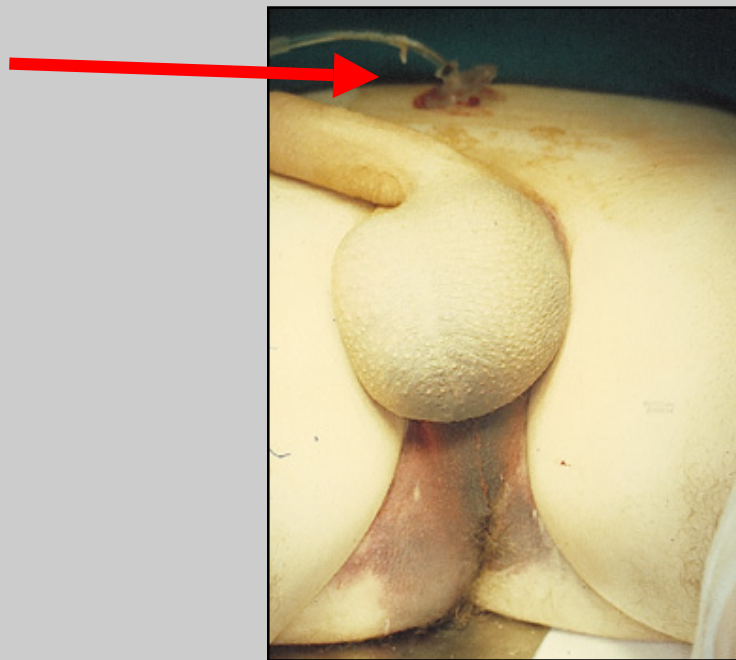


Urethra: partial rupture



Urethra: complete rupture





In patients with PFUDD, urinary diversion by suprapubic cystostomy is **the only method than can surely avoid damage to the bladder neck, thus fully preserving urinary continence !**

Emergency treatment of posterior urethral trauma

immediate suprapubic urinary diversion

→ empty the bladder and release pain due to the over distended bladder

→ divert urine away from the site of injury

→ perform a cystography

Endoscopic urethral realignment



?

Old urologists

Endoscopic urethral realignment

appropriate operating room

appropriate instruments

appropriate patient

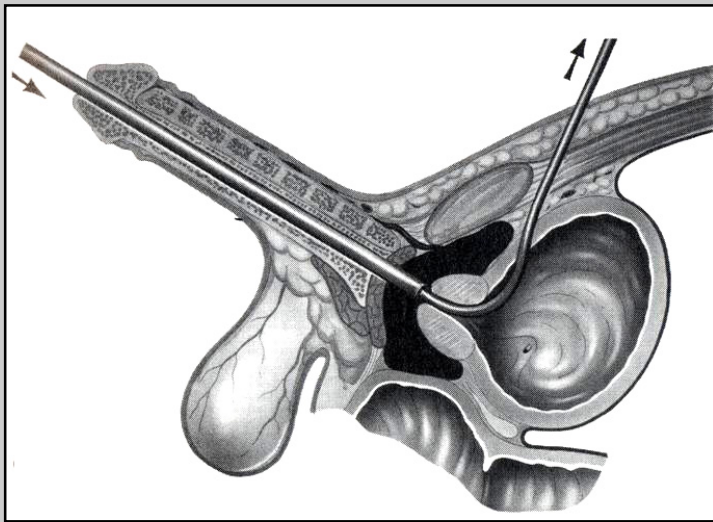
appropriate surgeon

Endoscopic urethral realignment



appropriate operating room ?

Endoscopic urethral realignment



appropriate instruments ?

Endoscopic urethral realignment



appropriate patient ?

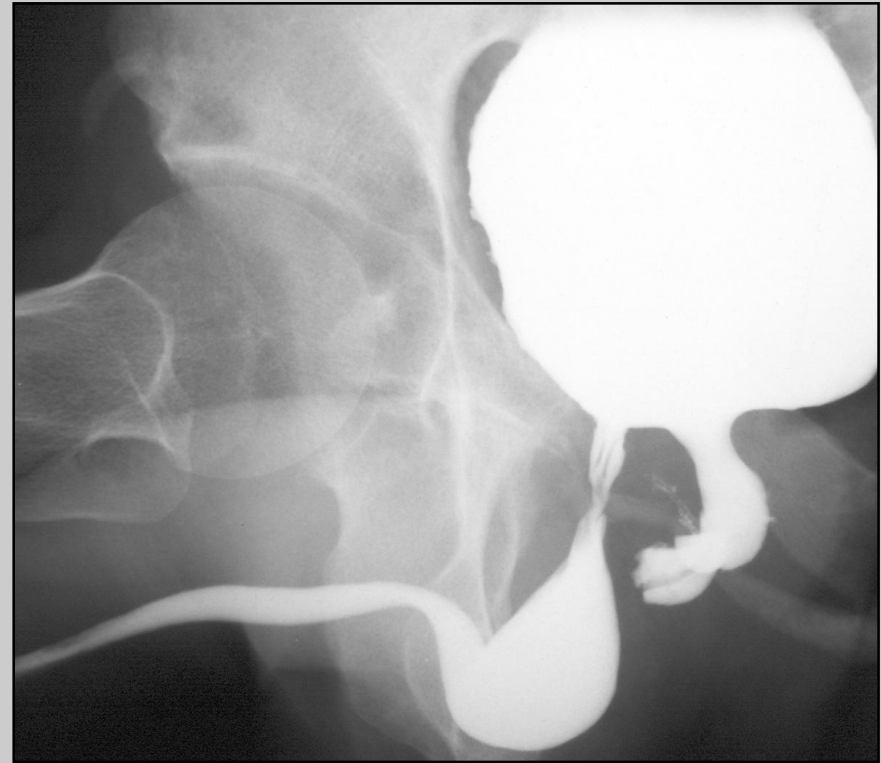
Endoscopic urethral realignment



appropriate surgeon ?



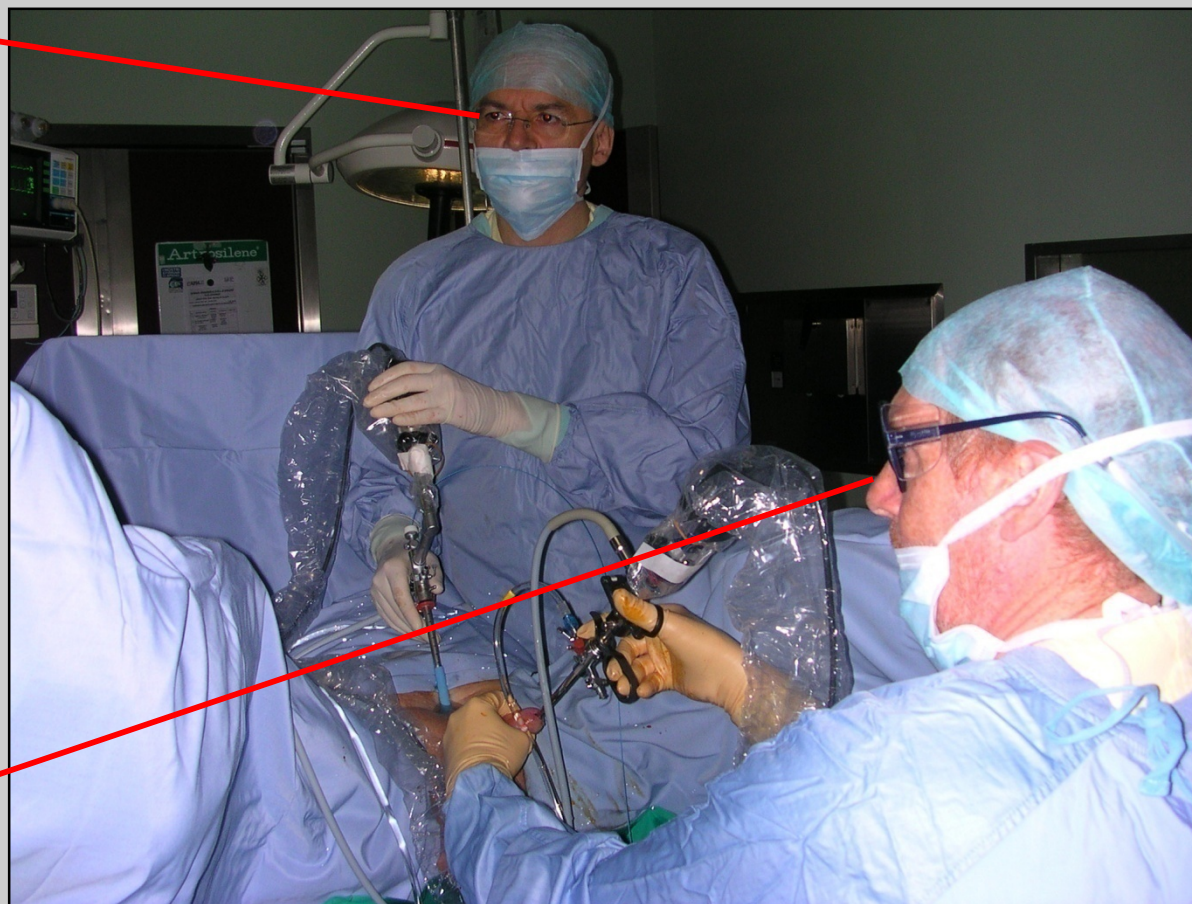
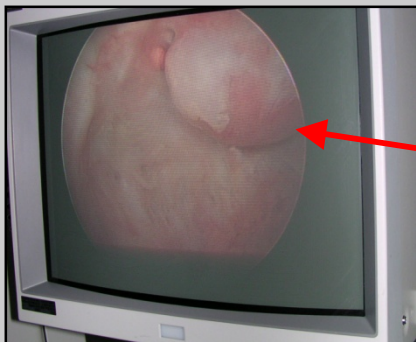
Four-hour emergency (?) urethral realignment in the plaster-cast room (?)



Five-hour emergency (?) urethral realignment



In one week, this patient underwent **five attempts (?) to perform endoscopic and surgical urethral realignment**

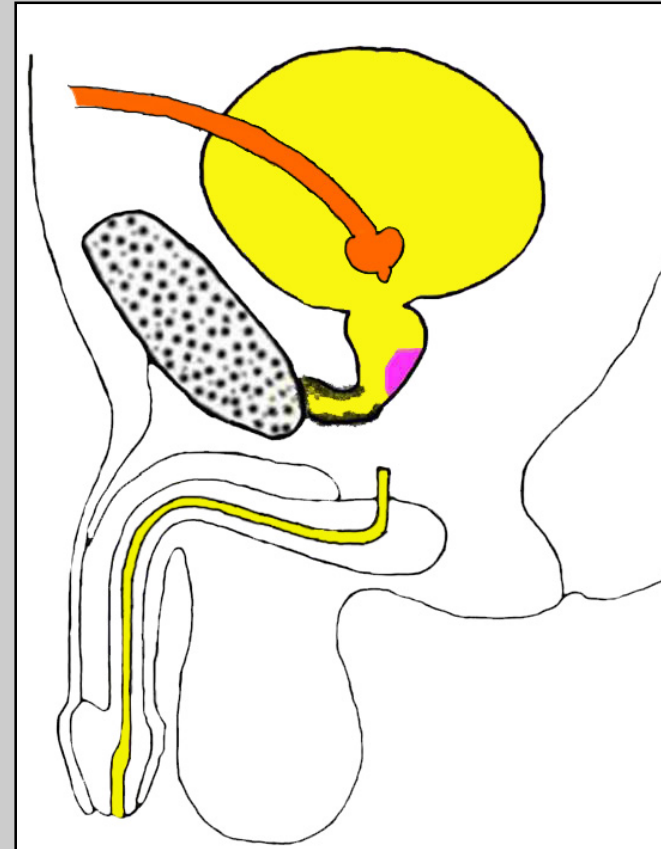
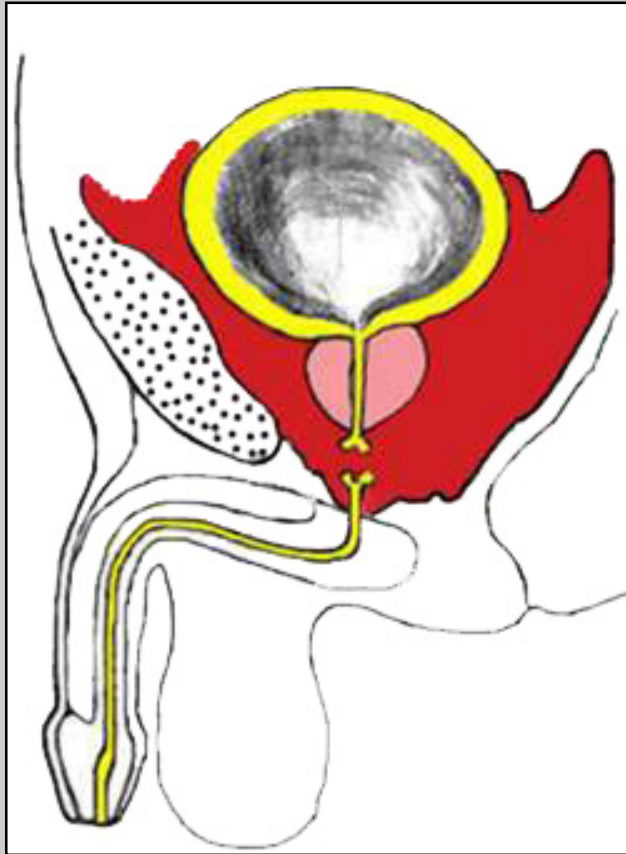


Endoscopic urethral realignment

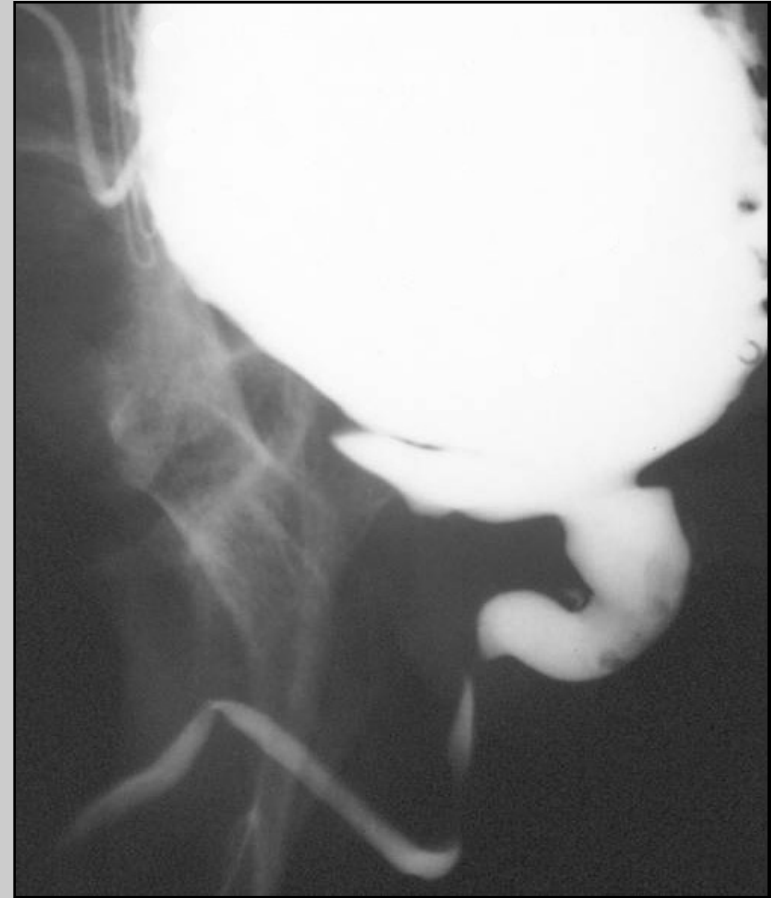
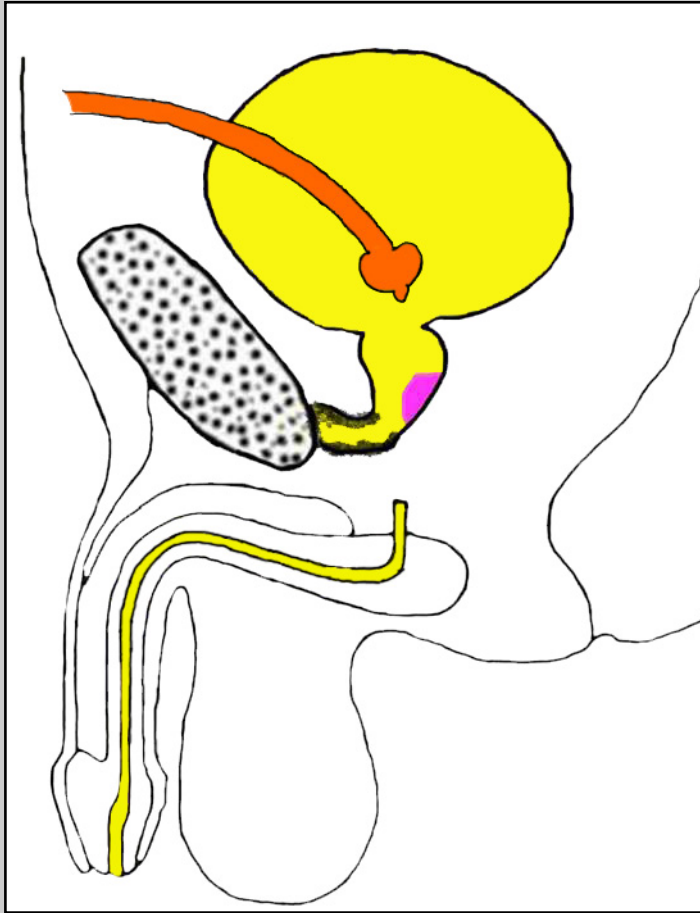
7 – 15 days following trauma

Why ?

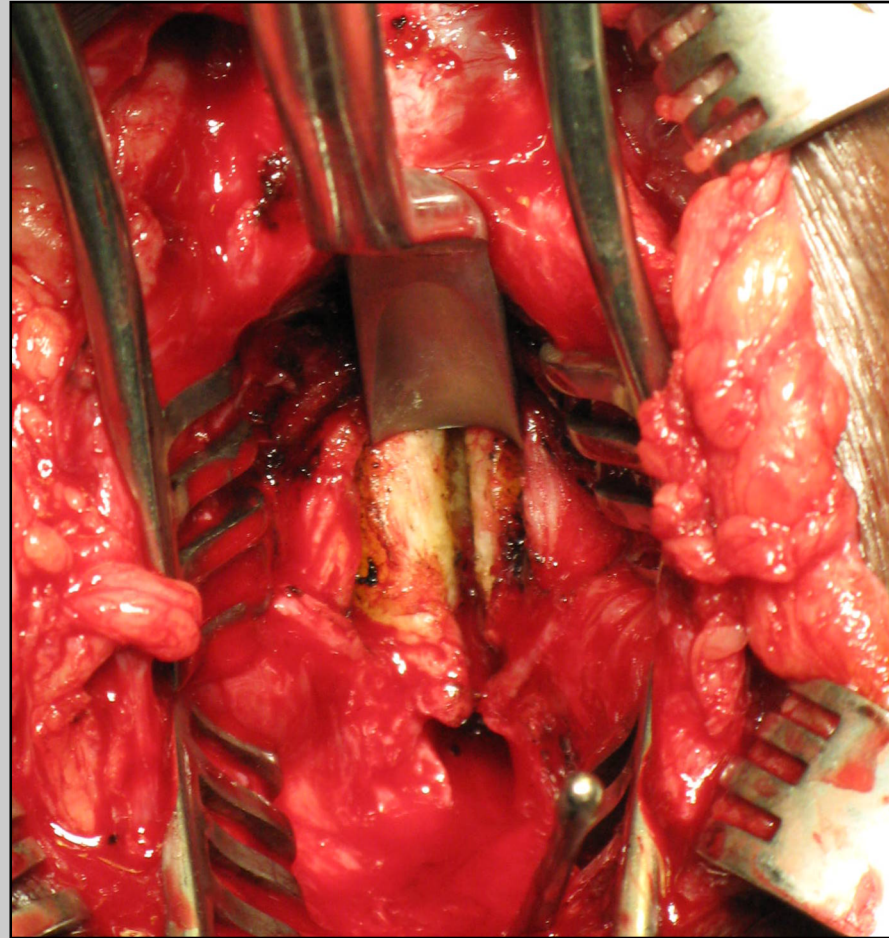
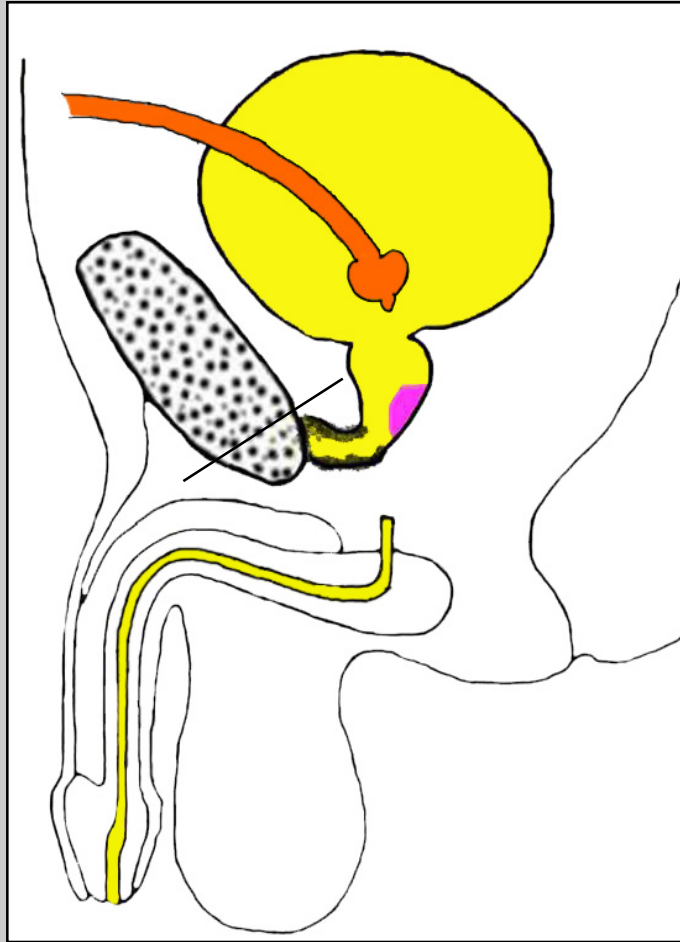
NO - Endoscopic urethral realignment



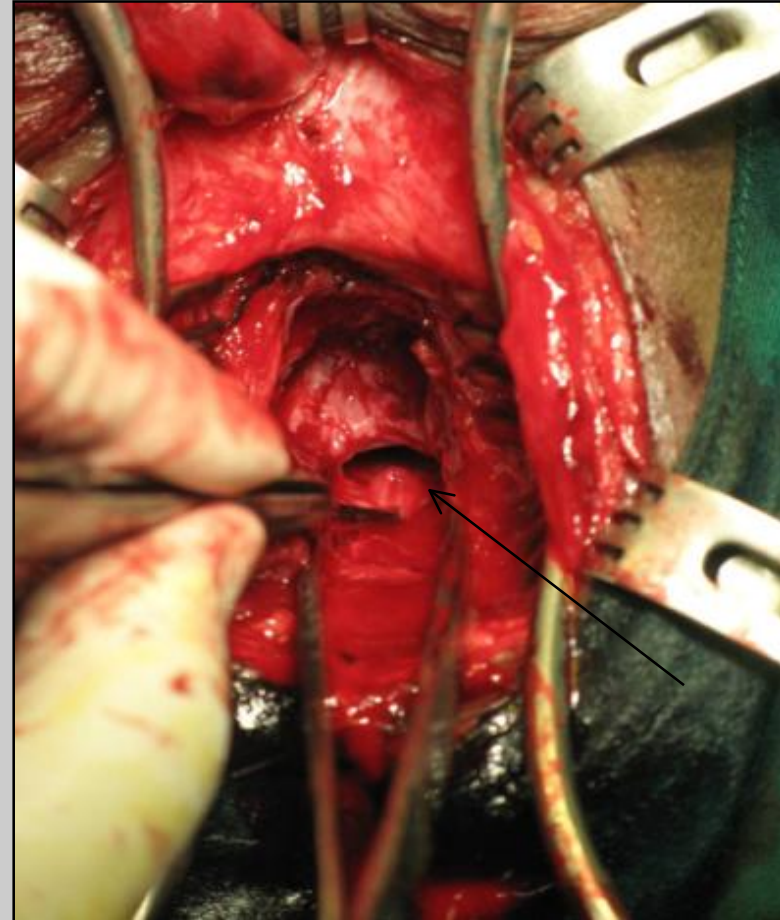
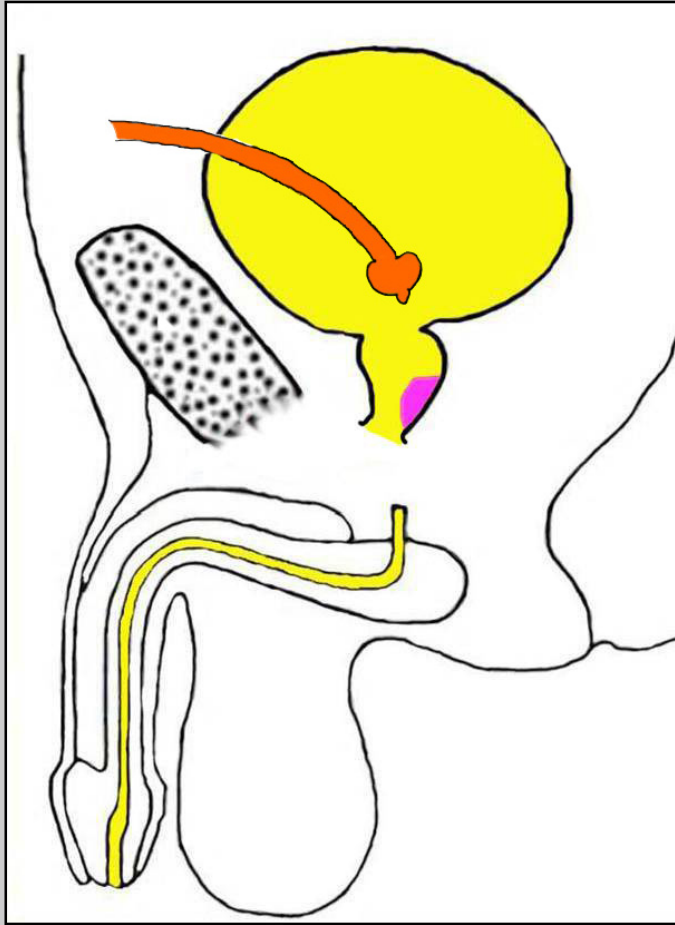
Complex posterior urethral stricture



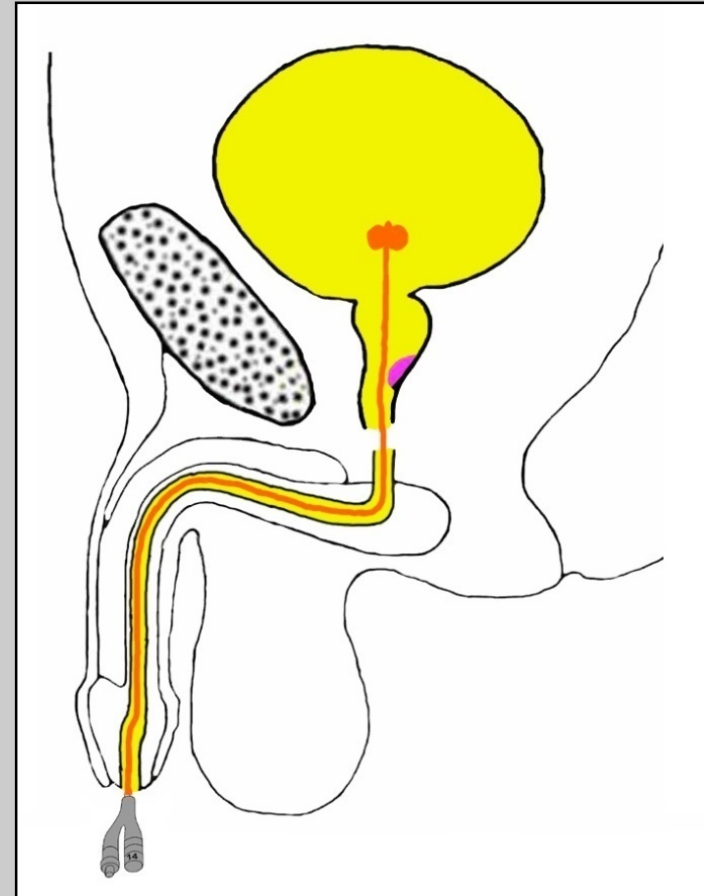
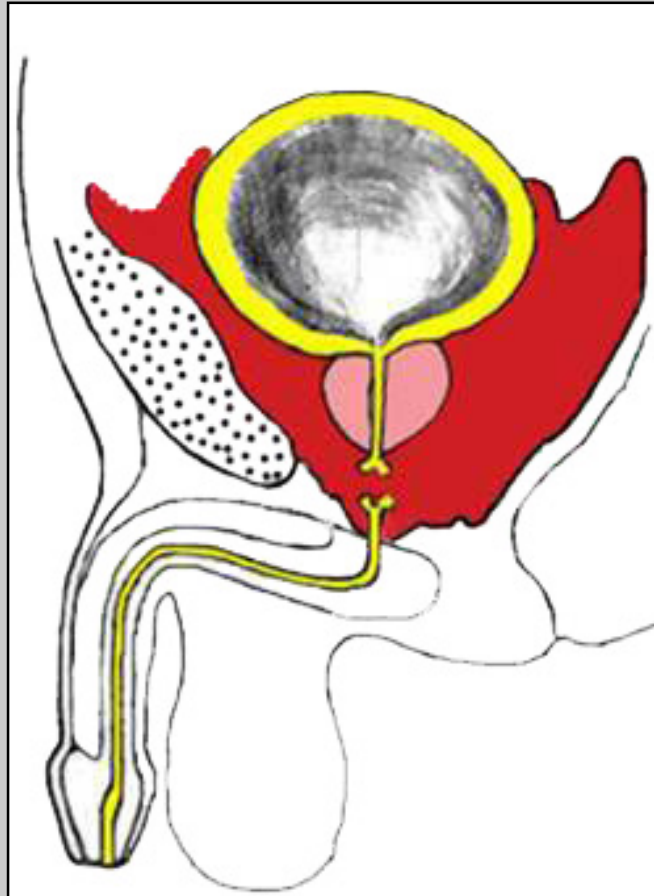
Perineal pubectomy



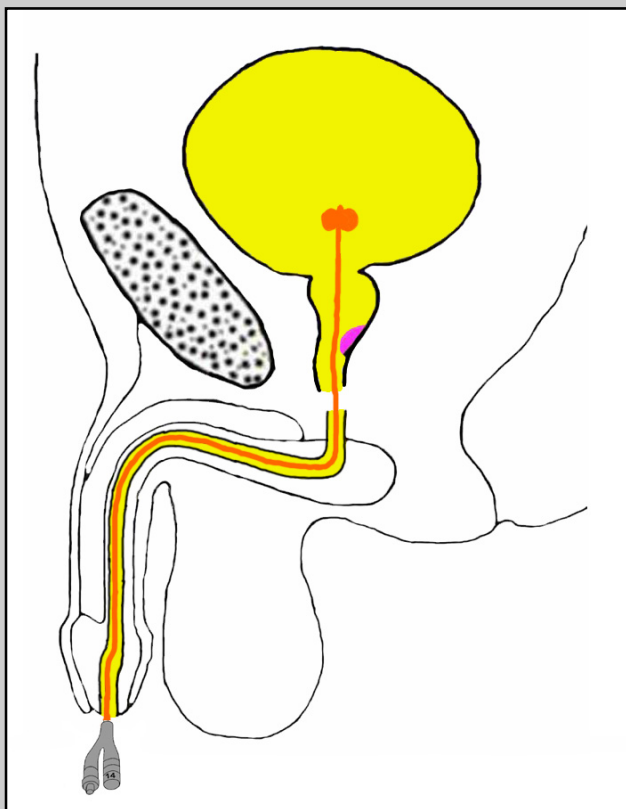
Perineal pubectomy



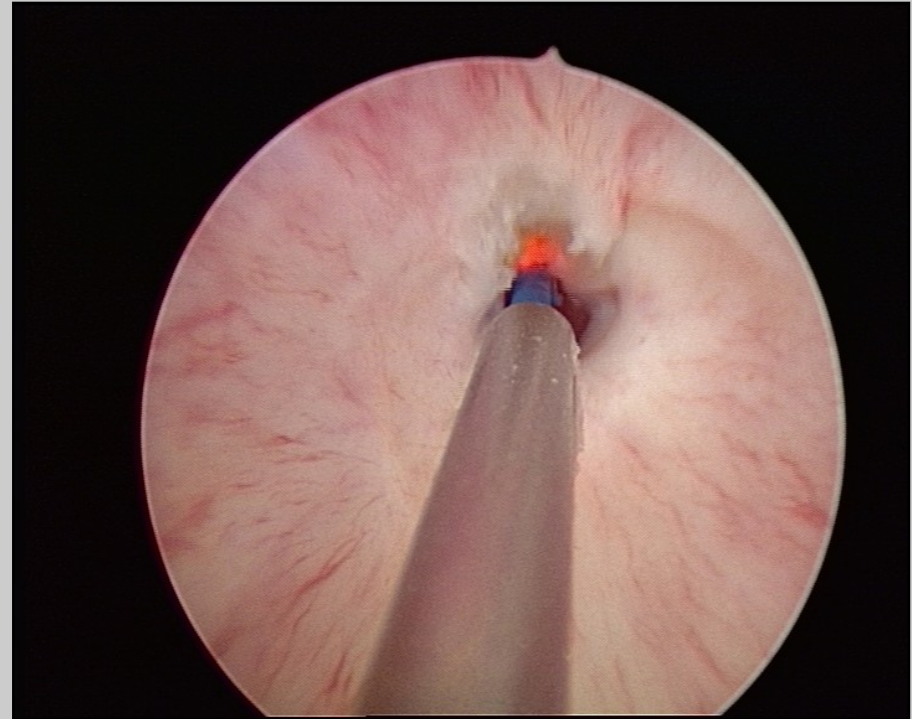
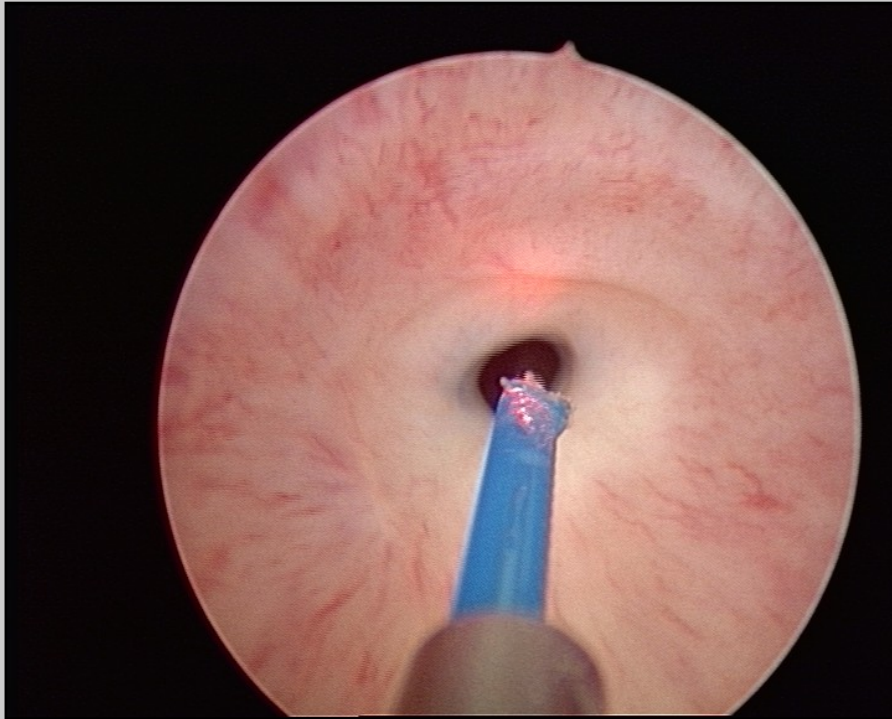
YES - Endoscopic urethral realignment



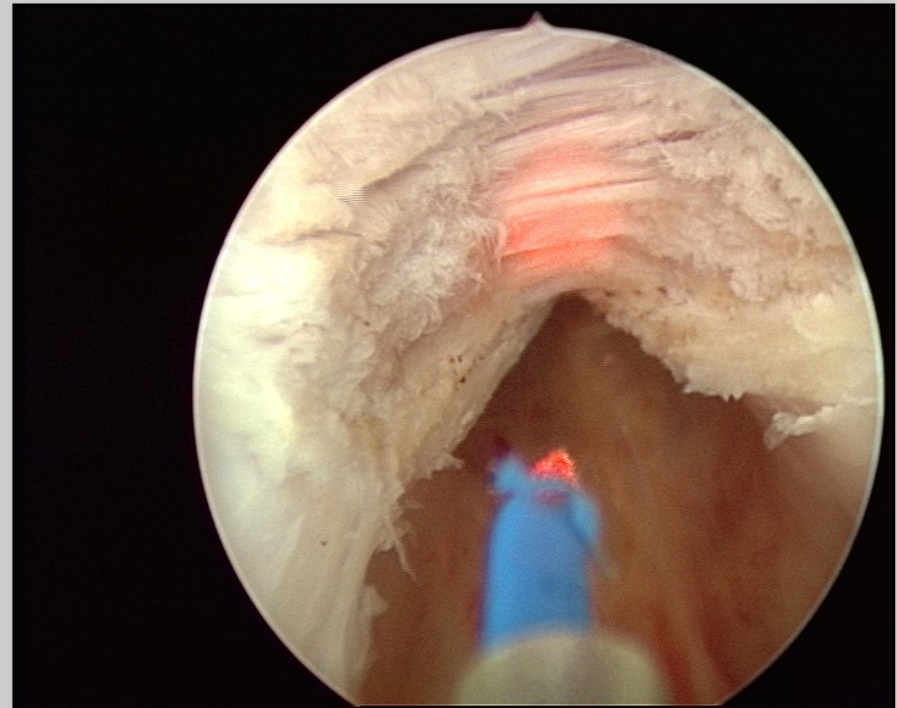
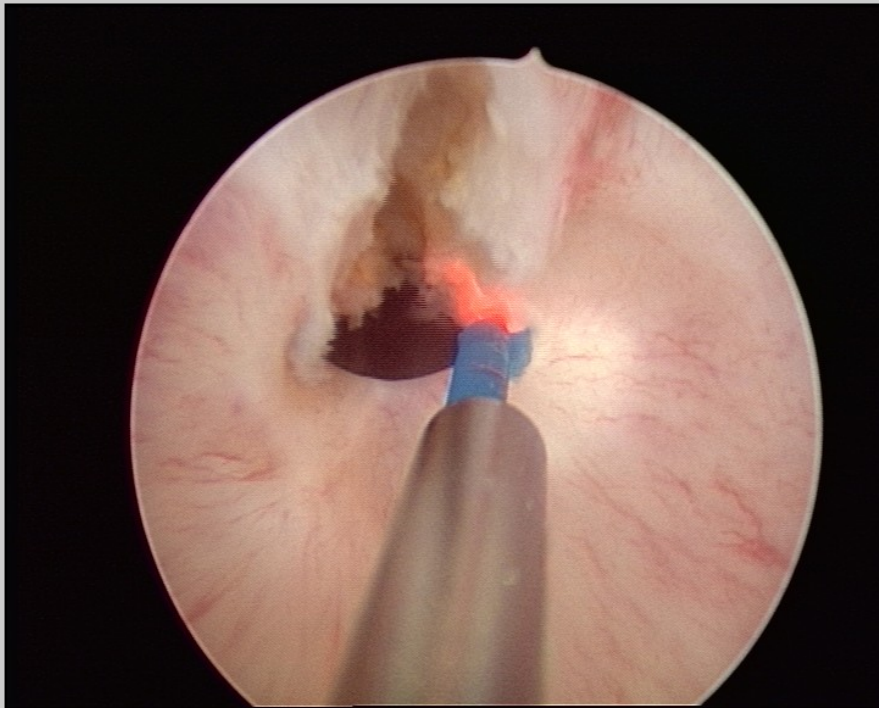
Simple posterior urethral stricture



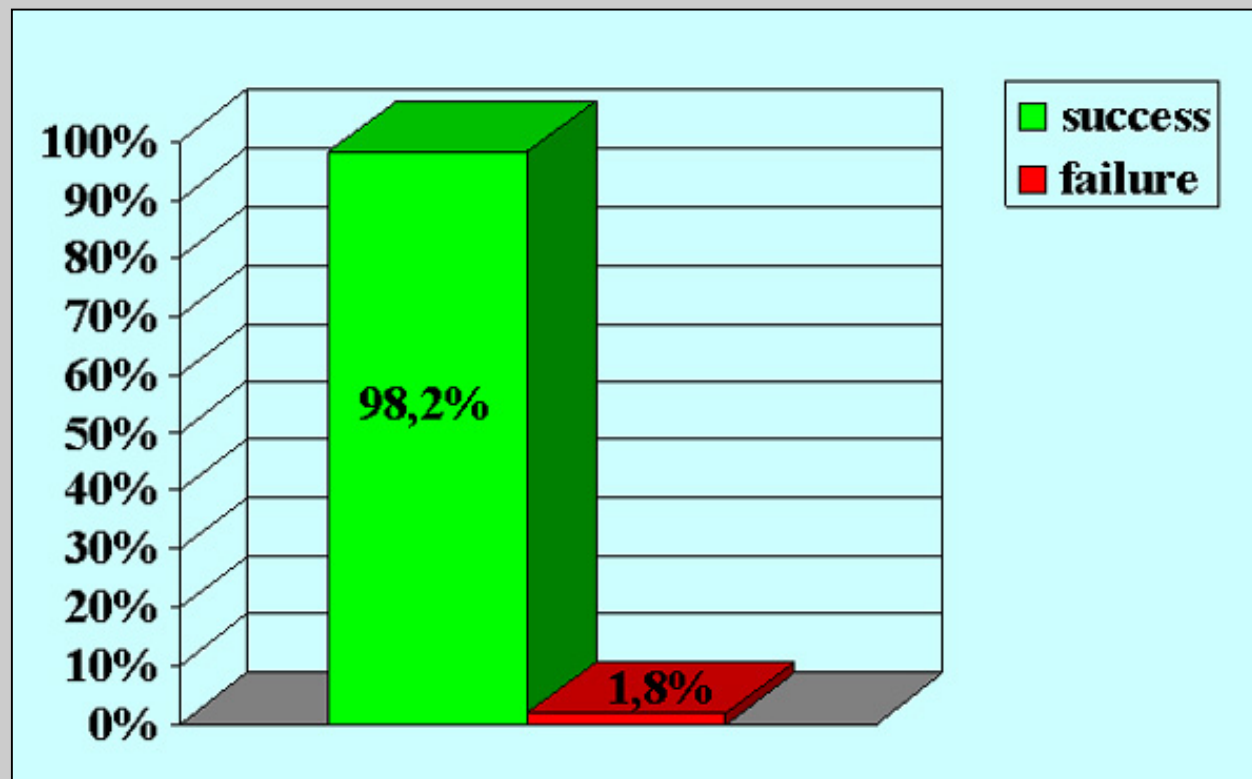
Holmium laser urethrotomy



Holmium laser urethrotomy



Results on 25 patients who underwent holmium laser urethrotomy for posterior urethral strictures following pelvic trauma



Mean follow-up 55 months (12 – 65 months)

Goal of the initial evaluation and management of the patient with PFUDD



Preserve the residual sphincter mechanism at the bladder neck

Goal of the initial evaluation and management of the patient with PFUDD



Realignment of the injured urethra and restore the urethral lumen

Goal of the initial evaluation and management of the patient with PFUDD



Avoid jeopardizing sexual function residual to the trauma

www.urethralcenter.it



Next month, this lecture will be fully available on our website

Thank you !

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