



Guido Barbagli

Center for Reconstructive Urethral Surgery

Arezzo - Italy

E-mail: guido@rdn.it

Website: www.urethralcenter.it

23rd ANNUAL EAU CONGRESS

Sub-plenary Session on Male urinary incontinence

26 – 29 March 2008

Milan – Italy



Incontinence following pelvic trauma



Urinary incontinence in patient with pelvic fracture urethral distraction defects (PFUDD)

- **Traumatic** lesion to the bladder neck
- **Iatrogenic** lesion to the bladder neck



Traumatic lesion to the bladder neck



Traumatic rupture of the bladder neck is more frequently observed in children than in adults, because of the rudimentary nature of the prostate and the pubo-prostatic ligaments



Immediate surgical exploration



Iatrogenic lesion to the bladder neck

Initial management of patient in the emergency room



Iatrogenic lesion to the bladder neck

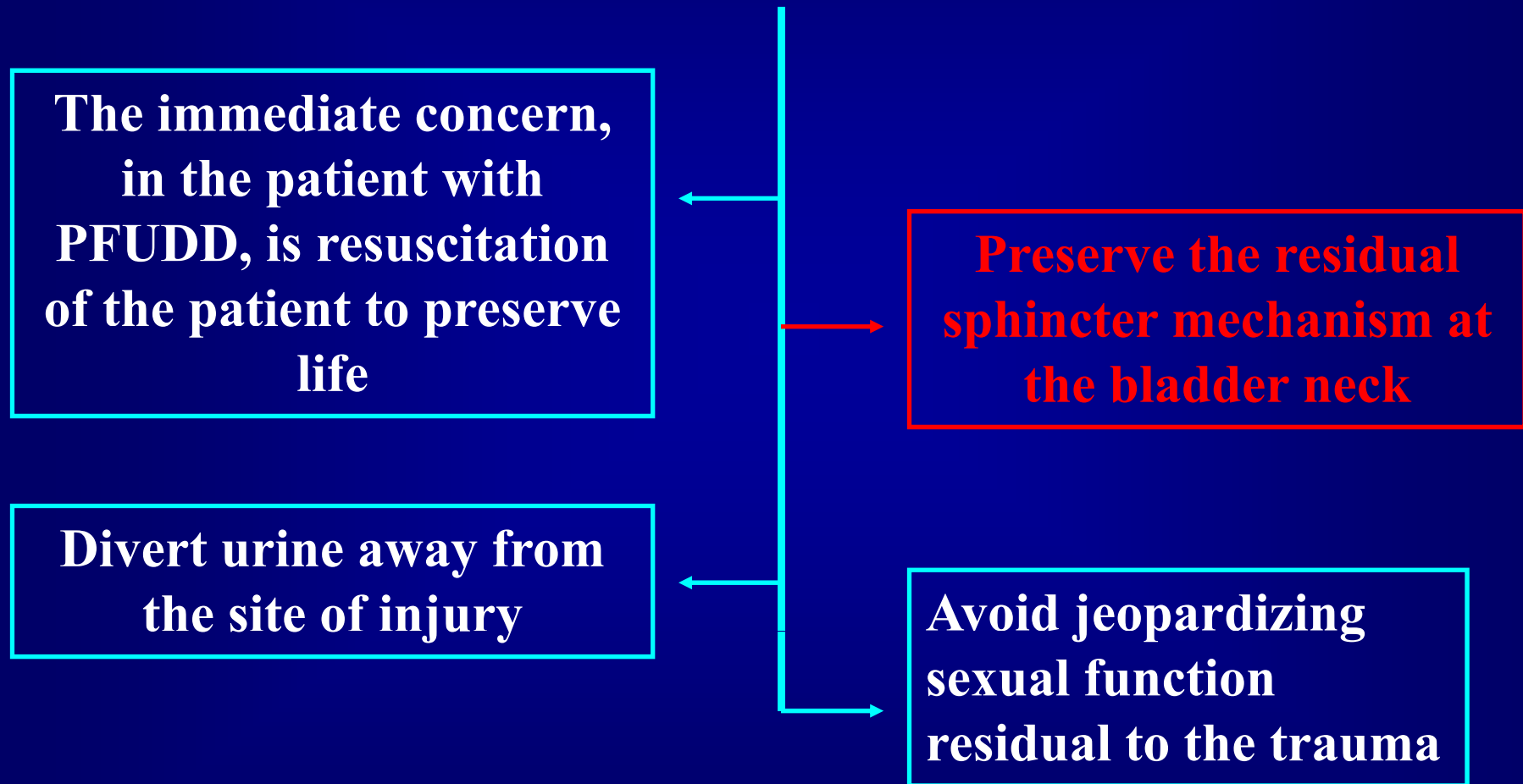
Endoscopic or surgical urethral realignment



?



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



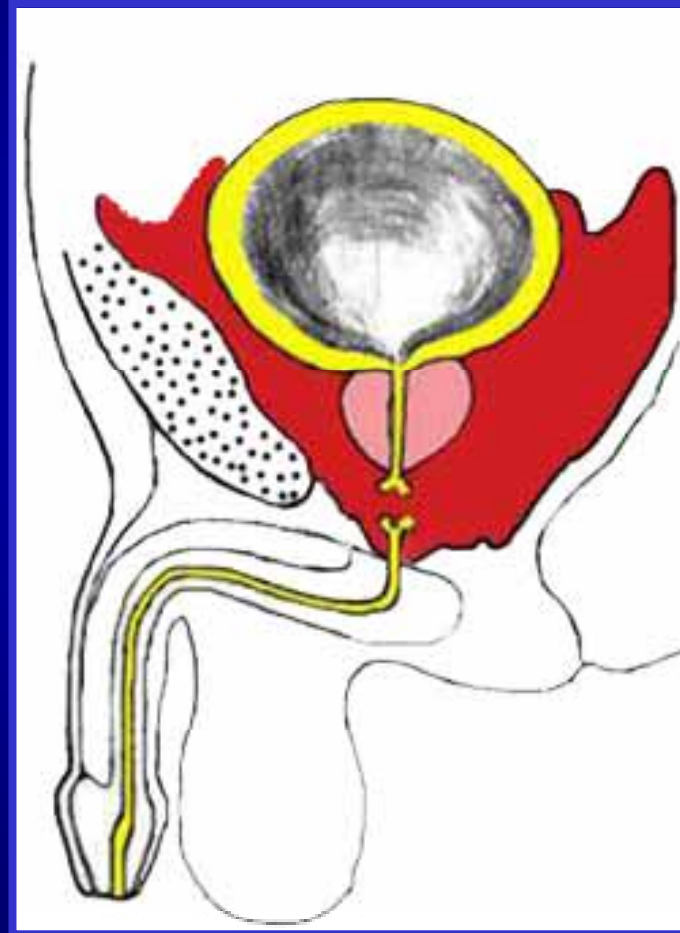
Emergency treatment of posterior urethral trauma

suprapubic urinary diversion
immediate

endoscopic realignment
7 – 15 days following trauma

delayed urethroplasty
4 months following trauma

Pelvic fracture urethral distraction defects (PFUDD)



Pelvic fracture urethral distraction defects (PFUDD)

- Road traffic accidents (68 to 84%)
- Falls from heights (6 to 25%)
- Industrial accidents
- Agricultural accidents (farm tractor)



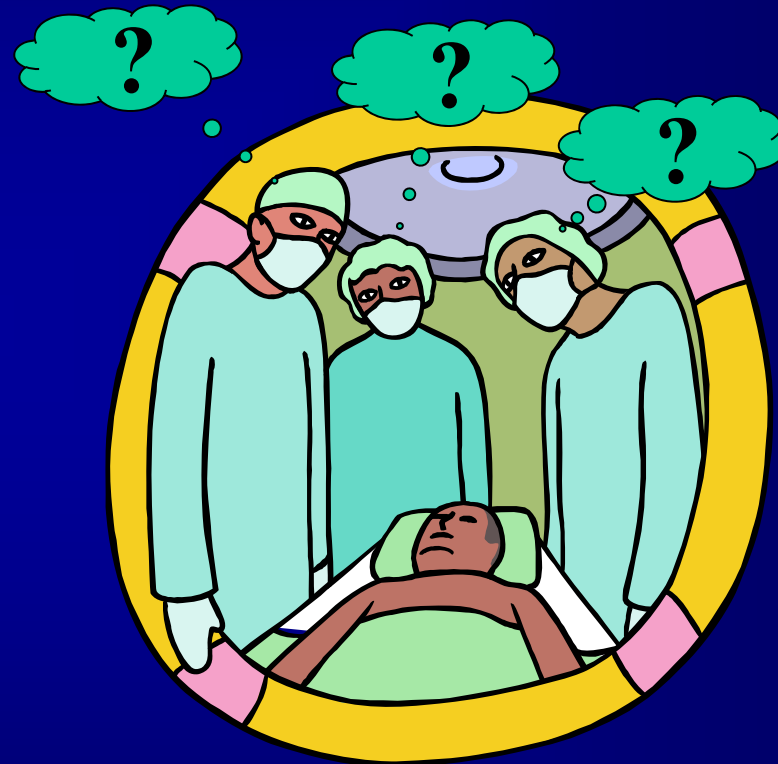
Pelvic fracture urethral distraction defects (PFUDD)

The association of urethral injuries with pelvic fracture has been quoted as being 3-25% in most studies, and $\approx 27\%$ are also associated with other intra-abdominal injuries



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



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 injuries**



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's 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



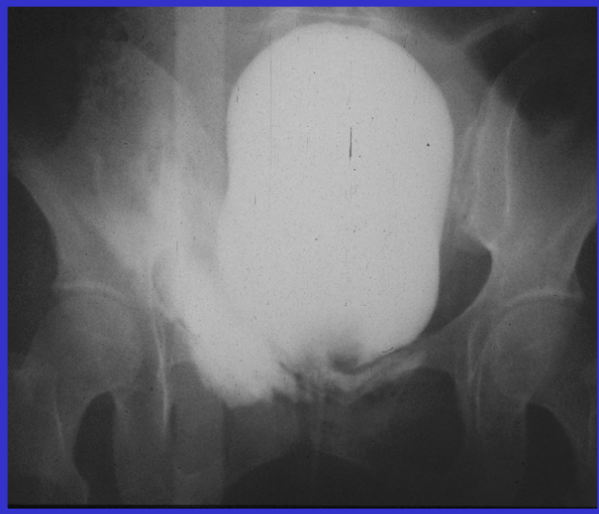
Imaging techniques

- Associated lesions
- Site of lesions
- Type of lesions



Imaging techniques

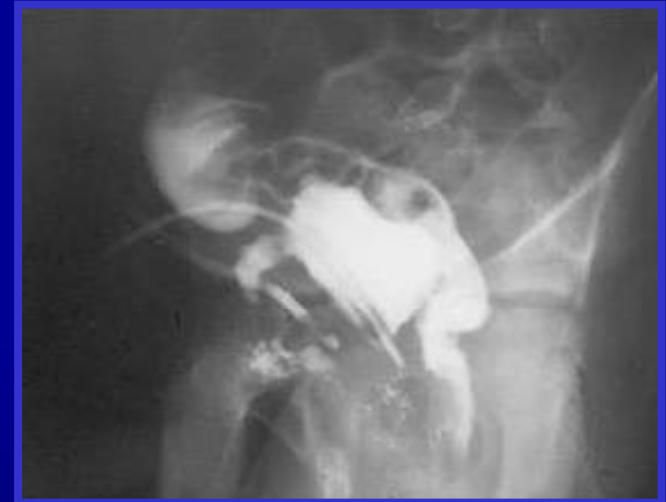
Associated lesions



bladder



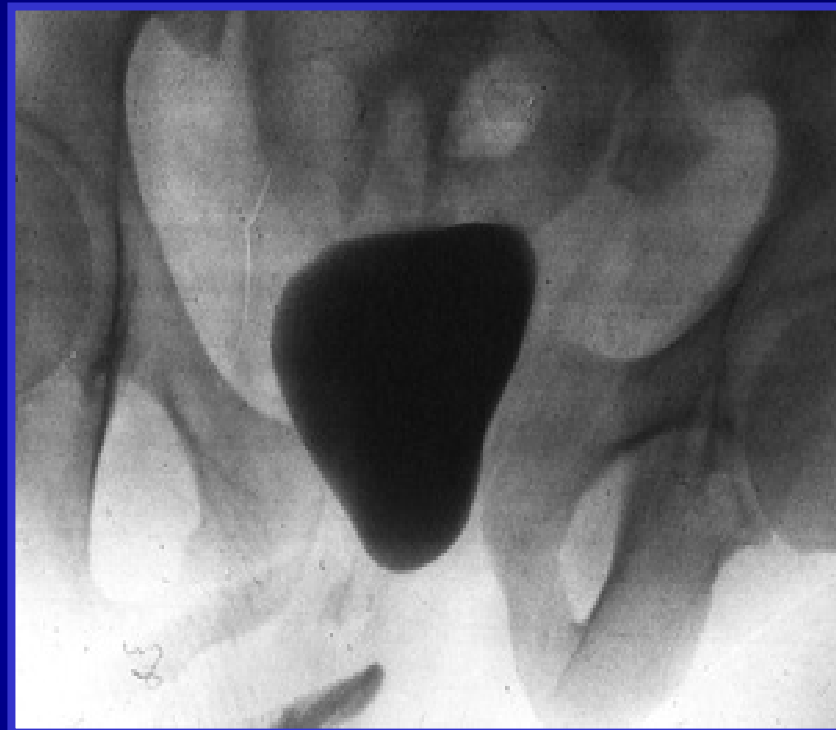
bladder neck



rectum



Imaging techniques



**Hernia of the bladder into the perineum due to pubic
symphysis diastasis**



Imaging techniques

Site of lesion

membranous



adult

prostatic

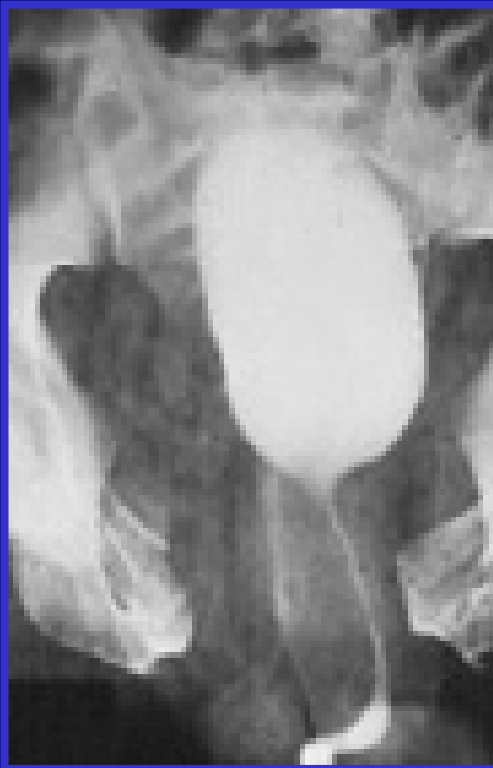


children

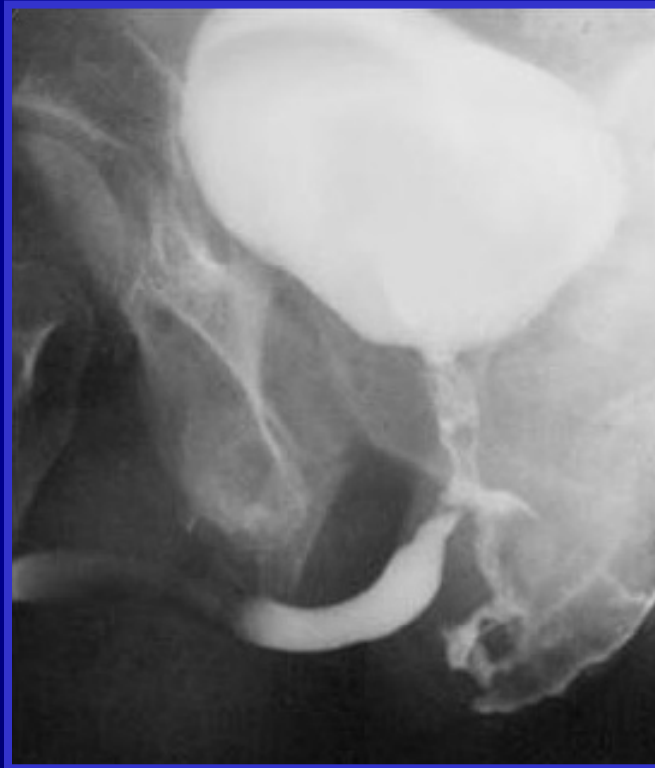


Imaging techniques

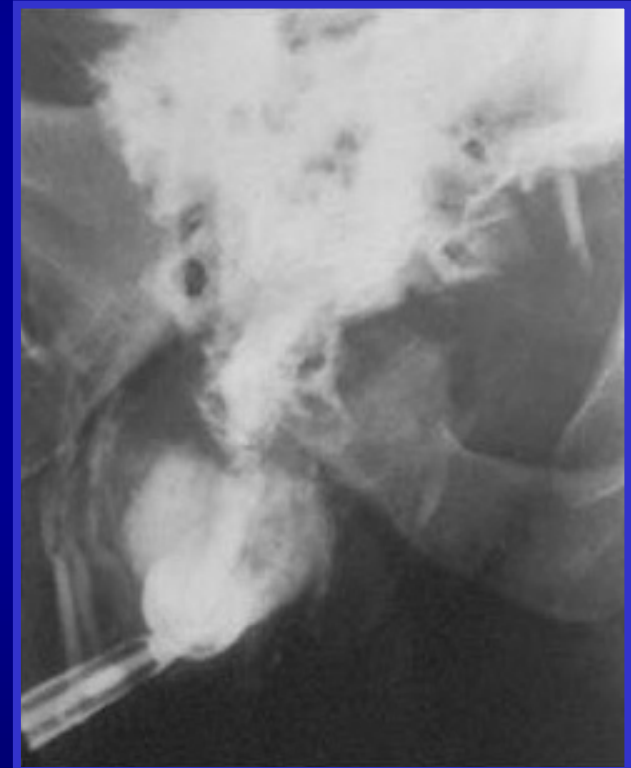
Type of lesion



stretched



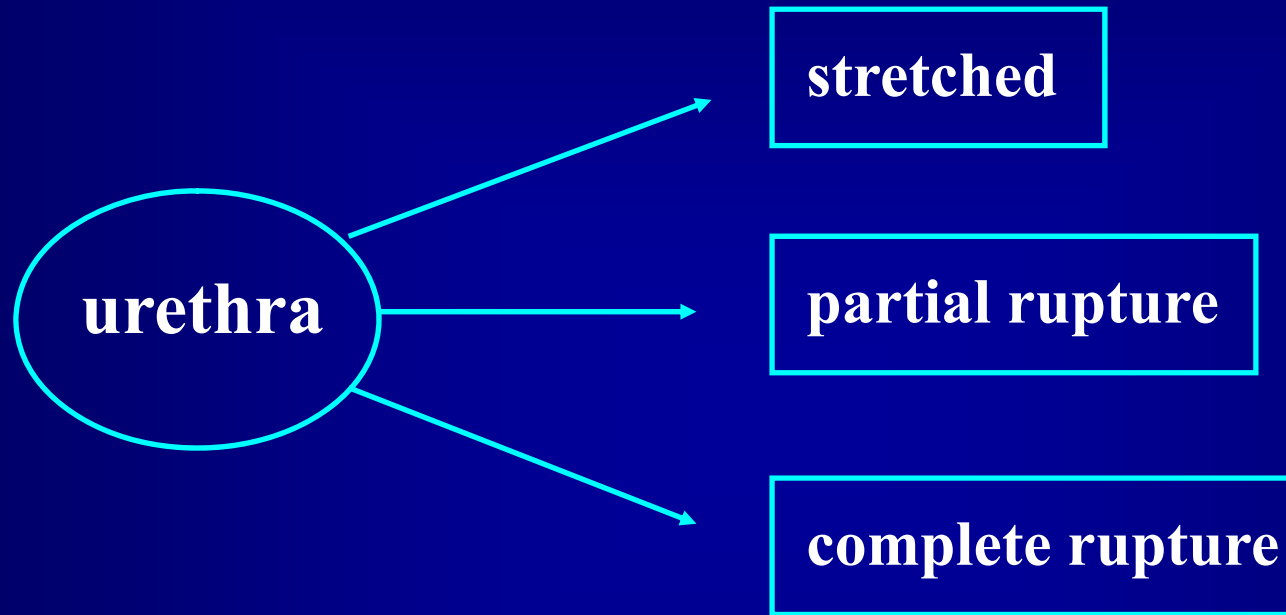
partial rupture



complete rupture



Immediate management of posterior urethral trauma without associated lesions



**Percutaneous suprapubic cystostomy
under ultrasonographic guidance**



Why ?



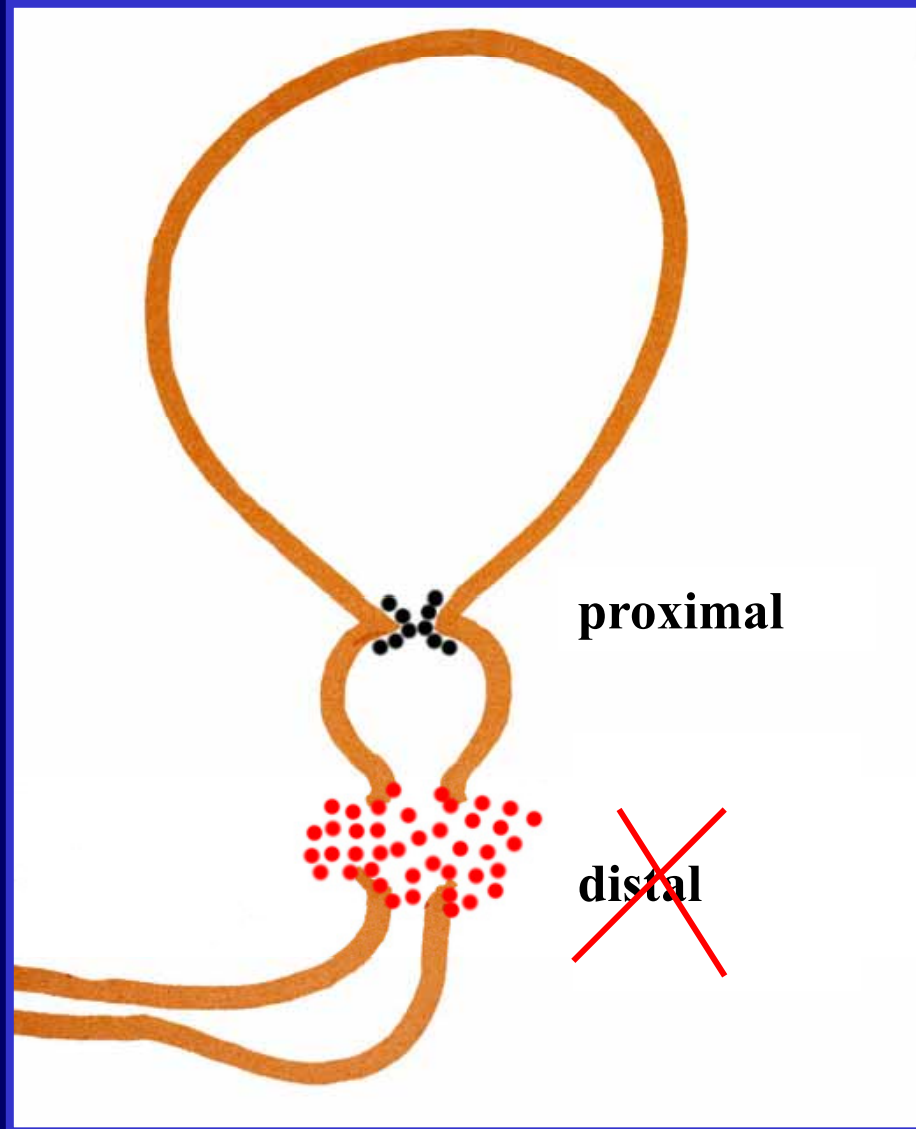
Goal of the initial evaluation and management of the patient with PFUDD

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

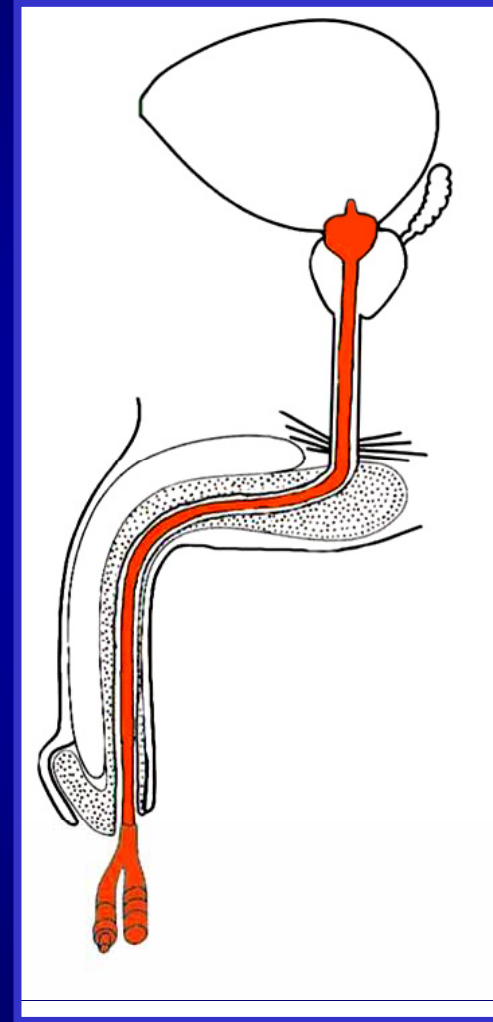
Divert urine away from the site of injury

Preserve the residual sphincter mechanism at the bladder neck

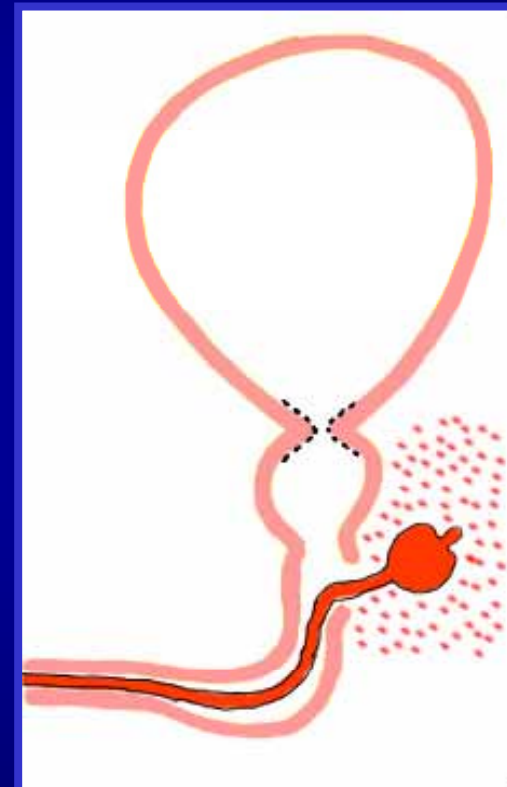
Avoid jeopardizing sexual function residual to the trauma



Stretched



Partial rupture



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

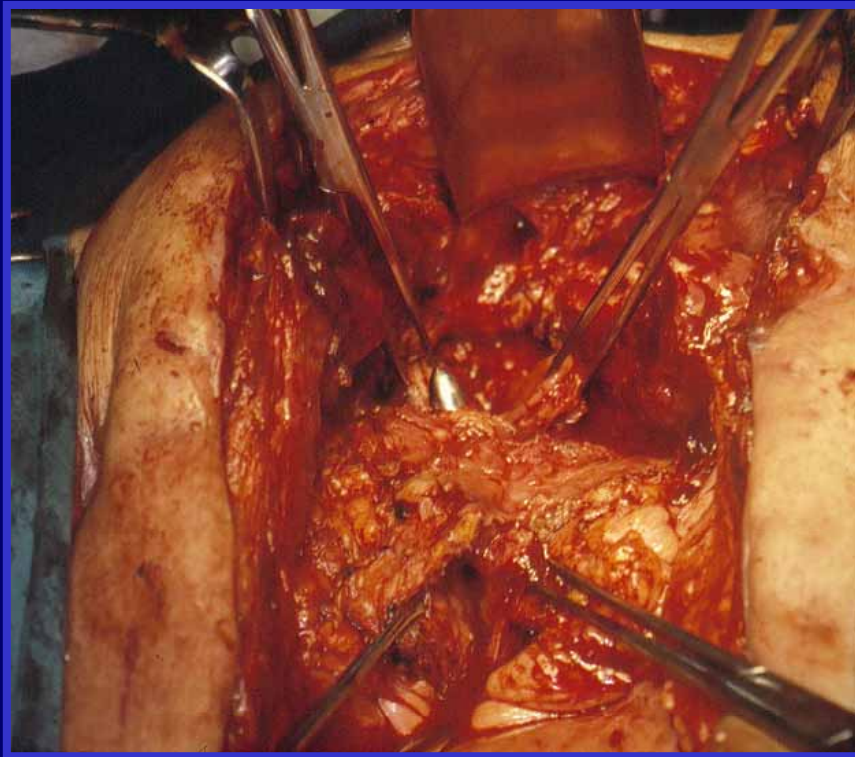
→ empty the bladder and release pain due to the over distended bladder

→ divert urine away from the site of injury

→ perform a cystography



Immediate management of urethral trauma with associated lesions



- bladder rupture
- bladder neck lesions
- rectal tear



Immediate surgical exploration



Endoscopic urethral realignment

- appropriate operating room
- appropriate instruments
- appropriate patient
- appropriate surgeon



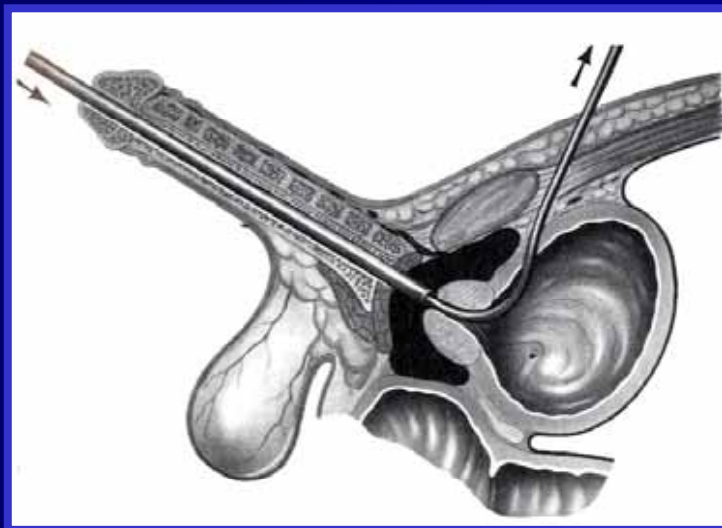
Endoscopic urethral realignment



appropriate operating room ?



Endoscopic urethral realignment



appropriate instruments ?



Endoscopic urethral realignment



appropriate patient ?

Endoscopic urethral realignment



appropriate surgeon ?

Center for Reconstructive Urethral Surgery





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





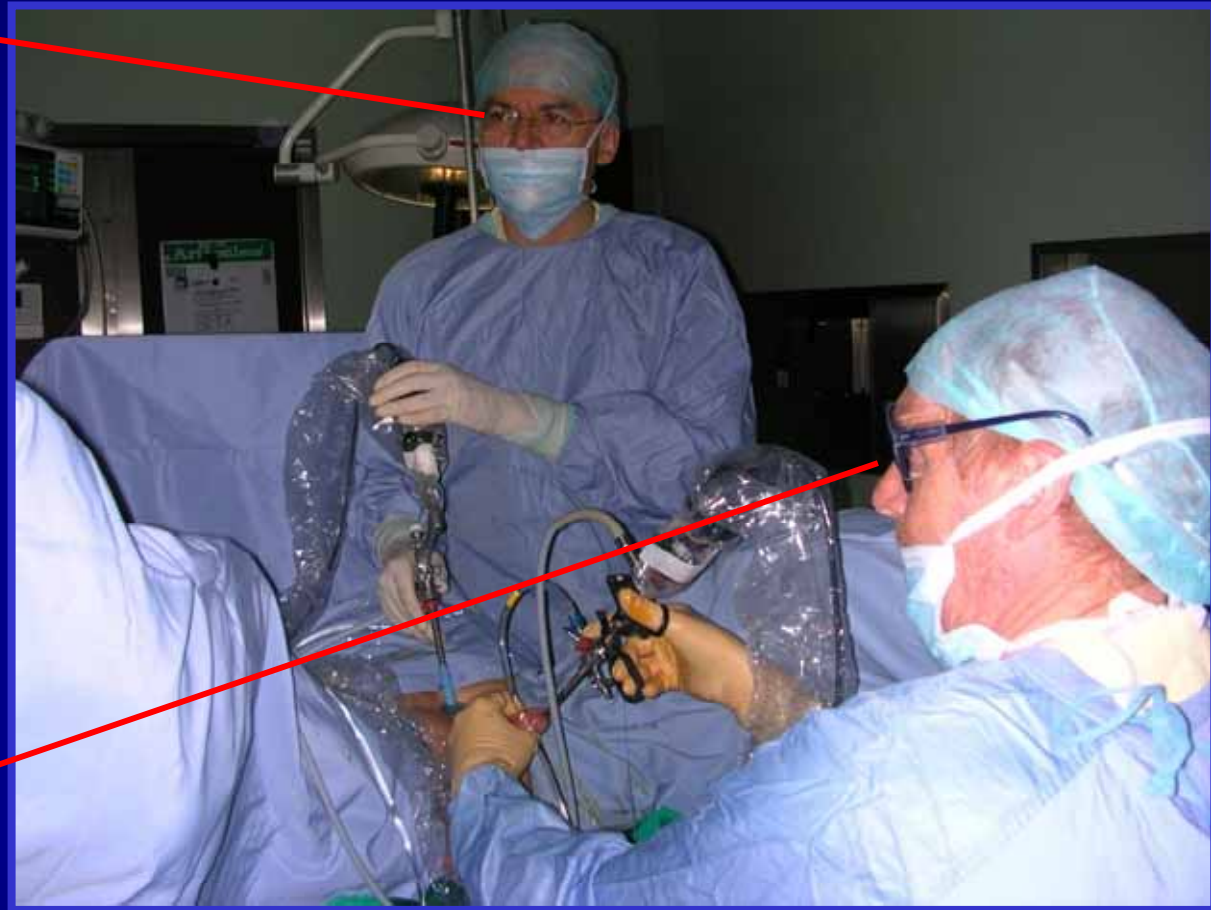
Five-hour emergency (?) urethral realignment





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



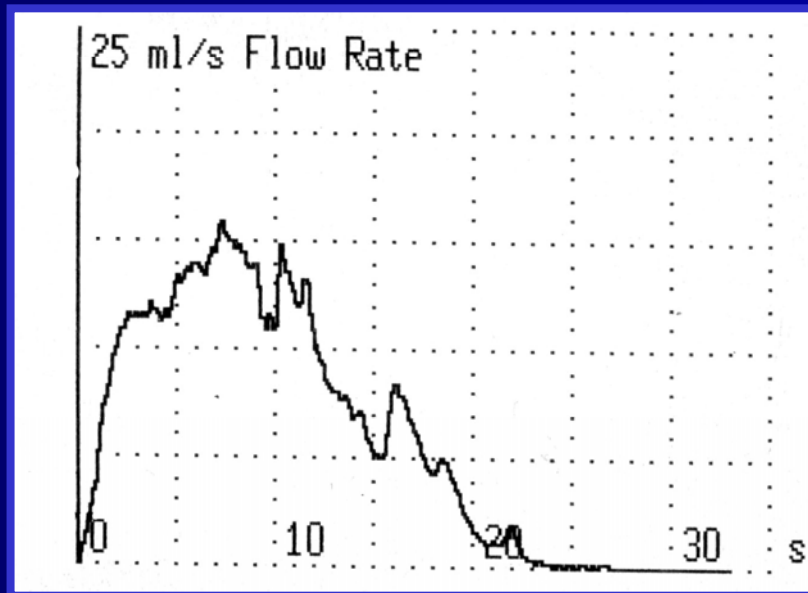


Center for Reconstructive Urethral Surgery



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

Restore the urethral lumen, preserving urinary continence without jeopardizing sexual function residual to the trauma



www.urethralcenter.it



What can you find in www.urethralcenter.it?

- Up-to-date Information on urethral pathology and surgery
- Everything you need to know about urethral stricture diseases
- How to make a diagnosis
- All the surgical techniques performed at our Center
- An up-to-date database of surgical outcome
- Information and opportunities for "hands-on" training
- Up-to-date literature
- The articles published by Guido Barbagli
- The books published by Guido Barbagli
- The lectures presented by Guido Barbagli at Meetings and Congress
- The history of urethral surgery
- An Atlas of Surgical Techniques
- Video
- Comments and suggestion for the urologists of XXI century
- ...and more!

The website is up-to-date monthly

This lecture is fully available on our website

Thank you !



Center for Reconstructive Urethral Surgery

