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ESU COURSE: Trauma in Urology

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Center for Reconstructive Urethral Surgery
Traumatic posterior urethral disruption

Pelvic fracture urethral distraction defects

PFUDD

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Pelvic fracture urethral distraction defects

PFUDD

• orthopedic surgeon

• general surgeon

• vascular surgeon

• thoracic surgeon

• urologic surgeon

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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”

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

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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.

Preserve the residual sphincter mechanism at the bladder neck.

Divert urine away from the site of injury.

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 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 clinical status
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

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Immediate management of urethral trauma with associated lesions

- bladder rupture
- bladder neck lesions
- rectal tear

Immediate surgical exploration
Imaging techniques

Site of lesion

membranous

prostatic

adult

children

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Imaging techniques

Type of urethral lesion

stretched
partial rupture
complete rupture

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Question for the Audience

Wait and see
Retrograde urethrography
Urethroscopy
Suprapubic cystostomy

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Question for the Audience

Wait and see
Urethroscopy
Catheter
Suprapubic cystostomy
Question for the Audience

- Urethroscopy
- Catheter
- Suprapubic cystostomy
- Immediate open repair

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Question for the Audience

- Suprapubic cystostomy
- Immediate endoscopic realignment
- Immediate open repair
Question for the Audience

Suprapubic cystostomy
Immediate endoscopic realignment
Immediate open repair
Immediate management of posterior urethral trauma without associated lesions

- stretched
- partial rupture
- complete rupture

Percutaneous suprapubic cystostomy under ultrasonographic guidance

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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

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Endoscopic urethral realignment

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

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Endoscopic urethral realignment

appropriate operating room?

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Endoscopic urethral realignment

appropriate instruments?
Endoscopic urethral realignment

appropriate patient?
Endoscopic urethral realignment

appropriate surgeon?

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Question for the Audience

Endoscopic urethral realignment

Immediate or Delayed ?

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Question for the Audience

Endoscopic urethral realignment

Simple or Complex procedure?
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

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Question for the Audience

Complex posterior urethral stricture

Send the patient to the Referral Center

or

perform the urethroplasty myself?
YES
Endoscopic urethral realignment
Question for the Audience
Endoscopic urethral realignment prevent stricture development?

YES
NO

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Simple posterior urethral stricture
Question for the Audience

Simple posterior urethral stricture

Send the patient to the Referral Center

Urethrotomy

Stent

Urethoplasty
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

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

Avoid jeopardizing sexual function residual to the trauma
Next month, this lecture will be fully available on our website

Thank you!