9th Conference of the Arab Association of Urology

7th International Conference of Jordanian Association of Urological Surgeons

Amman – Jordan
22 – 24 November 2011
The Team

Salvatore Sansalone

Giuseppe Romano

Sofia Balò
Emergency and delayed treatment of patients with pelvic fracture urethral distraction defects
Emergency treatment of patients with 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”
Emergency treatment of posterior urethral trauma

- Suprapubic urinary diversion
  - Immediate

- Endoscopic urethral realignment
  - 7 – 15 days following trauma

- Delayed urethroplasty
  - 4 months following trauma
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 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.
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

prostatic

adult

children
Imaging techniques

Type of urethral lesion

- stretched
- partial rupture
- complete rupture
Immediate management of posterior urethral trauma without associated lesions

- stretched
- partial rupture
- complete rupture

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.

e-mail: info@urethralcenter.it
Websites: www.uretra.it www.urethralcenter.it
Urethra: stretched
Urethra: partial rupture
Urethra: complete rupture
In patients with PFUDD, urinary diversion by suprapubic cystostomy is the only method that 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 posterior urethral trauma without associated lesions

urethra

- stretched
- partial rupture
- complete rupture

Percutaneous suprapubic cystostomy under ultrasonographic guidance
Immediate management of urethral trauma with associated lesions

- bladder rupture
- bladder neck lesions
- rectal tear

Immediate surgical exploration

e-mail: info@urethralcenter.it
Websites: www.uretra.it www.urethralcenter.it
Endoscopic urethral realignment
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?
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 33 patients who underwent holmium laser urethrotomy for traumatic posterior urethral strictures

Mean follow-up 73 months (12 – 125 months)
Results on 33 patients who underwent holmium laser urethrotomy

Result after one urethrotomy

<table>
<thead>
<tr>
<th>Success</th>
<th>18 (54.5%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure</td>
<td>15 (45.5%)</td>
</tr>
</tbody>
</table>

e-mail: info@urethralcenter.it  Websites: www.uretra.it  www.urethralcenter.it
Results on 33 patients who underwent holmium laser urethrotomy

Result after two urethrotomies

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>success</td>
<td>27 (81.8%)</td>
</tr>
<tr>
<td>failure</td>
<td>6 (18.2%)</td>
</tr>
</tbody>
</table>
Results on 33 patients who underwent holmium laser urethrotomy

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>success</td>
<td>30 (90.9%)</td>
</tr>
<tr>
<td>failure</td>
<td>3 (9.1%)</td>
</tr>
</tbody>
</table>

Result after three urethrotomies
Results on 33 patients who underwent holmium laser urethrotomy

Result after five urethrotomies

<table>
<thead>
<tr>
<th>success</th>
<th>32 (96.9%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>failure</td>
<td>1 (3.1%)</td>
</tr>
</tbody>
</table>
Results on 33 patients who underwent holmium laser urethrotomy.

- 90% success rate
- 100% for 5 urethrotomies
The use of holmium laser urethrotomy may represent a rationale option in patients with posterior traumatic short urethral stricture.

No damage to the erectile neuro-vascular tissue

Patient should be fully informed that only 54.5% of patients require only one urethrotomy.

45.5% of patients require two or more urethrotomies to obtain a stable result over time.
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
Delayed treatment of patients with pelvic fracture urethral distraction defects

Posterior urethroplasty
Posterior urethroplasty

How to repair posterior urethral stricture
preserving urinary continence
Preoperative patient evaluation

Retrograde urethrography
Cystography – supine position

50 cc  100 cc  200 cc

Cystography – standing position

Valsalva
Combined retrograde and voiding urethrography
Endoscopic evaluation of the anterior urethra
Endoscopic evaluation of the bladder neck and prostatic urethra
Posterior urethroplasty using combined approach

suprapubic
endoscopic
approach

light

perineal surgical approach
Patient preparation

simple lithotomy position
Positioning-related complications

Exaggerated lithotomy position
Patient preparation

Allen stirrups
Positioning-related complications

Standard stirrups
Patient preparation

Sequential inflatable compression sleeves
Combined approach
Appropriate surgical instruments

Simple retractor using atraumatic hooks
Appropriate surgical instruments

Perineal flexible light
Cut on the light
Cut on the tip
when?

perineal pubectomy

retrocrural urethral re-routing
1. Anatomical relationship between pubic bone and prostatic apex

2. Length and blood supply of the bulbar urethra
Anatomical relationship between pubic bone and prostatic apex
The urethrography doesn’t provide any information about the anatomical relationship between pubic bone and prostatic apex.
Dynamic three-dimensional spiral computed tomographic cysto-urethrography: a novel technique for evaluating post-traumatic posterior urethral defects

A.-W. EL-KASSABY, T. OSMAN, A. ABDEL-AAL, M. SADEK and N. NAYEF

Departments of Urology and *Radiology, Ain-Shams University, Cairo, Egypt

Accepted for publication: 25 April 2003

B J U International 2003; 92: 993-996
Length and blood supply of the bulbar urethra
• Bulbo-prostatic gap shorter than 1/3 of the entire length of the bulbar urethra may be repaired using simple perineal approach

• Bulbo-prostatic gap longer than 1/3 of the entire length of the bulbar urethra may required perineal pubectomy

J Urol 2008; 179: 1879-1881
bulbo-prostatic gap: 1.6 cm

entire length of bulbar urethra: 5 cm

1/3 of the entire length of bulbar urethra: 1.6 cm

According to Koraitim’ gapometry, on this case pubectomy is unnecessary
Pubectomy and retrocrural urethral re-routing is reported in the following cases:

- redo-cases
- pediatric cases
  - pre-adolescent boys
  - patients from Egypt, India, Nepal

showing short bulbar urethra with poor vascular blood supply
Length of the penis and bulbar urethra according to the race

- black: 6.56
- white: 6.11
- hispanic: 6.01
- amerindian: 6.00
- east indian: 5.89
- middle eastern: 5.87
- east asian: 5.32
The BBC reported an Indian Council of Medical Research study finding that “about 60% of Indian men have penis which are between three and five centimeters shorter than international standards used in condom manufacture”

http://en.wikipedia.org/wiki/Penis_size
Conclusion

Posterior urethral distraction defects have a wide spectrum of presentation from simple to complex.

The reconstruction required is influenced by multiple factors.
Conclusion

Penile length represents a factor that may influence the surgical technique (pubectomy vs simple perineal approach) and the result of posterior urethroplasty.
Register now!

www.webon.uretra.it
Next month, this lecture will be fully available on our website

Thank you!