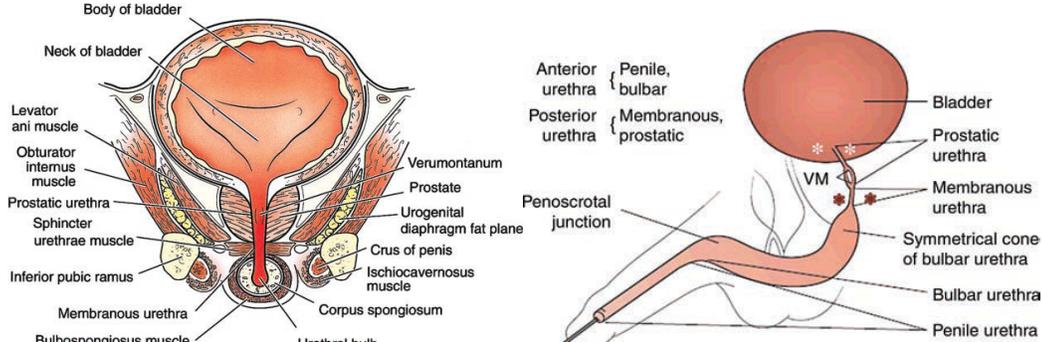


TRAUMA - EVALUATION OF SUSPECTED URETHRAL INJURY IN TRAUMA

<p>Cross references (including NSW Health/ SESHHS policy directives)</p>	
<p>1. What it is</p>	<p>Evidenced-based guidelines for the evaluation of potential urethral injury following pelvic or perineal trauma</p>
<p>2. Employees it applies to</p>	<p>Emergency Department medical personnel and Surgical Fellows/Registrars managing trauma patients</p>
<p>3. When to use it</p>	<p>Following the initial stabilisation of severely injured trauma patients when mechanisms of injury, clinical symptoms or signs raise the suspicion of urethral injury</p>
<p>4. Why the rule is necessary</p>	<p>Urethral injury is a common complication of pelvic trauma that, if undiagnosed, may lead to significant long-term morbidity. Injury by of the membranous urethra occurs in 3%–25% of patients with pelvic fractures (3).</p>
<p>5. Who is responsible</p>	<p>All clinicians involved in the care of trauma patients where urethral injury may be a consequence of the injury.</p>
<p>6. Process</p> <p>6.1 Assessment - Index of suspicion</p> <p>Urethral injury should be suspected in patients with pelvic fracture, straddle injury or penetrating injuries adjacent to the urethra. Diagnosis of urethral injury requires a high index of suspicion. The type of pelvic fracture has been shown to predict the likelihood of urethral trauma. Diastasis of the symphysis pubis or fracture of the pubic rami following high energy trauma, particularly inferomedially are most commonly associated with urethral trauma.</p> <p>The male urethra is vulnerable because of its close relation to the pubic bones and fixity of the puboprostatic ligaments. In men, the external portion is also susceptible to direct trauma from bone fragments arising from the pubic rami. The distal membranous urethra is especially at risk, and its injury may disrupt the active continence mechanism. Injury of the female urethra is rarer because of shorter length, internal location, increased elasticity, and less rigid attachment of the urethra to the adjacent pubic bones.</p> <p>Female urethral injury is usually seen in cases of severe pelvic trauma and may be associated with vaginal (75%) or rectal trauma (33%) or penetrating injury close to the urethral orifice. If on inspection injury adjacent to the urethral orifice is seen or suspected prompt evaluation by the on call Urologist is mandated prior to any attempt to pass a Foley catheter.</p> 	

6.2 Assessment – Clinical signs

Initial management is directed at stabilisation of the severely injured patient. Symptoms include:

1. Inability to void or
2. Gross haematuria.

Physical examination may reveal:

1. Blood at the penile meatus
2. Swelling or hematoma of the perineum or penis after a pelvic fracture, or after significant lower abdominal or perineal trauma without fracture
3. The so-called “high-riding prostate” on rectal examination is an unreliable sign.

In female patients with pelvic trauma, clinical signs of possible urethral injury include vaginal bleeding, labial oedema, voiding difficulty, blood at the meatus, hematuria, and urinary leak per rectum.

6.2 Investigation – retrograde urethrography

In the setting of high risk pelvic fracture and/or clinical evidence of urethral injury with one or more of the above symptoms or signs retrograde urethrography should be performed in the Trauma Resuscitation bay as an adjunct to secondary survey.

- The patient is positioned supine while a 16FR Foley catheter is advanced into the urethral meatus just far enough to admit the uninflated balloon (approx. 3-5cm). The balloon is slowly inflated with 0.5 – 1.0ml of water. Do not over inflate as this will cause pain and may damage the urethral mucosa.
- Two oblique x-rays of the lower pelvis are taken while slowly injecting 20ml of full-strength contrast through the catheter using a 50ml urologic syringe (at 10mls and then 20mls). If injury is excluded the balloon on the Foley catheter is deflated and then the catheter can be fully advanced.
- If there is any abnormality on the urethrogram or doubt about the existence of a urethral injury, or injury is seen, in a patient with a high risk pelvic fracture the Urology registrar should be contacted to assess the patient. The patient may need a suprapubic catheter under ultrasound guidance.
- If there is no evidence of urethral injury, the catheter passes easily and frank haematuria is drained, the patient will require additional imaging in the form of CT pyelogram and cystogram using 300mls contrast instilled via catheter under gravity.

7. Compliance evaluation

Q1: In which patients should urethral injury be suspected?
 A: Urethral injury should be suspected in patients with pelvic fracture, straddle injury or penetrating injuries adjacent to the urethra.
 Q2: In which patients should retrograde urethrography be performed?
 A: In the setting of high risk pelvic fracture and/or clinical evidence of urethral injury with one or more of the above symptoms or signs retrograde urethrography should be performed.

	<p>Q3: Describe the retrograde urethrography process as performed in the Trauma Resuscitation room A: As per section 6 Other: The frequency of conduction of this process will be monitored using the St George Hospital trauma registry</p>
<p>8. External references</p>	<ol style="list-style-type: none"> 1. Koraitim MM. Pelvic fracture urethral injuries: evaluation of various methods of management. J Urol 1996;156:1288–1291. 2. Ku JH, Kim ME, Jeon YS, Lee NK, Park YH. Management of bulbous urethral disruption by blunt external trauma: the sooner, the better? Urology 2002;60:579–583. 3. Patel U. Lower urinary tract trauma. In: Patel U, Rickards D, eds. Imaging and urodynamics of the lower urinary tract. London, England: Taylor & Francis, 2005; 115–121. 4. Goldman SM, Sandler CM, Corriere JN Jr, et al. Blunt urethral trauma: a unified, anatomical mechanical classification. J Urol 1997;157:85–89. 5. Basta AM, Blackmore C C, Wessells H, Predicting Urethral Injury From Pelvic Fracture Patterns in Male Patients With Blunt Trauma. The Journal of Urology Vol. 177, 571-575, Feb 2007 6. Mark D. Ingram MD, Watson SG Skippage P, Patel U. Urethral Injuries after Pelvic Trauma: Evaluation with Urethrography. RadioGraphics 2008; 28:1631–1643

I, *Andrew Bridgeman*, *Clinical Group Manager* attest that this business rule is not in contravention of any legislation, industrial award or policy directive.

Revision and approval history

Date	Revision number	Contact Officer (Position)	Date for revision
02/12/2011	1	Kate Curtis, Trauma CNC	02/12/2015