

Injury in Pelvic Fracture Urethral Injury Is Membranobulbar: Fact or Myth



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Pelvic fracture urethral injuries commonly result from motor vehicle collisions, and the mechanism of injury conventionally thought was a shearing injury at the membranous urethra, which would destroy the striated sphincter. Continence would therefore depend on the bladder neck. Striated sphincter and the site of injury have not been shown clearly on preoperative imaging. We demonstrate our protocol of performing magnetic resonance imaging whereby the membranous sphincter is seen intact and the injury is shown to be at the membranobulbar junction contrary to conventional belief. This suggests that surgical reconstruction can be undertaken, preserving both sphincter mechanisms and improving post-operative continence. UROLOGY 102: e9–e10, 2017. Crown Copyright © 2017 Published by Elsevier Inc.

The mechanism in pelvic fracture urethral injuries is thought to be shearing injury at the membranous urethra, where it is fixed by urogenital diaphragm.¹ If true, striated sphincter would be destroyed and intrinsic sphincter would maintain continence.²

Andrich and Mundy³ evaluated 20 patients with pelvic fracture urethral injuries demonstrating striated sphincter function urodynamically in 11 (55%), endoscopically in 13 (65%), and functionally in 17 (85%) cases. They suggested avulsion of membranous from bulbar urethra with preservation of striated urethral sphincter in most patients.

Preoperative imaging has not adequately demonstrated striated sphincter. Radiologists perform magnetic resonance imaging on empty bladder. We modified the protocol using urine as natural contrast. T2 image acquisition was performed on empty bladder (Fig. 1). Suprapubic catheter was clamped and the bladder was filled naturally. Tamsulosin 0.4 mg administered prior assists the opening of the bladder neck. Premixed solution (sterile saline and lubricating jelly) is instilled in the urethra. We demonstrate an intact membranous urethra attached to prostatic urethra, proving that injury is membranobulbar and not prostatomembranous as thought conventionally (Fig. 2). We believe this is the first

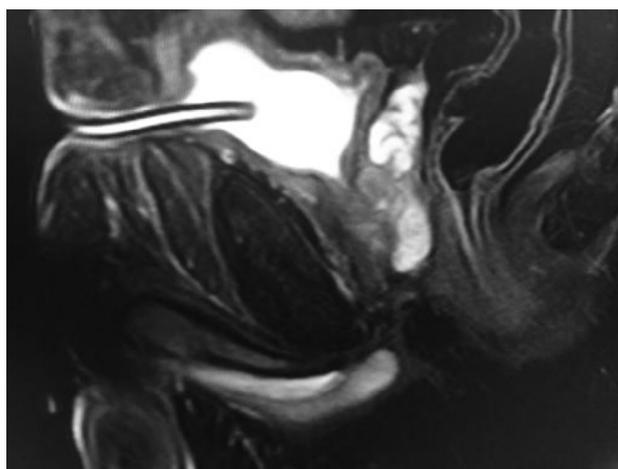


Figure 1. T2-weighted magnetic resonance image of the pelvis on empty bladder with pelvic fracture urethral injuries.

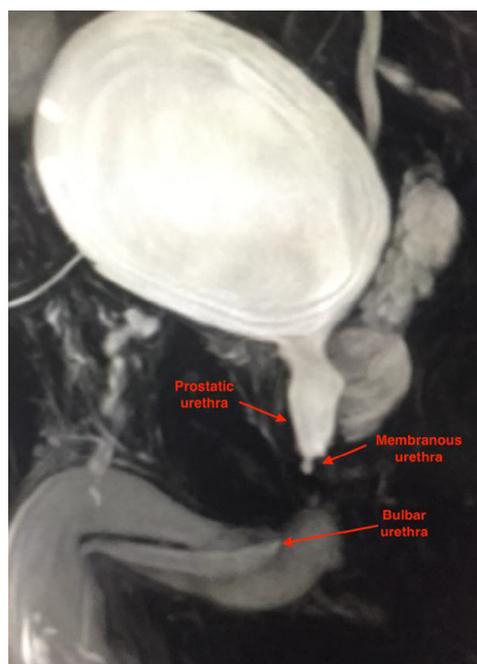


Figure 2. T2-weighted magnetic resonance image of the pelvis with pelvic fracture urethral injuries using our protocol for image acquisition.

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time membranous urethra and the site of injury are clearly demonstrated on preoperative imaging.

In most cases, surgical reconstruction can be performed, preserving both sphincter mechanisms with greater chance of achieving continence.

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