Diagnosis and Surgical Management of Male Pelvic, Inguinal, and Testicular Pain

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KEYWORDS

• Pelvic pain • Inguinodynia • Orchalgia

KEY POINTS

- Pain in the prostate follows a continuum from acute to chronic, and treatment can be complicated by poor penetration of antibiotics into the reproductive tract.
- Inguinal pain occurs most commonly in the context of a previous herniorrhaphy.
- First-line pharmacotherapy should include gabapentinoids and tricyclic antidepressants, rather than opioids.
- Orchalgia and scrotal pain should prompt an ultrasonography scan to rule out acute disorder.
- Although promising surgical approaches exist to treat chronic scrotal pain, their success depends in part on intervening before central sensitization has occurred.

INTRODUCTION

Pain occurs in the male genitourinary organs, as for any organ system, in response to traumatic, infectious, or irritative stimuli. There are several hypothetical instances in which a knowledge and understanding of chronic genitourinary pain can be of great utility to practicing nonurologists, especially in clinical settings in which urologic consultation services are scarce or not readily available.

Naturally, genitourinary pain should initially be regarded as a symptom of a possible underlying disorder, and every effort should be exerted to identify an organic source, but, when a pertinent causative disorder is effectively excluded from the differential diagnosis, chronic pain then becomes its own diagnosis. Chronic pain in the male genitourinary system is a distressing complaint for the patient, with only subtle objective anatomic and microanatomic findings, if any, and effective treatment options until

Disclosure: The authors have nothing to disclose.
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Surg Clin N Am 96 (2016) 593–613
http://dx.doi.org/10.1016/j.suc.2016.02.014 **surgical.theclinics.com**
0039-6109/16/$ – see front matter

recently have been limited.[1] This article demystifies the causes of genital pain and reviews the current approaches to treatment in three regions of the male genital tract commonly affected by chronic pain: the prostate, the inguinal region, and the scrotum.

CHRONIC PAIN PATHOPHYSIOLOGY

Genitourinary pain may be regarded as having either a neuropathic or a nociceptive cause. The term neuropathic pain implies that the peripheral nerves are involved in the primary disorder or have been directly damaged by infection, trauma, or surgery. The resultant pain usually develops in the sensory distribution of the affected peripheral nerve or nerves, and although the original insult has healed, the neurons acquire a pathologic level of activity to autonomously generate impulses in the absence of a stimulus.[2] In contrast, non-neuropathic pain might include that of a persistent somatic nociceptive source, including inflammation of a wound, keloid formation, mass effect from aberrant anatomy such as a recurrent hernia, a foreign body such as a metallic vasectomy clip, or a chronic infection of the prostate or genitalia. There is evidence that additional pathophysiologic processes also contribute to the evolution of chronic pain, including neuroplasticity, afferent hypersensitivity, pain centralization, and deafferentation hypersensitivity, which if present may predispose a patient to treatment failure even if a neuropathic or nociceptive source is identified and corrected.[3]

Several hypotheses exist for the emergence of chronic pain, and these theories are not mutually exclusive. There is evidence that the peripheral and central nervous systems undergo a form of modulation following a long duration of painful stimuli, resulting in sensitization of the pain receptors.[4] Other evidence suggests that, as peripheral nerves regenerate following injury, axons may rejoin erroneously with one another in the dorsal spinal cord such that a depolarization detected by an axon might propagate its signal to an inappropriate neuron proximally, and thus innocent stimuli may be perceived as inordinately noxious.[5]

PROSTATIC PAIN

The term prostatitis refers to a broad array of disease processes. The National Institutes of Health (NIH) developed a classification system for prostatitis in 1995 and proposed universal adoption at the International Prostatitis Collaborative Network workshop in 1998, in Washington, DC[6] (**Table 1**).

CATEGORY I: ACUTE BACTERIAL PROSTATITIS

Clinical Presentation

Prostatitis is a common genitourinary infection, with a lifetime prevalence of up to 16%.[7] A proposed cause of acute bacterial prostatitis (ABP) involves the reflex of

Table 1
NIH prostatitis classification system

Category	Type
I	Acute bacterial prostatitis
II	Chronic bacterial prostatitis
III	Chronic prostatitis/chronic pelvic pain syndrome
IIIA	Inflammatory
IIIB	Noninflammatory
IV	Asymptomatic inflammatory prostatitis