

PATHOPHYSIOLOGY OF THE INFLAMMATORY PROCESS IN EPIDIDYMITIS

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Annotation: Dear author this article provides information on the pathophysiology and physiology of epididymitis. this article is written in a case that uses internet resources.

Key words: epididymitis, tubular structure, testicular torsion.

Epididymitis is an inflammation of the epididymis, a tubular structure on the testis where sperms mature. Epididymitis is a relatively common condition that is easily be confused with testicular torsion. Epididymitis is managed medically, whereas testicular torsion is a surgical emergency. This activity reviews the presentation, evaluation, and management of epididymitis and highlights the role of the interprofessional team in managing patients with this condition.

The epididymis is part of the genitourinary tract that includes the testes, the vas deferens, the prostate, the urethra, and the bladder. Epididymitis is an infection or inflammation of the epididymis, the tubular structure located on the posterior and superior aspect of the testis where sperms mature prior to ejaculation. Because of its proximity to the testis, any infectious or inflammatory process affecting the epididymis may spread to the testis itself, a condition known as epididymo-orchitis. The majority of cases of epididymitis occur as a result of bacterial infection. The types of bacterial infection include common urinary pathogens as well as pathogens known to cause sexually transmitted disease. In most cases of epididymitis, infection occurs either as a result of the retrograde flow of urine, most commonly seen in elderly males, or as a result of a sexually transmitted disease, most often encountered in males ages 20 to 40. In males prior to sexual maturity, the most common cause of epididymitis is inflammation that occurs as a result of trauma or repetitive activities such as sports. The possibility of a sexually transmitted disease, however, must be considered even in males prior to sexual maturity due to the possibility of sexual abuse. Other possible causes of epididymitis include chemical, drug-induced, and viral infections.

Epididymitis most often occurs as a result of a bacterial infection. In the case of a sexually transmitted disease, bacteria are introduced during sexual intercourse and migrate through the genitourinary tract to the epididymis. In cases of infection due to urinary tract infection, retrograde flow of urine or stagnation of urine along the genitourinary tract results in infection of the epididymis. When epididymitis is caused by repetitive movements, the mobility of the scrotum and its contents can result in inflammation of the testes or the epididymis. Certain viruses, namely mumps virus, have a predisposition to infect the testis.

The patient will likely complain of scrotal pain and swelling, quite often gradual in onset rather than acute. It may begin with flank pain that migrates to the scrotum. The patient may also complain of urinary symptoms such as dysuria, urinary frequency, urgency, or incontinence of urine. The patient might also complain of urethral discharge. A careful history should include the possibility of traumatic injury or injury from repetitive activities such as sports, sexual history

including history of prior sexually transmitted disease exposures, and past medical history including problems associated with the genitourinary tract such as prior urinary tract infection, prostatitis, or surgical procedures.

A physical exam will likely reveal swelling of the scrotum, and palpation of the scrotum will likely reveal tenderness of the scrotum, usually unilaterally but in some cases bilaterally. Tenderness to palpation of the epididymis along the posterior and superior aspect of the testis is the hallmark of epididymitis. Tenderness upon palpation of the testis itself may indicate the possibility of epididymo-orchitis or orchitis. The skin overlying the scrotum may appear warm, erythematous, inflamed, and indurated as a result of infection. Tender inguinal adenopathy may be present as well. Physical examination of the penis may demonstrate a urethral discharge. Digital rectal examination may demonstrate tenderness upon palpation of the prostate gland. These findings, while not necessarily indicative of epididymitis itself, might be present in infections of the male genitourinary tract.

Evaluation of the male patient with scrotal pain should begin with urinalysis. Though nonspecific, the presence of red blood cells and white blood cells in the urine may indicate an acute infectious or inflammatory condition. Urine should be cultured to determine the causative agent in cases associated with urinary tract infection. A urethral swab is indicated in cases where the sexually transmitted disease is considered likely given the patient's sexual history. The radiographic evaluation includes ultrasonography with attention not only to the anatomic structure but also to assess vascular flow to the testis. Ultrasonography can demonstrate inflammation of the epididymis and testis in cases of epididymitis and epididymo-orchitis. Computerized tomography also may be of use in cases where the patient has flank pain and urinary symptoms associated with an acute genitourinary problem such as ureterolithiasis.

Of utmost importance is ruling out the possibility of testicular torsion as a cause of scrotal pain. While epididymitis tends to occur rather gradually, the pain associated with testicular torsion often occurs very abruptly. History alone, however, may not be sufficiently clear to exclude the possibility of testicular torsion as a result of acute scrotal pain without the aid of emergent urological consultation and ultrasonography.

Treatment of epididymitis is based upon identification of the causative organism, though presumptive treatment may be initiated based upon the prevalence of the most typical agents (*C. trachomatis*, *N. gonorrhea*, *E. coli*). For suspected sexually transmitted cases, ceftriaxone along with doxycycline is recommended although azithromycin can be used as an alternative. Fluoroquinolones may be used in older patients where an enteric organism is suspected or likely. Pain and swelling can be dramatically reduced in many cases by using ice.

Patients with epididymitis caused by the sexually transmitted disease should refrain from sexual intercourse until asymptomatic, should consider safe sex practices to reduce the chance of re-infection, and should refer sexual contacts to their primary care provider or to their local health department for evaluation and treatment. Patients with epididymitis caused by urinary tract infection should be encouraged to drink plenty of fluids to flush the genitourinary tract, should be advised to take the entire course of antibiotics as prescribed, and should follow up with both their primary care provider and with a urologist for further evaluation and management. When

the provider entertains the possibility of sexual abuse, he or she should contact local authorities, child protective services, or other social service agencies based upon laws, policies, and procedures of that jurisdiction.

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