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29.1 General Facts

Orchitis, the isolated inflammation of the testis, is an uncommon disease. The isolated inflammation of the epididymis, epididymitis, is relatively more common. Epidemiological data regarding the incidence and prevalence of these infections are lacking. In general, the aetiology of primary and secondary orchitis has been classified into nonspecific, specific and viral orchitis (Table 29.1). Viral orchitis, the most common type of primary haematogenous orchitis, is most often caused by mumps infection. According to older data, it does occur in 20–30 % of post-pubertal men with mumps infection [1]. Secondary orchitis usually occurs in connection with a nonspecific or specific epididymitis as “epididymoorchitis” and is usually bacterial in aetiology. In men aged 15–60 years, the incidence rate of epididymoorchitis have been reported as 21 per 10,000 patient-years in the UK [2]. The most common pathogens in men ≤ 35 years of age are sexually transmitted *Chlamydia trachomatis* or *Neisseria gonorrhoeae* infections. In boys younger than 14 years and in men older than 35 years, infection is generally caused by common urinary pathogens, such as *Escherichia coli* and other coliform bacteria, and often associated with urogenital malformations and bladder outlet obstruction. Specific granulomatous epididymoorchitis can occur by systemic infections such as tuberculosis, brucellosis, syphilis and fungal disease.

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Table 29.1 Classification of orchitis

Forms of orchitis	Aetiology
Nonspecific epididymoorchitis	<i>Escherichia coli</i> Other enterobacteriaceae <i>Chlamydia trachomatis</i> <i>Neisseria gonorrhoeae</i> <i>Ureaplasma urealyticum</i> <i>Pseudomonas aeruginosa</i> <i>Proteus mirabilis</i> <i>Klebsiella pneumoniae</i> Staphylococci Streptococci
Nonspecific bacterial orchitis in children	Pneumococci <i>Salmonella</i> spp. <i>Klebsiella</i> spp. <i>Haemophilus influenzae</i>
Nonspecific granulomatous orchitis in adults	Idiopathic (Autoimmune)
Specific granulomatous orchitis	<i>Mycobacterium tuberculosis</i> <i>Treponema pallidum</i> <i>Brucella</i> spp. Intravesical Bacillus Calmette-Guerin (BCG) therapy
Viral orchitis	Mumps Mumps vaccine Coxsackie Mononucleosis Varicella Echovirus Lymphocytic choriomeningitis

29.2 Symptoms, Classification and Grading

Symptoms and clinical findings play a major role in diagnosing orchitis or epididymoorchitis. These infections are usually unilateral but can also occur bilaterally (e.g. by tuberculosis, brucellosis, mumps). Patients typically present with a gradual onset of scrotal pain and findings of scrotal erythema and swelling. According to the underlying aetiology, clinical manifestations may include dysuria, haematuria, urethral discharge, scrotal mass, scrotal fistula and associated systemic symptoms such as fatigue, malaise, myalgias, fever, chills, nausea and headache. In acute infectious process, physical examination reveals enlarged testis (and epididymis) with induration and tenderness. The spermatic cord may also be tender and swollen. Ultrasound examination usually shows homogeneously enlarged testis (and epididymis), a reactive hydrocele and oedematous scrotal skin (thickening), and is useful diagnostics for the detection of abscess formation (Fig. 29.1). In advanced cases, testis cannot

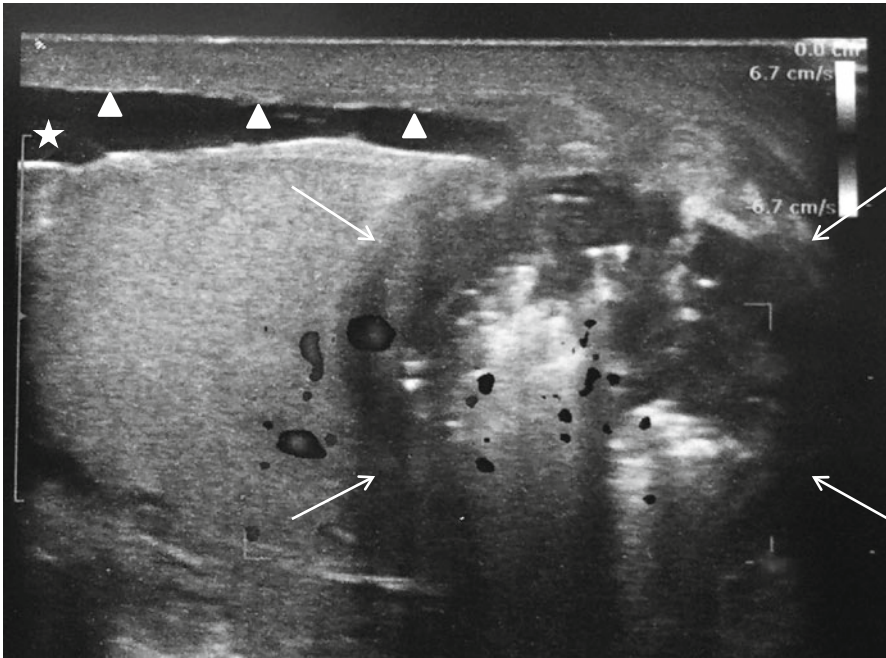


Fig. 29.1 A 57-year-old patient with abscess in the solitary right testis. A longitudinal sonographic image (obtained with a 12-MHz linear transducer) shows an abscess lesion in the lower testicular pole (*arrows*), a reactive hydrocele (*asterisk*) and scrotal skin thickening (*arrowheads*)

be isolated from epididymis. Multiple small hypoechoic nodules in an enlarged testis may occur by, e.g. tuberculous orchitis. Colour Doppler ultrasound of the testis (and epididymis) usually reveals hypervascularity of the involved tissue. The differential diagnosis of the orchitis or epididymoorchitis should include testicular torsion (especially in children and adults), isolated epididymitis, hernias, tumour, lymphoma and leukaemia.

Orchitis and epididymitis are classified as acute or chronic diseases according to the onset and clinical course. In acute phase, symptoms are present for <6 weeks and characterized by pain and swelling. Chronic infection is characterized by a ≥ 6 week history of symptoms of discomfort and/or pain in the scrotum, testicle or epididymis, generally without swelling.

29.3 Therapy

The management of bacterial epididymoorchitis is similar to that of epididymitis. Empiric antibacterial treatment should be initiated based on likely pathogens (Fig. 29.2). In addition, supportive treatment such as bed rest, scrotal elevation, intermittent use of cold packs and the use of nonsteroidal anti-inflammatory drugs

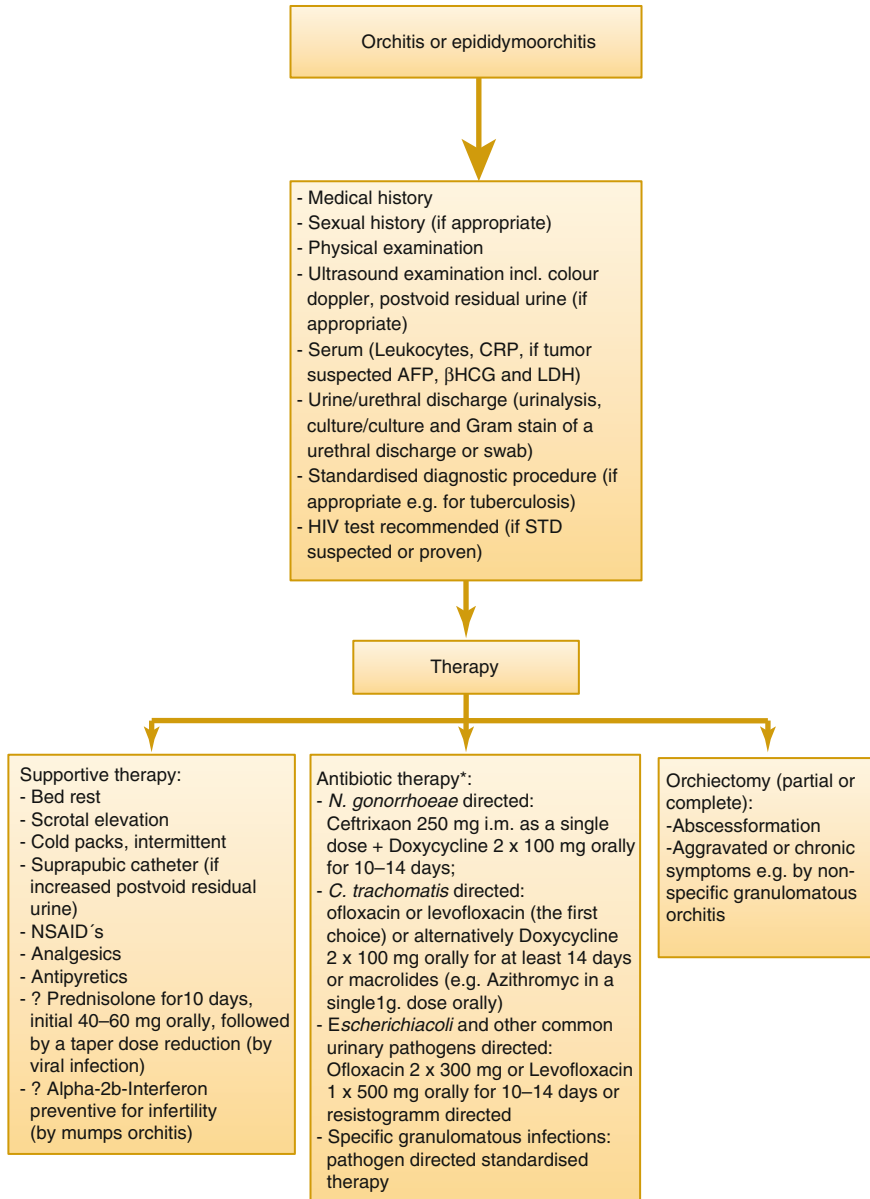


Fig. 29.2 Flow chart demonstrating the pathway from the diagnosis to therapy (*Grabe et al. [3], Centers for Disease Control and Prevention (CDC) [4])

(NSAIDs) are helpful in reducing the duration of the symptoms. In patients with sexually transmitted disease (STD), treatment of their female partners is recommended to prevent reinfection. For patients with severe infection, hospitalization and parenteral antibiotic therapy may be needed.

Antibacterial medications are not indicated for the treatment of viral orchitis. Systemic antiviral treatment is ineffective or not available. In patients with mumps orchitis and serological evidence of IgM antibodies, the use of α -2b interferon may be attempted to prevent testicular atrophy and infertility. In cases of specific granulomatous orchitis, the appropriate treatment is directed against causative pathogens. If the diagnosis remains unclear or testicular abscess or tumour is suspected, surgical exploration and treatment (partial or radical orchiectomy) are indicated. The flow chart (Fig. 29.2) demonstrates the pathway from the diagnosis to therapy.

29.4 Complications

Complications of orchitis or epididymo-orchitis may include sepsis, abscess, loss of the testis, testicular atrophy, subfertility, infertility, sterility and testosterone deficiency.

References

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