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(CASE REPORT)

Bilateral Testicular Necrosis as a Serious Complication of Epididymal-Orchitis: Case Report and Literature Review

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Abstract

Epididymo-orchitis is generally a benign condition, but serious complications such as abscess and testicular necrosis may occur, although rarely. We describe the case of a 54-year-old man with scrotal pain and fever, whose physical examination and further investigations were consistent with bilateral epididymo-orchitis. Despite appropriate antibiotic therapy, his condition worsened, leading to scrotal abscess and bilateral testicular necrosis, necessitating bilateral orchiectomy. This case highlights the possibility of epididymo-orchitis progressing to extremely serious complications despite appropriate antibiotic therapy.

Keywords: Epididymitis; Necrosis; Orchiectomy; Orchitis; Urology

1. Introduction

Epididymal-orchitis is generally a benign condition, but serious complications such as abscess and testicular necrosis may occur, although rarely. We describe the case of a 54-year-old man with scrotal pain and fever, whose physical examination and further investigations were consistent with bilateral epididymis-orchitis. Despite appropriate antibiotic therapy, his condition worsened, leading to bilateral testicular necrosis. This case highlights the possibility of epididymis-orchitis progressing to extremely serious complications despite appropriate antibiotic therapy.

2. Case presentation

A 54-year-old father of three, chronic smoker, diabetic on insulin for 12 years, poorly balanced with poor compliance. He had also been taking an alpha-blocker for 2 years for benign prostatic hypertrophy. He presented to the emergency department with an acutely inflamed and painful scrotum, evolving for a week with fictional burning.

The patient had no history of scrotal trauma or similar episodes. He was sexually active and had no history of sexually transmitted diseases or urethral discharge.

The patient's vital signs were normal except for a fever of 39°C. Clinical examination revealed an acutely swollen and inflamed scrotum, an edematous, shiny and warm scrotal wall, both testicles were enlarged with disappearance of the epididymo-testicular groove. Rectal examination was unremarkable.

Biologic examination showed CRP 402 mg/l, white blood cells 19,000 cells/ul, hemoglobin 11.6 g/dl, platelets 153,000 cells/ul. Renal function and other laboratory values were normal.

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Testicular ultrasound was performed in the emergency department and showed hypervascular testes on color Doppler, with heterogeneous echogenicity.

Both epididymides were swollen and heterogeneous, with testicular sheath thickening and a thin reactive hydrocele. Clinical and paraclinical examinations suggested bilateral EO.

The patient was admitted to the hospital and received venous antibiotic therapy with ceftriaxone 2g/day. Urine culture was positive for *Escherichia coli* sensitive to ceftriaxone.

The course was marked by worsening scrotal inflammatory signs, persistent intense pain and no improvement in the biological inflammatory syndrome after 72 hours of targeted antibiotic therapy.

A follow-up ultrasonography was performed, showing bilateral testicular ischemia, both testicles showing heterogeneous echogenicity and hypoechoic formations.

Surgical exploration revealed bilateral partial testicular necrosis (Fig. 1). Bilateral partial orchiectomy with testicular parenchymal reconstruction was performed (Fig. 2).

Abundant physiologic serum lavage was performed with drain placement and scrotal wall closure. Histopathologic findings showed intratesticular abscess formation and testicular necrosis without tumor cells (Fig. 3).

Recovery from the infection was enabled by partial bilateral orchiectomy and continuous antibiotic therapy.

Figure 1 Surgical exploration of the scrotum showing partial necrosis of both testes

Figure 2 Pieces of bilateral partial orchiectomy

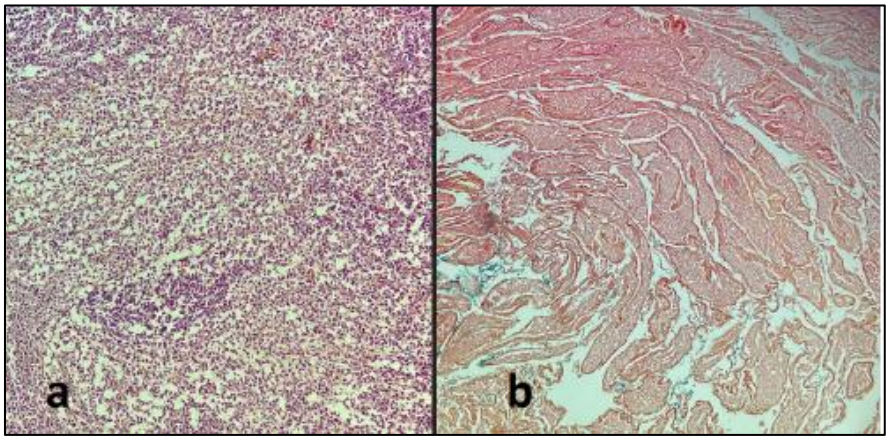

Figure 3 Histological images showing an inflammatory infiltrate consisting mainly of neutrophils and completely necrotic seminiferous tubules

3. Discussion

Testicular necrosis is a rare but serious complication of EO, with an estimated incidence rate of 1-2% [2]. This complication can lead to irreversible loss of function of the affected testicle, making prompt and effective management of EO all the more important.

Other complications of EO include testicular atrophy, infarction and scrotal abscess formation [2]. The rate of these complications is estimated at 39% according to the study by Desai et al. involving 33 men with EO [4]. The incidence of scrotal abscess formation is 3 to 5% according to the study by Mittermeier et al [5].

The pathophysiology of testicular necrosis caused by EO remains poorly elucidated to this day. Several mechanisms seem to play a role, such as obstruction of the spermatic cord secondary to inflammation and thrombosis due to venous congestion, leading to prolonged ischemia and, ultimately, necrosis [6].

The most common infectious causes of EO in young patients are N. gonorrhea and C. trachomatis, while in patients older than 35 years, *E. coli, Enterococcus, Pseudomonas* and *Proteus* are the most common causes [7].

Management of EO is initially based on probabilistic antibiotic therapy, which must be started as soon as bacteriological samples are taken, and then adapted according to the antibiogram.

If there is no response to antibiotics after 48 to 72 hours, the patient should be rapidly evaluated for the possibility of serious complications.

In our case, the poor evolution under antibiotic treatment and the finding of bilateral testicular ischemia on the control ultrasound prompted surgical exploration of the scrotum. Bilateral partial orchiectomy was unavoidable.

Fasciotomy of the testis and spermatic cord is a therapeutic option for sparing the testis [11], but it may also appear to be an overly aggressive alternative to orchiectomy.

However, orchiectomy may reduce fertility, especially in patients with a single testis or subfertility [12].

4. Conclusion

Early diagnosis and appropriate management of epididymis-orchitis are essential to prevent catastrophic complications wherever possible.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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