Original Article

Frequency of epididymo-orchitis in hospitalized patients with acute scrotum at Shohadaye Ashayer Hospital, Khorramabad, Iran

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Abstract

Objective: To investigate the frequency of epididymo-orchitis in patients with acute scrotum.

Methods: In this five-year cross sectional study from March 2004 to June 2009, 83 patients who were hospitalized for acute scrotal pain at Shohadaye Ashayer Hospital in Khorramabad were investigated. First, urine analysis and urine culture tests were carried out followed by sonography if necessary. In cases of suspicious sexual activities, serologic tests and urethral secretion culture were also carried out. In patients whose response to treatment was unsatisfactory after 48 hours, brucellosis and tuberculosis were investigated.

Results: Out of 83 patients with epididymo-orchitis, there were positive urine cultures in 69 patients. In 52 (62.7%) of these patients, 30 were infected with E. Coli, 9 with Klebsiella, 8 with Pseudomonas, and 5 cases with Proteus, respectively. In 17 cases, tuberculosis and ischaemic orchitis were observed.

Conclusion: Among common causes of epididymo-orchitis, rare causes such as tumour, tuberculosis, and brucellosis must be taken into consideration. In all these cases sufficient time for the follow-up should be taken into account.

Keywords: Epididymitis, Epididymo-orchitis, Infection (JPMA 62: 44; 2012).

Introduction

Epididymitis is the inflammation of epididymis that causes sudden pain and swelling that appears as a result of acute inflammation due to spread of infection from bladder, urethra, prostate, ejaculation duct and vas deferens. In most cases of acute epididymitis, orchitis secondary to the local-spread of one-sided epididymitis may occur; this is called epididymo-orchitis. In breastfed children and young boys, epididymitis occurs as a result of urinary infections congenital urogenital anomaly or even the existence of prepuce. In elderly men. BPH, urinary stasis, urinary infection and catheterization are the most common causes. In men younger than the age of 35 who are sexually active and have suspicious sexual activities, epididymitis is a result of sexually transmitted disease (STD). The most common causative microorganisms in children and the elderly are the coliform organisms that result in bacteriuria. In men younger than 35 years age who are sexually active the most common organisms causing epididymitis are Neisseria gonorrhoeae and Chlamydia trachomatis. The Staphylococcus and Streptococcus species are among the less common causes of the disease. Mycobacterial infections can also cause orchitis. The most common cause of viral orchitis is mumps; however, mononucleosis infections are included as well. At times, fungal infection involves the testes. The non-infectious causes are mostly idiopathic, related to trauma, and rarely autoimmune diseases. The most important differential diagnosis is testicular torsion in youth and young men. In most cases, the differentiation between testicular torsion and acute infection is difficult. Scrotal Doppler ultrasonography (to determine the testicular blood flow) is important in making the diagnosis.[1] The aim of this study was to investigate the frequency of epididymo-orchitis in the hospitalized patients with acute scrotum at Shohadaye Ashayer Hospital in Khorramabad, Iran.

Materials and Methods

This cross sectional study was done at the Shohadaye Ashayer Hospital, the general hospital of the Lorestan University of Medical Sciences in Khorramabad from March 2004 to June 2009. All patients with acute scrotum, who were referred to Shohadaye Ashayer Hospital and hospitalized, during this time period were enrolled in this study. After history-taking they underwent complete physical examinations and laboratory tests that confirmed the diagnoses of epididymo-orchitis. In the aforesaid patients, the preliminary laboratory analysis and urine culture were carried out, and in cases required, Doppler sonography was performed to rule out testicular torsion. For those patients who were sexually active and presented with a suspicious history, screening of the Chlamydial antibody and the smear of urethral secretions for Gram-colour staining (also the screening for HIV Ab, HBS Ag, and HCV Ab) were carried out. In all patients with normal urine

analysis and culture but with unsatisfactory results after 48 hours treatment, brucellosis was investigated. Sonography was performed to assess the existence of testicular abscess, and in very rare or chronic cases, the patients were explored for tumour. Tumour evaluation was done in cases who after 6 weeks had no response to medical therapy and did not test positive for brucellosis and tuberculosis.

Results

The patients with acute scrotum, who were referred to Shohadaye Ashayer Hospital and hospitalized in our study span (from March 2004 to June 2009) were 83 in number. The age range was between 2 to 87 years old with an average age of 36.4 ± 20 years. These patients had been referred to Shohadaye Ashayer Hospital in Khorramabad after going through various necessary laboratory tests and were diagnosed with epididymo-orchitis. Without bringing into consideration various age groups, the frequency of epididymo-orchitis causes in all of the patients was investigated. Considering both the common and less common causes, in this study Gram-positive, Gram-negative, Chlamydial and gonorrheal infections, Brucellosis, fungal infections, tuberculosis, ischaemia, mumps, and autoimmune causes were studied (Table).

In a total of 83 patients, 52 (62.7%) were found to have Gram-negative infection. Out of these E. coli was positive in 30 patients including the following: The remaining Gram-negative infections included 9 cases of Klebsiella, 8 cases of pseudomona aeruginosa, and 5 cases of Proteus. Eight patients were positive for Chlamydia trachomatis. Six patients had infection after manipulation and catheterization because of urinary retention, and an other six patients after prostatectomy. Four cases included children aged 2, 5, 6, and 7 years with two cases having vesicoureteral reflux and one case neurogenic bladder, and in the one remaining case despite carrying out IVP and VCUG no pathology was found. There was mixed infection in three cases. In three cases, although tests were negative either for TB (no high ESR), tumour (no tumour marker was positive), Chlamydia, Gonococci, HBSAg, HCVAb, or HIVAb, however, they were fully treated after the routine therapy for Gram-negative and Gram-positive infections. Seventeen (20.5%) patients had Gram-positive infections, of these 4 cases were Streptococcus, 7 staphylococcus, and in 9 cases they were accompanied by a Gram-negative infection. In cases of the responsible organisms for sexually transmitted disease, Chlamydia trachomatis, and Neisseria gonorrhea (gonococci) were observed in 14 (16.8%) patients who had epididymo-orchitis. Of these 10 (12%) patients had Chlamydia, and 4 (4.8%) cases had gonococci. Seven (8.4%) patients were suffering from epididymo-orchitis because of brucellosis. These individuals had active urine analysis, and negative urine culture and negative tests for Chlamydia and gonococci. After the positive Wright test and 2ME, the matter was consulted with infectious diseases specialists. Two cases had a history of brucellosis. In 2.4% of the patients, two men aged 53 and 64 years epididymo-orchitis occurred becase of tuberculosis. These patients reported with a long-term treatment for orchitis and had a relapse of abscess; however, after orchiectomy, histopathology revealed, tuberculosis. Neither history nor symptoms of tuberculosis was found in both patients or their families. Two (2.4%) males aged 36 and 45 years though having the urinary and sonographic symptoms in favour of orchitis did not respond to antibiotic treatment. After radical orchiectomy, tests for alpha-fetoprotein test (FPα) and (β hcG) were positive and a non-seminoma tumour was reported. Two (2.4%) patients had ischaemic orchitis. They were individuals aged 18 and 20 years old and one of them had a surgical history of herniorrhaphy three weeks ago. Doppler sonography in both cases had reported testicular torsion. In 3 (3.6%) cases, viral infection due to mumps was clinically proven. Fungal infection was not reported. The patients who were negative for Chlamydia and gonococci, were tested for HBS Ag, HCV Ab, HIV Ab. However no positive cases were reported. There were no reports of autoimmune diseases either. On the whole the diseases and the associated conditions were as follows: Ten (12%) with diabetes mellitus, and 3 (3.6%) had neurogenic bladder. In the other 3 (3.6%) cases, the patients were in the ICU due to CVA. Nine (10.8%) patients had permanent Foleys catheter.

Table-1: The frequency of the epididymo-orchitis causes.

Cause	Positive	Negative	Total
Gram-positive infection	17 (20.5%)	66 (76.5%)	83 (100%)
Gram-negative infection	52 (62.7%)	31 (37.3%)	83 (100%)
Chlamydia infection	10 (12%)	73 (88%)	83 (100%)
Gonococci infection	4 (4.8%)	79 (95.2%)	83 (100%)
Brucellosis	7(8.4%)	76(91.4%)	83 (100%)
Fungal	0 (0%)	83 (100%)	83 (100%)
Tuberculosis	2(2.4%)	81 (97.6%)	83 (100%)
Tumour	2(2.4%)	81 (97.6%)	83 (100%)
Ischaemia	2(2.4%)	81 (97.6%)	83 (100%)
Mumps	3 (3.6%)	80 (96.4%)	83 (100%)
Autoimmune diseases	0 (0%)	83 (100%)	83 (100%)

Discussion

The frequencies of various epididymo-orchitis causes have been investigated in many studies, but most of them have focused on one or at most three causes. The frequencies of a wide range of causes have not been investigated in any previous study. Although some causative agents are more frequent in certain age groups (coliform organisms in children and the elderly, or STD responsible organisms in the patients under the age of 35 years), there is

no age limit for any etiology. In acute epididymo-orchitis, the most important issue is the correct way of finding the etiology in the first hours of hospital admission. In this study, regardless of various age groups, the frequencies of various etiologies were studied. On the whole in 83 patients with an average age of 36.4 ± 20 years, Gram-negative infection was positive in 52 (62.7%) patients. E. coli was positive in 30 patients. The remaining Gram-negative infections included 9 cases of Klebsiella, 8 cases of Pseudomonas aeruginosa, and 5 cases of Proteus. Seventeen (20.5%) cases had a Gram-positive infection reportedly. For STD related organisms, Chlamydia trachomatis, and Neisseria gonorrhea (gonococci) were found in 14 (16.8%) patients with epididymo-orchitis. Of these, 10 (12%) cases had Chlamydia and 4 (4.8%) cases gonococci. In the study by Berger et al.[2] the role of Chlamydia trachomatis and the other microorganisms was studied in idiopathic epididymitis. Twenty-three individuals underwent microbiologic studies including the culture after aspiration from epididymis. Eleven of the 13 men under the age of 35 years had Chlamydia trachomatis infection, and 8 of 10 men over the age of 35 years had urinary infection with coliform bacteria.[2] Another study was carried out by Hawkins[3] in Britain in a 18-month period on 198 men with inflated, painful or sensitive epididymis or testis, or with scrotal pain. Of the 40 patients remaining in the study, 27 patients below 35 years age, 13 (48%) had Chlamydia infection and 2 had gonococci infection. Since these microorganisms are transmitted through sexual contact and have no age limit, in comparison with the young age group, 2 (15%) males over 35 years age had Chlamydia infection.[3]

In a retrospective study by Kim et al[4] no associated diseases were found in the younger age group with a mean age of 14 years. The children of age 6 years and less had phimosis and hypospadias. The elderly patients had neurogenic bladder, varicocele and prostate pathologies. This compares well with our study.

Tracy et al[5] reported Chalmydia to be positive in 30% adults which was more than in our study population.

In the results of our study, 8.4% (7 patients) had epididymo-orchitis due to brucellosis. In a study by Hasanjani et al. in north of Iran, of 469 male patients who were hospitalized with brucellosis, 29 (10.9%) patients had epididymo-orchitis.[6]

In another study by Esmaili et al.[7] in Mashhad, Iran, all patients diagnosed with epididymo-orchitis in the age range of 3 to 16 years investigated in a ten-year period from October 1993 to October 2003, 21 had epididymo-orchitis. Of these 8 were diagnosed to have orchitis due to brucellosis. In our patients 7.4% had brucellosis.

In our study 2 (2.4%) males aged 53 and 64 years had tuberculosis epididymo-orchitis, Jeong et al.[8] in Korea, followed 107 patients with epididymitis in the period 1975 and 1978. Tuberculosis was diagnosed in 37 patients.

Kao et al[9] reported seminoma tumours in 20 cases. They presented with epididymo-orchitis. We detected non-seminoma tumours in 2 cases.

Conclusion

Rare causes as tumours, tuberculosis and brucellosis must be considered in the differential diagnosis of epididymo-orchitis.

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