



Epididymo-orchitis in an 18-day-old boy; a rare case report

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Abstract

Epididymo-orchitis is almost an acute inflammatory disease involving the epididymis and testis. Epididymo-orchitis is considered as a rare disease in childhood. We reported an 18-day-old boy with epididymo-orchitis who responded to antibiotic treatment and surgery and finally the patient was discharged in good general condition. It is a rare phenomenon in neonate that should be considered by practitioners. According to our case report, infants of any age are at risk for epididymo-orchitis, and it should always be one of the differential diagnoses in any testicular inflammation, pain, and redness. Early initiation of antibiotics and in some cases surgery can be very helpful in treating this disease.

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Introduction

Testicular inflammation alone is rare and often presents as inflammation of both epididymis and testis (epididymo-orchitis) (1). This disease has two acute and chronic conditions. In acute epididymitis, the patient will immediately feel pain and redness in the testicular area, and this problem will resolve immediately after treatment. In chronic epididymitis, the patient experiences pain that progresses slowly and lasts for a long time (2). Epididymitis is usually associated with orchitis, therefore called epididymo-orchitis. This disease is a sudden swelling of the epididymis and testicles that causes pain in the scrotum. In the epididymo-orchitis, the pain starts in the back of one of the testicles, but quickly spreads to both testicles. The skin in those areas will sometimes become swollen, irritated, red, and hot. The entire scrotum sometimes becomes large and full of fluid (hydrocele) (3). The symptoms of this disease are complex and can be wide, including pain and/or burning when urinating or hematuria, pain in the penis, pain in the bladder, polyuria or sudden urination with burning, fever, and swelling showing abscess formation (4). The acute form of the epididymo-orchitis most often occurs due to a bacterial infection. *E-coli* is a common cause of infection. Sometimes the Mumps virus is also involved.

Key point

To treat epididymo-orchitis, initiation of antibiotics and in some case surgery should be considered at the first stages of management.

In rare cases, epididymitis occurs due to tuberculosis (5). Tuberculosis epididymitis is very serious and rare and is treated with anti-tuberculosis drugs. If the damage is severe, surgery is conducted to remove the testicles and epididymis (6). It is sometimes caused by taking amiodarone, which will improve when you stop taking the drug (7). In this study, we report an epididymo-orchitis in an 18-day-old boy.

Case Presentation

In this study, we reported an 18-day-old boy born with gestational age of 38 weeks, and birth weight of 4250 g who developed non-documented fever with swelling and redness of the right scrotum three days before admission. Examination of the inflammation, erythema, and norm of the right scrotum reveals that it is painful and has a relative improvement in the elevated status. Mother was a 33-year-old woman with G2P1Ab0 (gravida 2, para 1 and abortion 0) who has no history of disease during pregnancy. In the study of past medical history, she has

been hospitalized for three days due to jaundice due to positive glucose-6-phosphate dehydrogenase (G6PD). An emergency surgical consultation visited the patient, who was reportedly restless and tense on examination. Scrotal exploration was recommended for testicular torsion.

The patient underwent surgery and 3 ml reactive amber yellow fluid came out from the scrotum. The left testicle and epididymis had a strong coherence to the surrounding tissue. Decompression was performed and sampling was performed. Infectious specialist recommended cultures, lumbar puncture (LP), with ampicillin-sulbactam and amikacin administration.

On color Doppler ultrasound performed on the first day of admission, the left testicle was 5 × 17 mm and the anterior-posterior diameter of the epididymis was 6 mm. Hydrocele was detected around the left testicle with cystic structure in the distal part of the spermatic cord (2 × 4 mm) representing encysted hydrocele. The diameter of the left inguinal canal was normal (2 mm). The right testicle was 17.9 mm in diameter. The anterior-posterior diameter of the right epididymis was equal to 9 mm. Enlargement and vascularity of the parenchyma of the testis and right epididymis were observed along with an increase in the thickness of the scrotum (4 mm) and hypervascularity.

Evidence of fine reticular network fluid was seen in the right scrotal sac indicating pyocele. The diameter of the inguinal canal on the right was 6 mm, which was in favor of an indirect hernia, however there was no evidence of intraperitoneal fluid/intestinal loop entering the canal (Figure 1). Additionally, an image of several inguinal lymph nodes with a reactive view was seen on the right, which was in favor of the epididymo-orchitis on the right, along with inflammation around the scrotum. Examination of the kidneys with an empty bladder shows dilatation of the left pyelocaliceal system with an anterior-posterior diameter of 7 mm, which control ultrasound was recommended. The patient was nothing by mouth with 520 mL of DW 10% + 5.2 mL of KCL 15% + 20.8 ml of NACL 5% intravenously per 24 hours. Ampicillin-sulbactam 200 mg every 8 hours, by an intravenous (IV) injection or infusion + amikacin 60



Figure1. Chest X-ray of the patient with epididymo-orchitis

mg every 24-hour IV injection and 8 drops acetaminophen every 4 hours were administered for the patient. Blood sugar (8) was checked every 12 hours. Table 1 shows some paraclinical findings of the patients. Table 2 presents the results of arterial blood gas of the patient. Table 3 shows the status of some paraclinical tests on day 1 and 3 in which C-reactive protein (CRP) increased to 3+ from 1+.

Lumbar puncture report was, WBC; negative; appearance; clear, glucose; 38; protein; 105 (mg/dL); RBC; 20 and CSF culture; no growth. On renal ultrasound, the right kidney was 24 × 54 mm and the left kidney was 23×57 mm with cortical echo and normal corticomodular differentiation without nephrocalcinosis. Mild hydronephrosis with a diameter of 5 mm in the pelvic anteroposterior was seen in the left kidney and a half-full bladder containing debris was seen. Regarding smear and culture discharge, on the third day, cefazolin 100 mg IV every 8 hours was added to the antibiotic regimen. Six days after hospitalization, the patient was discharged in good general condition [(serum creatinine: 0.43 (mg/dL), urea: 7 (mg/dl), erythrocyte sedimentation rate (ESR): 58 (mm/h), CRP: 6 (mg/L)] and was treated with oral antibiotics and regular follow-up. The results of smear and culture discharge were presented in Table 4.

Discussion

Orchitis, or inflammation of the testicles, can be caused by bacteria and viruses. Although symptoms may appear in only one testicle, both testicles may be involved. Inflammation of the testicular duct is often due to the entry of microbial agents into the testicles through the

Table 1. Paraclinical tests of the patients with epididymo-orchitis

Blood Sugar (mg/dL)	95
Urea (mg/dL)	8
Creatinine (mg/dL)	0.45
Calcium (mg/dL)	10.1
Na (mEq/L)	137
K (mEq/L)	4.9
Bilirubin total (mg/dL)	1.7
Bilirubin Direct (mg/dL)	0.78
Blood group of neonate	A+
Blood group of mother	O+
Aspartate transaminase (IU/L)	24
Alanine transaminase (IU/L)	12
Blood culture	No growth
Urine culture	No growth

Table 2. Analysis of arterial blood gas of the patient with epididymo-orchitis

pH	7.4
PCO2	32.7
HCO3	20.2
Base excess	3.4
O ₂ saturation (%)	97

Table 3. Some paraclinical tests at day 1 and 3 in the patient with epididymo-orchitis

Variable	Day 1	Day 3
WBC (10 ⁹ /L)	23.5	23.42
neutrophils (%)	65	42
lymphocytes (%)	31	40
Eosinophils (%)	4	5
Monocytes (%)	-	11
RBC (cells/mcL)	2 960 000	2 920 000
Hb (g/L)	10.2	10
HCT (%)	29.6	29
MCV (pg)	99	98
MCH (pg)	34	34
MCHC (g/dL)	35	35
Platelet	545 000	714 000
ESR (mm/h)	40%	110%
CRP (mg/L)	1+	3+

Abbreviations: WBC, white, blood cell; RBC, red blood cell; HCT, hematocrit; Hb, hemoglobin; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; ESR, erythrocyte sedimentation rate; CRP, C-reactive protein.

Table 4. Report of smear and culture discharge in the patient with epididymo-orchitis

Epithelial Cell	4-5
Leukocyte	6-8
Poly/lymph	70/30
Few gram-positive cocci chain	+
RBC	Few
Culture	No Growth

blood (9). These agents are often bacterial in origin in children and older men due to widespread urinary tract infections (UTIs). While in young men (sexually active) the source of the disease is marital diseases (1). One of the causes of scrotum pain can be caused by epididymitis or orchitis. Epididymitis is usually associated with orchitis, called epididymo-orchitis, and is a sudden swelling of the epididymis and testicles that causes pain in the scrotum. In the normal epididymis, vessels are not usually seen, and with the help of color Doppler ultrasound, an increase in the size and number of vessels can be seen. In a study by Neelaranjitharajah, an Asian man complained of a urethral discharge following lower UTI. The patient had also acute epididymo-orchitis. The patients improved after taking antibiotics. The tissue biopsy of testicular showed to be tuberculosis. The likelihood of tuberculosis in any epididymo-orchitis should be checked (10). In endemic areas of brucellosis, physicians should consider the possibility of brucellosis in dealing with epididymo-orchitis. Accurate history, clinical examination, and rapid laboratory evaluation will help in diagnosis. Classic treatment for brucellosis is generally sufficient to treat brucellosis epididymo-orchitis (11). A prospective study

was carried out on 55 patients with epididymo-orchitis. Their ages ranged from 15 to 65 years. In this study, 23% of the patients had urethritis with gonococcal, 11% with chlamydial; and 8% with combined gonococcal and chlamydial. None of the 55 patients had UTIs. Forty-three patients (78%) had unilateral involvement of both the testis and epididymis, and 4 patients (7%) had bilateral epididymo-orchitis (9).

In a study by Ibrahim et al 79 patients presented with acute epididymo-orchitis were reviewed. Only one patient developed urethritis with nongonococcal; 35% with pyrexia, only a patient with brucellosis; 86% with *E. coli*; and 28% with chlamydia trachomatis. Additionally, recurrent epididymo-orchitis, and abscess formation occurred in 21.5%, and 4%. The mean age of the patients was 44 years (12). We believe epididymo-orchitis can be observed at any age but it is truly rare in infants. Treatment begins with courses of one to two weeks of antibiotics. Most cases do not require hospitalization and only require oral medication. The choice of the best treatment for the patient depends on the type of bacteria. The most common antibiotics used are doxycycline, ciprofloxacin, levofloxacin, and trimethoprim-sulfamethoxazole. For severe cases of infection, the patient should be hospitalized. In these cases, the patient feels severe pain with high fever and vomiting, and this unpleasant feeling does not improve after a few days of taking antibiotics orally. In some cases, if the patient's condition is very bad, the patient will be prescribed narcotics (3). In a study by Ngoo et al, salmonella epididymo-orchitis reported in a 2-week-old infant. This study revealed that although epididymo-orchitis is a rare disease, it can affect all ages. The infection can spread to the blood and developed sepsis and systemic infection. Taking long course antibiotics in childhood age has not good consequences (13). In another case report done by Chiang et al, on time administration of antibiotics was suggested to avoid serious sequences (14). In our report, we rule out UTI, since most cases occur following UTI. The onset of antibiotic can prevent sepsis and severe complication. The response to antibiotic is acceptable and can be easily treated within a week.

Conclusion

According to our case report, infants of any age are at risk for epididymo-orchitis, and it should always be one of the differential diagnoses in any testicular inflammation, pain, and redness. It is a rare phenomenon in neonate that should be considered by practitioners. Early initiation of antibiotics and in some cases surgery can be very helpful in treating this disease.

Authors' contribution

SM and VGS designed the concept of the study. AM, HN, SM and VGS performed the experiments. SM and VGS collected the data of case and helped in performance of experiments. AM and SM prepared the primary draft after analysis. All authors read and signed

the final paper.

Conflicts of interest

The authors report no conflicts of interest.

Ethical considerations

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors. The patient's parents have given their informed consent regarding the publication of this case report.

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