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A case of acute epididymo-orchitis due to *Pseudomonas aeruginosa* presenting as ARDS in an immunocompetent host

Sameer Singhal[1*], DD Wagh[2], Shivali Kashikar[3], Yeshwant Lonkar[1]

[1]*Department of Pulmonary Medicine, Jawaharlal Nehru Medical College, Sawangi (M), Wardha, Maharashtra, India*
[2]*Department of Surgery, Jawaharlal Nehru Medical College, Sawangi (M), Wardha, Maharashtra, India*
[3]*Department of Radiodiagnosis, Jawaharlal Nehru Medical College, Sawangi (M), Wardha, Maharashtra, India*

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ABSTRACT

Acute eididymo-orchitis is the most common cause of intrascrotal inflammation, and retrograde ascent of pathogens is the usual route of infection. Here we intend to present a case of young boy, not sexually active, suffering from acute epididymo-orchitis due to *Pseudomonas aeruginosa* presented with acute respiratory distress syndrome. Proper timely diagnosis of the primary cause and prompt treatment including support with non invasive ventilation lead to a favourable outcome in the same case.

1. Introduction

Epididymitis and orchitis are inflammation of the epididymis and testes, respectively, with or without infection. In acute epididymitis, symptoms are present for less than six weeks and are characterized by pain and swelling. It is the most common cause of intrascrotal inflammation, and retrograde ascent of pathogens is the usual route of infection[1]. *Pseudomonas aeruginosa* (*P. aeruginosa*), although a common cause of nosocomial urinary tract infection, is a relatively infrequent cause of acute epididymitis[2]. Here we intend to present a case of young boy with acute epididymo-orchitis due to *P. aeruginosa* presenting with severe bronchopneumonia and acute respiratory distress syndrome (ARDS).

2. Case report

A 13-years-old male patient, not sexually active, presented with acute onset breathlessness and scrotal swelling with pain. Patient was apparently alright 20 days back when he developed burning micturation and haematuria with fever, intermittent in nature. He gradually developed swelling around scrotum which later on became painful associated with dyspnea, acute in onset, slowly progressive in nature. There was no history of trauma, earache, difficulty swallowing or talk, constipation and past or family history of tuberculosis or similar illness in past. On examination, patient was average build and nutrition. There was no cyanosis, no clubbing of finger, pallor, icterus or edema. Patient was conscious oriented, the respiratory rate is 35/minute, pulse rate was 115/min, regular, blood pressure is 100/60 mm Hg in supine position in right arm. On local examination of scrotum, the swelling was 7 cm × 8 cm in size, tender, overlying skin red, edematous with loss of skin rugosity and getting above the swelling is possible. No ulcer or discharging sinus present. Penis appears to be normal on palpation. His right testicle was warm, swollen, indurated, and erythematous. Epididymis was enlarged, firm and slightly tender. The vas deferens, spermatic cords were thickened & tender with enlarged inguinal lymph nodes. On chest auscultation, bilateral ronchi with crepts were present. Chest radiagraph P/A view showed (Figure 1) bilateral non homogenous opacities, non segmental distribution suggestive of severe bronchopneumonia. Arterial Blood Gas Analysis (ABG) showed PCO_2 75 mm Hg, PO_2 45 mm Hg, pH 7.30 and HCO_3 34 mmol/L with SaO_2 75% suggestive of type II respiratory failure (ARDS) not responding to simple oxygen therapy at rate of 8-10 L/minute with nasal prongs. Color Doppler Ultrasound examination of scrotum showed right testis 6 cm × 2.8 cm, left testis 4.8 cm × 3.1 cm, right epididymis 2.7 cm × 1.7 cm, left epididymis 2 cm × 1.5 cm, with increased vascularity in testes and epididymis and free fluid with septations in tunica vaginalis. Patient was catherised with scrotal support and cold packs were given. As patient was conscious oriented with vitals stable, non invasive ventilation was

*Corresponding author: Dr Sameer Singhal, Associate Professor, Department of Pulmonary Medicine, Jawaharlal Nehru Medical College, Sawangi (M), Wardha, Maharashtra, India-442004.
Tel: 09970841052
E-mail: singhal_sameer@yahoo.co.in

started with IPAP of 10 cm H_2O and EPAP 6 cm H_2O with oxygen at a rate of 5–6 L/minute. Microscopic examination of urine showed 20–30 pus cells/HPF and culture grew $\geqslant 10^4$ *P. aeruginosa* sensitive to amikacin and azithromycin and resistant to ampicillin and ofloxacin. Urethral cultures for *Chlamydia trachomatis* (*C. trachomatis*) *and Neisseria gonorrhoeae* (*N. gonorrhoeae*)were negative. Blood cultures were sterile. Cytology of aspirated fluid from tunica vaginalis revealed serous effusion with lymphoid cell infiltrates. TLC was 22 000 with P 90%, L 6%, E 2%, M 2%. Blood Sugar, Liver function & Kidney function test were normal. ELISA for HIV 1 &2 were negative. The patient was emperically started on injection of Azithromycin 1 gm OD and injection of Amikacin 500 mg 12 hourly and was continued on same treatment as per culture sensitivity report. Patient showed marked recovery with gradual reduction of scrotal swelling and was out of noninvasive ventilation in 3 days with serial chest radiograph (Figure 2) showing rapid clearing in two weeks time. Patient was discharged after two weeks in state of complete well being.

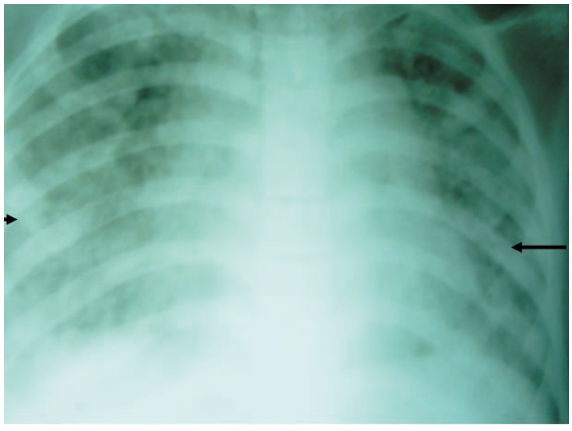

Figure 1. Chest radiograph showing bilateral non homogenous opacities suggestive of ARDS.

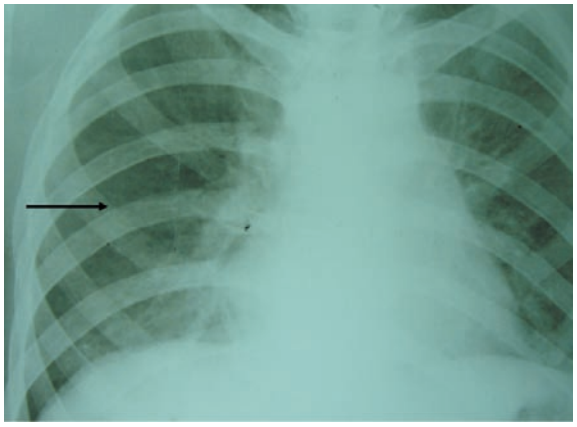

Figure 2. Serial chest radiograph showing clearing of bilateral opacities.

3. Discussion

The incidence of acute epididymitis due to *P. aeruginosa* among all cases of acute bacterial epididymitis has been reported to be between 5% and 14%[2, 3]. The most common cause of infection in young sexually active men between 14 to 35 years is *C. trachomatis* and *N. gonorrhoeae* whereas *Escherichia coli* and *Pseudomonas* are commonly involved in age more than 35 years or younger than 14 years[4]. In case above, patient was a young boy, not sexually active so suspicion of bacterial cause was more warranted. Epididymitis secondary to *Mycobacterium tuberculosis* infection is rare but must be considered among those at high risk. Risk factors for epididymitis in all men include sexual activity, strenuous physical activity, and prolonged periods of sitting[5]. When evaluating patients with acute testicular or scrotal pain and swelling (acute scrotum), there should be a high index of suspicion for testicular torsion, the incidence of which is highest between 12 and 18 years, followed by the neonatal period. A high-riding, transversely oriented testis is common with testicular torsion, whereas the testis is usually in its normal anatomic location with epididymitis and orchitis. Men older than 50 years should be evaluated for urethral obstruction secondary to prostatic enlargement. A Gram stain and culture of swabbed urethral discharge are recommended to detect urethritis and gonococcal infection. Urinalysis and urine culture should also be obtained, preferably on first-void urine samples. The presence of leukocyte esterase and white blood cells is suggestive of urethritis and helps to differentiate epididymitis from testicular torsion. In case above, urinalysis showed plenty of pus cells and culture grew *P. aeruginosa*. Color Doppler ultrasonography assesses perfusion of the testis and anatomy of the scrotal contents. A normal-appearing testicle with markedly decreased Doppler wave pulsation (decreased blood flow) suggests torsion, whereas an enlarged, thickened epididymis with increased Doppler wave pulsation (increased blood flow) suggests epididymitis as in our case. Chest involvement is common in tubercular cases, leukemias or lymphomas, but it is rare to develop severe bronchopneumonia as in case above. Probable spread in our case is blood borne due to secondary involvement of testes via pampiniform plexus. Complications of acute bacterial epididymitis include testicular infarction, scrotal abscess, chronic draining scrotal sinus, chronic epididymitis, and infertility[4]. However, those requiring orchiectomy are uncommon. A complication such as scrotal abscess is an indication for incision, debridement (generally, epididymectomy plus orchiectomy), and drainage[6]. Treatment should be individualized and patients with systemic signs or complications of acute epididymitis will generally require hospitalization and parenteral antibiotics. Antibiotic therapy should be guided by in vitro susceptibility testing and close monitoring of patients is required, with prompt surgical exploration when indicated.

Conflict of interest statement

We declare that we have no conflict of interest.

References

[1] Luzzi GA, O'Brien TS. Acute epididymitis. *BJU Int* 2001; **87**(8): 747–755.
[2] Humphreys H, Speller DCE. Acute epididymo-orchitis caused by *Pseudomonas aeruginosa* and treated with ciprofloxacin. *J Infect* 1989; **19**: 257–261.
[3] Weidner W, Schiefer HG, Garbe C. Acute nongonococcal epididymitis: aetiological and therapeutic aspects. *Drugs* 1987; **34**(1): 111–117.
[4] Krieger JN. Epididymitis, orchitis and related conditions. *Sex Transm Dis* 1984; **11**: 173–181.
[5] National Center for Health Statistics. *National ambulatory medical care survey. 2002*. [Online] Available from: http://www.cdc.gov/nchs/about/major/ahcd/ahcd1.htm. [Accessed on January 23, 2009]
[6] Vordermark JS, Deshon GE, Jones TA. Role of surgery in management of acute bacterial epididymitis. *Urology* 1990; **35**: 283–287.