



## Case report

## Epididymitis associated with bacteremic pneumococcal pneumonia

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## ABSTRACT

We describe a case of a 56 year-old male who presented to the hospital with pneumonia and bacteremia secondary to *Streptococcus pneumoniae*. After admission and initiation of appropriate antibacterial therapy he began to complain of scrotal pain. Ultrasound of the testes confirmed findings of left-sided epididymitis. Urine culture, urine gonorrhea and chlamydia nucleic acid amplification and HIV testing were negative. Clinical picture suggested seeding of the epididymis with *Streptococcus pneumoniae* and resulting infection.

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## Introduction

*Streptococcus pneumoniae* is a common cause of community acquired pneumonia in adults and children [1]. There are several extra-pulmonary complications associated with bacteremia with this organism. These include but are not limited to: meningitis, brain abscess, osteomyelitis, septic arthritis, purulent pericarditis and endocarditis [2–5]. One of the infrequently reported complications is epididymo-orchitis. We report a case of epididymitis in a 56 year-old male who presented with pneumonia and bacteremia secondary to *Streptococcus pneumoniae*.

## Case report

The patient was a 56 year-old male with past medical history significant only for cigarette smoking at half pack per day. The patient initially presented to our hospital on 12/5/2018 with chills, fevers, productive cough and pleuritic chest pain of 5-day duration. On initial presentation found to be afebrile, normotensive but tachycardic to > 90. Admission lab work was significant for leukocytosis to 29,730/ $\mu$ L with 87.2 % neutrophils and 4% bands. Respiratory viral panel was negative. Chest x-ray was significant for right lower lobe opacity and small right-sided pleural effusion (Fig. 1). Patient was empirically started on ceftriaxone and azithromycin. The day after admission patient was febrile to 101 and his white blood cell count rose to 45,120/ $\mu$ L with 21.2 % bands. Admission blood cultures returned positive in

two out of two sets with *Streptococcus pneumoniae*. Azithromycin was discontinued. Patient began complaining of left sided testicular pain at this point. Ultrasound of the testes was obtained which revealed an enlarged left epididymis with mildly increased vascularity on color doppler relative to the right (consistent with epididymitis) (Fig. 2). Urine culture, urine gonorrhea and chlamydia nucleic acid amplification and HIV testing were obtained and were negative. Transthoracic echocardiogram was negative for evidence of vegetations. Patient's small left pleural effusion was followed daily by ultrasound and was noted to improve without thoracentesis or surgical intervention. Within 48 h the patient defervesced and had improvement of his respiratory symptoms and testicular pain. After the result of susceptibility testing the patient was switched to levofloxacin and discharged with plan to complete a 2-week course of antibacterial therapy.

## Discussion

Acute epididymitis is one of the most common causes of scrotal pain in the outpatient setting. There are viral, bacterial and autoimmune etiologies. Bacterial etiologies can vary based on the age of the patient. For men under the age of 35 *Neisseria gonorrhoeae* and *Chlamydia trachomatis* are the most common etiologies. In men over the age of 35, organisms such as *Enterobacteriaceae*, *Pseudomonas* species and coliforms are more common etiologies [6]. In older men with epididymitis there is generally association with obstructive uropathy from benign prostatic hyperplasia. Hematogenous spread has also been described secondary to gram-negative organisms, tuberculosis, brucellosis or as in our case associated with gram positive organisms such as *Streptococcus pneumoniae* [6–8].

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Fig. 1. Chest X-Ray with right lower lobe opacity and small right-sided pleural effusion.

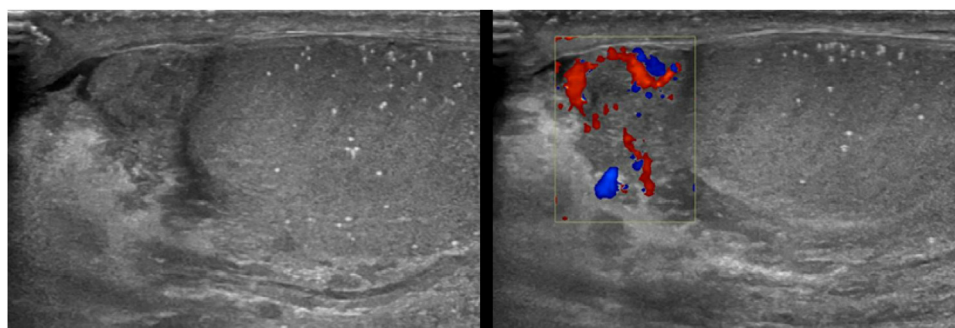


Fig. 2. Testicular Ultrasound with enlarged left epididymis with mildly increased vascularity on color doppler.

*Streptococcus pneumoniae* is the most common etiology of community acquired bacterial pneumonia requiring hospitalization [9]. There are a number of factors which predispose patients to invasive pneumococcal disease which include extremes of age. The highest rates of invasive disease are in adults that are  $\geq 65$  years of age and in children  $< 2$  years of age [1]. According to the United States Active Bacterial Core surveillance (ABCs) database of the Emerging Infections Program Network in 2017 the incidence of invasive pneumococcal disease was 7 cases per 100,000 population for those age  $< 5$  and 26 cases per 100,000

population for those of age  $\geq 65$  [1]. Certain underlying diseases also increase risk of invasive pneumococcal disease. These conditions include (but are not limited to) underlying malignancy, CVID, alcoholism, cirrhosis, diabetes mellitus and HIV infection [10–15].

Epididymitis and orchitis appear to be rare sequelae of pneumococcal bacteremia. Review of literature yielded five cases of *Streptococcus pneumoniae* genital infections. Ages of the patients ranged from 15 weeks to 81 years of age. The patients had underlying HIV, malignancy, CVID or as in the case of our patient a

**Table 1**  
Cases of Pneumococcal Testicular Infections.

Case	Age	Sex	Comorbidities	Manifestation	Antibacterial Course Utilized
Dobroszycki et al 1997	15 wk	Male	HIV	Bacteremia, Testicular Abscess	IV Ceftriaxone (1 Day) followed by IV Penicillin G (13 days)
Garcia-Lechuz et al 2007	30 yr	Male	CVID	Scrotal Abscess	Unknown
Ibrahim et al 2012	50 yr	Male	Smoker, Alcohol Use Disorder	Epididymo-orchitis	IV Ceftriaxone (5 days) followed by PO Amoxicillin/clavulanate (5 days)
Tena et al 2007	81 yr	Male	Epidermoid carcinoma of the lung	Testicular Abscess	PO Ciprofloxacin (4 days) followed by IV Amoxicillin/clavulanate + Ciprofloxacin (6 Days) followed by PO Amoxicillin/clavulanate (6 Days)
Trione et al 1998	31 yr	Male	HIV, IV Drug Use	Epididymitis, Epididymal Abscess, Scrotal Abscess	Course 1: IM Ceftriaxone x 1 + PO Ofloxacin (10 Days)  Course 2: PO Doxycycline (unclear duration) followed by PO Amoxicillin (Unknown Duration) Course 3: PO Ofloxacin (6 Weeks)

smoking history [11–15]. Four cases were also associated with testicular/scrotal abscess (Table 1) [11–13].

### Conclusion

*Streptococcus pneumoniae* infection is common but there are many unusual consequences of bacteremia secondary to this organism. We recommend that the differential of epididymitis be considered in patients with *S. pneumoniae* bacteremia. It should be especially entertained if the patient develops testicular pain and has an underlying immunocompromising condition.

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### Consent

No identifying patient information is utilized for case report and consent has been obtained from the patient.

### Author contribution

Dr. Ilan Berlinrut – Contribution: Primary writer  
Dr. Robin Koshy – Contribution: Writer

### CRediT authorship contribution statement

**Ilan Berlinrut:** Writing - original draft, Writing - review & editing. **Robin Koshy:** Writing - original draft.

### Declaration of Competing Interest

The authors reported no declarations of interest.

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