

Breast abscess caused by penicillin resistant *Pneumococci*

Boppe Appalaraju, Anila A. Mathews, Appolo C. Bhaskaran, Pavai Arunachalam¹

Departments of Microbiology and ¹Pediatric Surgery, PSG Institute of Medical science and research, Coimbatore, India

Address for correspondence: Dr. Anila A. Mathews, Department of Microbiology, PSG Institute of medical science and research, Peelamedu, Coimbatore, India. E-mail: aniladpk@gmail.com

ABSTRACT

Breast abscess is mostly caused by *Staphylococcus aureus*. A 26-year-old immunocompetent lady was admitted with breast abscess. Incision and drainage (I/D) was done and *Pneumococci* were isolated from the drained pus. The patient was earlier treated with Augmentin which was later changed to linezolid after testing for antibiotic susceptibility. This strain showed a high level of resistance to penicillin. It had been noticed that there was a slow increase in the number of penicillin resistant *Pneumococci* isolated in our hospitals. The increase in penicillin-resistant *Pneumococci* correlates with the intensive use of beta-lactam antibiotics. Hence, antibiotics should be used judiciously, avoiding their use particularly in mild self-limiting upper respiratory infections. Attention therefore, should focus on monitoring resistance in *Pneumococci* to prevent mortality and morbidity associated with this organism, which continues to take a heavy toll on children and the elderly.

Key words: Breast abscess, penicillin resistant *Pneumococci*

INTRODUCTION

With the successful control of *Haemophilus influenzae* invasive disease in the world following the introduction of a vaccine in the 1990s, attention has turned increasingly to *Streptococcus pneumoniae*, the leading bacterial cause of respiratory tract infections. At least one million children, mostly in developing countries, die each year from pneumococcal disease. *Pneumococci* are the major cause of pneumonia, empyema, otitis media, septic arthritis, septicemia and meningitis. However, this organism is rarely considered in the differential diagnosis of other organ-site infections. *Pneumococcus* is not a well recognized pathogen of soft tissue infections. Principal sites of involvement include skin, tongue, epiglottis, brain but rarely the breast.^[1] Mastitis in nursing mothers is usually caused by *Staphylococcus aureus*.^[2] Here we report a rare case of *Pneumococci* that caused a breast abscess.

CASE REPORT

A 26-year-old lactating immunocompetent female patient was admitted with fever, pain and swelling of the left breast of three days duration. She did not have any other symptoms like cough, a cold or hemoptysis. On examination, she was febrile (temperature 101.0 F). The breasts were swollen and tender with a soft fluctuating mass located at the left lower quadrant. The skin over the breast was erythematous. The nipple and areola were normal. The axillary lymph nodes were not palpable. There was no history of previous breast disease, diarrhea, constipation, or urinary complaints. She gave a history of high-grade fever with a similar episode one month before followed by complete recovery after taking treatment by a general physician. She was earlier treated with cloxacillin and first generation cephalosporins for about a week. She was neither a diabetic nor a hypertensive. Systemic examination was unremarkable except for mild tachycardia. The laboratory investigations revealed an increase in neutrophil count. The patient was admitted as a case of left breast abscess and started on intravenous Augmentin. I/D was done and the pus drained was sent for microbiologic examination. The pus was processed by standard culture methods. The gram stain of the pus drained showed a lot of pus cells and gram positive cocci in pairs with capsule. Blood agar grew

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Pneumococci which was optochin sensitive. The isolate was sensitive to erythromycin, vancomycin, linezolid, gentamicin, chloramphenicol, tetracycline, levofloxacin and clindamycin, but resistant to ampicillin, penicillin, ceftriaxone, cefotaxime and cefuroxime. Blood culture was negative. Minimum inhibitory concentration (MIC) of penicillin $> 2 \mu\text{g}/\text{ml}$ [Figure 1] Breast feeding was temporarily stopped. The antibiotic therapy was changed to linezolid 600 mg twice daily and the patient improved on it.

DISCUSSION

Breast abscess is mainly caused by *Staphylococcus aureus*. There are case reports of other organisms causing breast abscess. They include *Enterococci*, *Salmonella typhi*, *Mycobacterium tuberculosis*, *Atypical mycobacteria*, *Klebsiella pneumonia* and *Fusarium solani*.^[3-7] *Pneumococci* isolates from breast abscess are very rare. They are usually associated with meningitis, pneumonia and bacteremia. *Pneumococcus* continues to be an important cause of morbidity and mortality. In developing countries, *pneumococcus* remains the most common and important disease-causing organism in infants. Although exact numbers are difficult to obtain, it is estimated that *pneumococcus* infection is responsible for more than one million of the 2.6 million annual deaths resulting from acute respiratory infection in children younger than five years. Case fatality rates associated with invasive disease vary widely, however, can approach 50% and are severest in patients with meningitis.

Developing countries continue to bear the brunt of pneumococcal infections. The problem is further confounded with the rapid emergence of antibiotic resistant *Pneumococci* globally. Following the first report of penicillin resistance in 1967, there has been a steady increase of reported cases of resistant *Pneumococci* from the United States.^[8] Reports from India, however, are few. Since prevalence of such strains has not been determined in most developing countries, empirical treatment still depends on penicillin and other β -lactam antibiotics in most parts. Considering the mortality and morbidity in various infections such as meningitis, septicemia, and pneumonia, it is crucial that therapy be optimized from the first dose.^[8] Our isolate was resistant to penicillin by disk diffusion method and MIC of penicillin was $> 2 \mu\text{g}/\text{ml}$. The strain isolated from this case of breast abscess showed a high level resistance to penicillin ($> 2 \mu\text{g}/\text{ml}$). Since it was resistant to penicillin, it was also less susceptible to other penicillins and cephalosporins. The choice of treatment was therefore, limited. Though reports of drug resistant

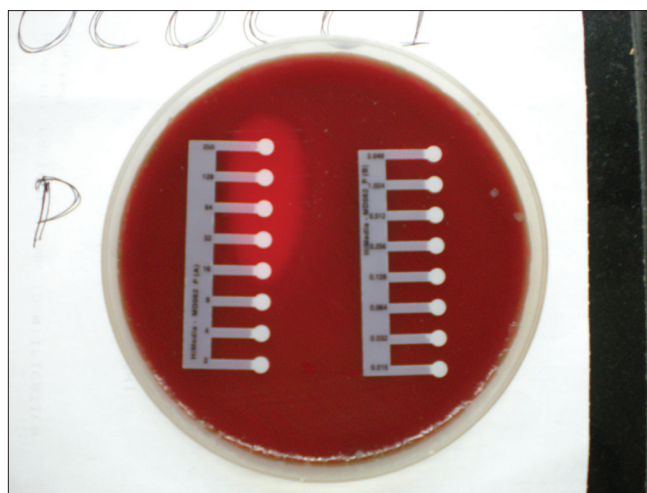


Figure 1: Showing minimum inhibitory concentration of penicillin $> 2 \mu\text{g}/\text{ml}$ against *Pneumococci*

Pneumococci in India have not kept pace with world reports, they are still alarming.

Thus, in conclusion, the explosion of resistance to penicillin in *Pneumococci* is a ubiquitous phenomenon which must be fought by (1) judicious utilization of antibiotics, (2) the practice of microbiological sampling of infected foci before treatment, (3) the systematic surveillance of resistance profiles of *Pneumococci* against antibiotics, and (4) the adequate vaccination of populations at risk.

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