Unusual Presentation of *Streptococcus pneumoniae* in Human Immunodeficiency Virus Infection

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**Abstract**

*Streptococcus pneumoniae* usually produces infection of the respiratory tract, inner ear or meninges. Unusual sites of infection have rarely been reported among HIV-1 seropositive patients. We report a case of post auricular subcutaneous abscess caused by *Streptococcus pneumoniae* in a Human Immunodeficiency Virus (HIV) infected child who also had B cell lymphoma. This case is uncommon as there was no other documented primary focus of pneumococcal infection or a preceding history of bacteraemia or respiratory infection.

**Introduction**

*Streptococcus pneumoniae* is an important cause of respiratory infections and bacteraemia in humans. Skin and soft tissue infection, namely subcutaneous abscess, is an unusual manifestation of *Streptococcus pneumoniae* which occur rarely in immunocompromised individuals.¹ We report a case of post auricular subcutaneous abscess caused by *Streptococcus pneumoniae* in a Human Immunodeficiency Virus-1 (HIV-1) infected child who also had B cell lymphoma.

**Case Report**

A twelve years old boy presented with complaints of pain behind the right ear of ten days duration. There was no history of fever, ear discharge or trauma. There were no signs or symptoms pertaining to the respiratory tract. The child was known to be HIV seropositive for the preceding one year and was on antiretroviral therapy. He was also administered chemotherapy one year prior to this for B cell lymphoma. On examination, his general condition was normal. Examination of the right ear showed an intact tympanic membrane with no evidence of infection. There was a post auricular swelling which was 5x4 cm in size with well defined margins. It was tender and fluctuant. The post aural sulcus was obliterated (Figure 1). Otoendoscopy revealed a normal ear with no involvement of middle ear. Radiographs of the mastoid also was not contributory. Incision and drainage of the subcutaneous abscess was done under general anaesthesia. The child was discharged with resolution of signs and symptoms.

**Discussion**

*Streptococcus pneumoniae* is a normal inhabitant of the human upper respiratory tract. Although many different sites of pneumococcal infection have been described, the respiratory tract remains the primary focus of diseases. It causes pneumonia, para nasal sinusitis, otitis media or meningitis.² Nasopharyngeal colonisation precedes invasive pneumococcal disease. Secondary to bacteraemia, it can also cause distant focal infections. It is currently the primary cause of invasive bacterial infections in children and the elderly.³

*Streptococcus pneumoniae* is not a common cause of soft tissue infections. Sites of involvement may include skin and fascia, epiglottis, thyroid, brain and breast. An associated pneumococcal bacteraemia has been documented only in 50% of cases.⁴ Isolated skin and soft tissue infection without a preceding history of bacteraemia or respiratory infection is rare. Skin and soft tissue manifestations of invasive pneumococcal disease are extremely diverse in presentation and include cellulitis, subcutaneous and muscle abscess, wound infections, mastitis and inguinal adenitis.¹,²

HIV seropositive individuals are particularly susceptible to infections with encapsulated bacteria such as *Streptococcus pneumoniae*. In general, primary and secondary defects in antibody formation and complement, insufficient or poorly functioning polymorphs and defective clearance of pneumococcal bacteraemia have an important impact on the immunological capacity of the host and predispose to pneumococcal infections.¹ Children with advanced HIV-1 disease are at increased risk of serious bacterial infections: *Streptococcus pneumoniae* accounts for at least one third of these infections.⁴ Rates of pharyngeal carriage of *Streptococcus pneumoniae* among HIV-1 infected patients is around 14%. HIV infection increases the risk of colonisation, repeat colonisation and reduces the time to new colonisation.³ The prevalence of sinusitis among AIDS patients has ranged from 10-16% in retrospective studies and as high as 68% in prospective studies. The occurrence of extrapulmonary disease may be increased in HIV infected patients. There is no association between HIV load, CD-4 cell count and the risk of pneumococcal colonisation.³ Unusual sites of pneumococcal infection reported among HIV-1 seropositive persons include,
septic arthritis, cardiac tamponade, mediastinitis, brain abscess, and soft tissue infections.4

In the setting of HIV-1 infection, most authorities recommend standard therapy, such as amoxicillin-clavulanate or cephalosporin. The duration of therapy is ten days. Possible preventive strategies include pneumococcal vaccination and oral antibiotics. Oral trimethoprim-sulfamethoxazole used as prophylaxis for Pneumocystis jiroveci pneumonia has been associated with the reduction in the episodes of bacterial pneumonia. Whether or not this approach will decrease pneumococcal infections is not clear.4 Our patient did not receive pneumococcal vaccination.

In this patient the pathogenesis of soft tissue abscess is unclear, because there was no demonstrable anatomic connection between the abscess and the middle ear or mastoid. The most probable route of infection may have been a haematogenous spread from an assumed past pulmonary infection or direct inoculation through a small wound in the skin. Generally, post auricular abscess is a complication of mastoiditis and accompanies acute or coalescent type of mastoiditis. Rarely tuberculous otitis media precedes such abscesses.4 Our patient did not have evidence of acute or chronic otitis media, both of which may prelude the development of a post auricular abscess. Internal jugular vein thrombosis has been described as a serious complication of such abscess thus underscoring the importance of early diagnosis and prompt therapy. This patient responded well to drainage of pus and intravenous antibiotic therapy.

To conclude this case is being reported for its rarity. Early diagnosis with appropriate therapy will help to reduce the morbidity of bacterial infections occurring in the immunocompromised individuals.

References