Acute Parapharyngeal Abscess Secondary to Streptococcal Mastoiditis

Muhammad Ishaque1, Syed Shaukat Hussain1 and Abid Mahmood2

ABSTRACT
A rare case of parapharyngeal abscess caused by Streptococcus pneumoniae presenting as neck abscess is reported. The patient had 20 days history of cough, fever and swelling behind right ear. He had not responded to multiple antibiotic treatments given earlier. On the basis of clinical examination and CT scan finding, he was diagnosed as having parapharyngeal abscess pointing in the neck. The abscess was drained and the patient was treated with injectable Ceftriaxone, due to identification of penicillin - resistant Streptococcus pneumoniae.


INTRODUCTION
Peritonsillar, retropharyngeal and parapharyngeal abscesses are the most common deep cervical space infections.1 Out of these the parapharyngeal ones are less common but have the most serious morbidity and mortality. Most of these develop secondary to tonsillar, dental or mastoid infections.1 The organisms commonly involved include Streptococcus pyogenes, Staphylococcus aurius and Hemophilis influenzae.3 Streptococcus pneumoniae can rarely cause such infections. Diagnosis depends upon thorough clinical examination and Computerized Tomography (CT) scan which also helps to assess the extent of infection.4 Early surgical treatment and appropriate antibiotic use can save these patients from complications. Microbiological diagnosis of exact etiology depends on isolation of the pathogens on culture and antibiotic sensitivity tests of these isolates can help a lot in selecting the appropriate antibiotics. We report a case of parapharyngeal abscess caused by Streptococcus pneumoniae who presented with fever and a large neck abscess.

CASE REPORT
A 70 year old man of thin built presented in the Outpatient Department of Ear, Nose and Throat, with 20 days history of cough, high grade fever and a painful swelling behind the right ear. The patient had received multiple antibiotic treatments from his village physicians during this period but he did not improve. The fever persisted and the swelling had gradually increased to its present size. On examination, the patient was looked toxic with a regular pulse rate of 112/minute, blood pressure of 100/60 mm Hg and a temperature of 102°F. A swelling of 15 x 10 cm in size was visible behind the right ear extending up to the neck. It was warm, tender and fluctuant on palpation. His throat and nasal examination did not reveal any abnormality. Ear examination was unremarkable except tender mastoid on right side.

Laboratory investigations revealed Hb of 15.1 g/dl and TLC of 17.6 x 10⁹/L with 82% neutrophils. His blood sugar fasting, urea, creatinine and urine routine examination were within normal limits. Computerized Tomography (CT) scan of the neck revealed mastoiditis/osteomyelitis with abscess formation which was travelling down the neck. The diagnosis of acute parapharyngeal abscess pointing in the neck was made.

The patient was admitted to the ward, and given antipyretics. In the operation theatre, about 50 mls of thick creamy white pus was drained and sent for microscopy and culture. The patient was started with injectable Augmentin 1.2 G intravenously twice daily. Grams stained smear of the specimen revealed numerous pus cells and gram positive diplococci resembling Streptococcus pneumoniae (Figure 1). Ziehl Nelson’s smear showed no acid fast bacilli. Culture of the specimen yielded a pure growth of Streptococcus pneumoniae on 24 hours incubation at 37°C (Figure 2). The isolate was found resistant to penicillin (A zone diameter of 16 mm around 1 ug oxacillin disc) but was sensitive to Ceftriaxone.

Keeping in view the sensitivity report the patient was started with injectable Ceftriaxone 1 G intravenously twice daily. Patient became afebrile within the next 2 days and the pain in his neck also subsided. The drainage site also healed in the next 2 days and the
patient was discharged symptom free on the sixth day. He was advised Cefixime capsule 400 mg once daily for further 14 days surgery for mastoiditis after 06 months, visit the outpatient department for follow-up after 14 days but he went back to his village and did not report back.

FIGURE 1: Gram’s stained smear showing pus cells and lancet shaped Gram positive diplococci morphologically resembling *Streptococcus pneumoniae*.

FIGURE 2: Pure growth of *Streptococcus pneumoniae* on primary culture plate.

DISCUSSION

Parapharyngeal and retropharyngeal abscesses are life threatening conditions although their occurence is quite low with the use of good antibiotics. Patients with these infections most commonly present with fever and dysphagia. An early diagnosis by a good clinical examination and CT scan can lead to early management and avoidance of complications. This case presented with a delay of about 20 days with the abscess presenting on the outside of the neck behind the right ear. A CT scan was done only to confirm the deep extent and the source of infection.

Oral drainage along with the administration of appropriate antibiotics is the main treatment for parapharyngeal abscesses. In this case as the abscess had reached near the surface and presented as a neck abscess, it was very successfully drained from outside. It is difficult to determine the bacterial etiology of such infections in the absence of good microbiological services. Penicillin-resistant *Streptococcus pneumoniae* was isolated in this case. This brings forward the fact that in addition to surgical treatment, establishing the exact bacterial diagnosis along with the susceptibility pattern of the isolate is extremely important, so that suitable antibiotics can be administered. *Streptococcus pneumoniae* remained universally sensitive to penicillin till 1967, when the first penicillin resistant strain was isolated. Now, its prevalence is increasing world wide and posing a new challenge to physicians. These isolates are routinely screened for penicillin sensitivity using the 1 ug oxacillin disc diffusion method. Isolates with inhibitory zones of less than 20 minutes are reported as resistant. The isolate in this case had a zone diameter of 16 mm so it was reported as penicillin resistant. Ideally a minimum inhibitory concentration (MIC) of penicillin should be determined against the isolate. The isolate should have an MIC of more than 1 ug/ml to be labeled as penicillin resistant. But the facility for the same was not available at our hospital.

REFERENCES