

# Pre-auricular Abscess Due To *Mycobacterium Tuberculosis*

MALINI.A, SAGEERA BANOO, HEMALATHA.G, BASKARAN

## ABSTRACT

A case of pre-auricular abscess due to *Mycobacterium tuberculosis* in a three year old female child is reported here for its rare site of occurrence and isoniazid (INH) resistance of the isolate. The diagnosis was established by the demonstration of

acid fast bacilli (AFB) in the pus sample and also by cultures on Lowenstein-Jensen's medium. The isolate was INH resistant. The child was successfully treated with Category I anti-tubercular therapy as per the RNTCP guidelines.

**Key Words:** Pre-auricular abscess, *Mycobacterium tuberculosis*, INH resistance.

## INTRODUCTION

Tuberculosis (TB) is one of the major infections which affect children worldwide. It causes significant morbidity and mortality, especially in infants and young children. Childhood tuberculosis accounts for 5-15% of all the TB cases. 20-30% of the children with tuberculosis have an extra pulmonary presentation [1]. Lymphadenitis is the most common extra pulmonary form of tuberculosis. The cervical and the mediastinal lymph nodes are the most frequently affected ones, followed by the axillary and the inguinal nodes [2]. The HIV and AIDS pandemic has brought about a change in the epidemiology of TB and extra pulmonary tuberculosis (EPTB) has become increasingly common [3]. The diagnosis of EPTB is often difficult as it does not present with constitutional symptoms and is possible only by having a high degree of clinical suspicion.

Here, we report a case of pre-auricular lymphadenitis with abscess, due to *Mycobacterium tuberculosis* in a three year old female child. The case is reported for its unusual site of involvement and the resistance of the *Mycobacterium tuberculosis* (M.Tb) isolate to isoniazid (INH).

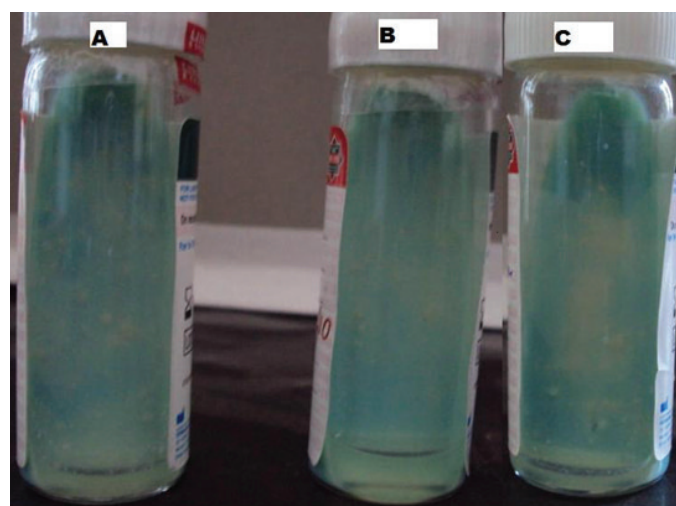
## CASE REPORT

A three year old female child presented to the ENT OPD with a swelling of two weeks duration in the left pre-auricular area and with no history of any discharge from the swelling. There was no history of cough, weight loss, anorexia, evening rise of temperature or night sweats. There was neither any history of contact with TB patients nor any recurrent respiratory tract infections. On examination, she was found to be afebrile, with a pulse rate of 90/min and a respiratory rate of 20/min. She had received the BCG vaccine and the scar was present. She weighed 15 kg. The local examination of her nose, oral cavity, right ear and left ear were normal. Her left middle ear examination was normal. The local examination of the left pre-auricular area revealed two enlarged (1.5cm) non tender lymph nodes and a 3.5cm firm, tender, discrete mobile, fluctuant swelling. No ulceration or discharge was seen. A presumptive diagnosis of pre-auricular lymphadenitis with abscess was made. The laboratory investigations revealed haemoglobin of 9.2gm% and a total leucocyte count of 16,800 cells/mm<sup>3</sup> with 46% lymphocytes, 38% neutrophils, 15% eosinophils and 1% monocytes. The erythrocyte sedimentation rate was 25mm/hr. The Mantoux test was positive, with an induration of 18mm at 72 hrs. Her chest radiograph was normal.

The abscess was drained and the pus, on Ziehl Neelsen's staining, showed few acid fast bacilli. The Gram's staining of the pus sample showed many polymorphonuclear cells and no organisms. Her routine aerobic bacterial culture was sterile. The pus was inoculated onto Lowenstein Jensen's (LJ) medium (HIMEDIA, Mumbai). It revealed buff coloured, rough colonies after 6 weeks of incubation. The culture smear showed acid fast bacilli by Ziehl Neelsen's staining. The organism was confirmed as *Mycobacterium tuberculosis* by the nitrate reduction test.

The child was started on Category I anti-tubercular therapy (ATT) under the Direct observed treatment short-course (DOTS) strategy as per the RNTCP guidelines.

The antibiotic susceptibility testing of the isolate was done on LJ slants with first line anti-tubercular drugs (HIMEDIA, Mumbai). The kit consisted of five LJ slants with isoniazid (0.2mcg/ml), rifampicin (40mcg/ml), ethambutol (2mcg/ml), pyrazinamide (200mcg/ml) and streptomycin (4mcg/ml) and two LJ slants as controls without any anti-tubercular drug. As per guidelines of the kit, the growth which was seen in the control slant and in the INH slant was evaluated and the isolate was found to be isoniazid resistant [Table/Fig 1].



**[Table/Fig-1]:** Shows the INH resistance of *M. tuberculosis* isolated. A & B are control LJ media without any anti-tubercular drug. C is the LJ medium with INH showing the colonies of *M. tuberculosis* similar to A & B.



**[Table/Fig-2]:** Photograph of the child after treatment showing complete recovery and a scar in the pre auricular region.

The follow up of the patient after 6 months when she had completed her ATT, revealed that the child had recovered completely. She weighed 18 kg. On examination, her pre-auricular area was found to be normal. A scar of the incision and the drainage which was done previously was seen near the earlobe [Table/Fig 2].

## DISCUSSION

Extra pulmonary TB is defined as the TB of organs other than the lungs, such as the pleura, lymph nodes, abdomen, the genitourinary tract, skin, joints, bones, etc [2]. EPTB is more common in children. Tuberculosis of the superficial lymph node, which is referred to as the scrofula, is the most common entity in children [1]. The cervical lymph nodes are most commonly affected ones. The axillary, inguinal and the parasternal nodes are the other lymph nodes which are involved [4,5]. The involvement of the pre-auricular lymphnode is rarely reported, accounting for 1% of all the TB cases [5]. The pre auricular lymph-node involvement is usually secondary to the TB of its drainage areas like parotid TB, mandible TB, osteomyelitis, middle ear TB, etc [3,6]. Our patient was a 3 year old female child with isolated pre auricular lymphadenitis with abscess and with no infectious focus in its areas of drainage. The literature search did not reveal the cases of pre-auricular lymphadenitis due to *M. tuberculosis* from India. However, a case of cutaneous tuberculosis (chronic non-healing ulcer) of the pre-auricular area has been reported in a six year old child, where it showed a dramatic response to anti-tubercular treatment [4]. The post auricular abscess due to tuberculous otitis media has been reported earlier, where the diagnosis was made by the demonstration of acid fast bacilli in the ear discharge [6].

Usually, children acquire the infection from infected adults. A history of contact is usually available in more than one third of the cases[5]. In our case, there was no history of contact with tuberculosis.

The clinical picture is often non descriptive in EPTB. Symptoms such as fever, loss of weight and appetite and failure to thrive are usually associated with it [1]. In our case, the patient had a swelling in the pre-auricular region and there was no associated fever.

The gold standard for the diagnosis of EPTB is either the direct demonstration of acid fast bacilli (AFB) in the exudates/biopsy or the bacterial isolation in culture. It is difficult to see AFB in the lymph node abscess as the bacillary load is very low. Only 20-25% cases of EPTB are smear positive and about 50% cases of EPTB are positive for culture [7]. Here, both the smear and the culture were positive.

Drug susceptibility testing with first line anti tubercular drugs was done and the isolate was found to be resistant to INH in our case. The primary resistance to INH and rifampicin has been reported to be about 17% and 8% respectively, in a study from Kerala [8]. The prevalence of multidrug resistant-TB in India is found to be 3% in new cases and 12-17% in the re-treatment cases [9]. These rates are much higher in patients who have taken prior, irregular treatment. The patterns of drug resistance in children tend to mirror those which are found in the adult patients in the population[1]. Though our isolate was INH resistant, the patient responded well to the treatment because of the combination of drugs. The INH resistance may have been compensated by the sensitivity to pyrazinamide and rifampicin because of their potent intracellular action.

## CONCLUSION

EPTB often poses a diagnostic delay due to the non descriptive clinical picture and the low burden of the organisms. The increased awareness of the uncommon manifestations of lymph node tuberculosis at atypical sites and also, looking for tuberculosis of the drainage areas might help child health care providers to diagnose this condition early.

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**AUTHOR(S):**

1. Dr. Malini. A
2. Dr. Sageerabanoo
3. Dr. Hemalatha.G
4. Dr. Baskaran

**PARTICULARS OF CONTRIBUTORS:**

1. Corresponding Author.
2. Assistant professor, Dept of Microbiology, Aarupadai Veedu Medical College, Puducherry.
3. Postgraduate student, Dept of Microbiology, Aarupadai Veedu Medical College, Puducherry.
4. Assistant Professor, Dept of Chest medicine & TB Aarupadai Veedu Medical College, Puducherry

**NAME, ADDRESS, TELEPHONE, E-MAIL ID OF THE CORRESPONDING AUTHOR:**

Dr. Malini. A  
Associate Professor, Dept of Microbiology, (presently working)  
Indira Gandhi Govt Medical college & research institute,  
Vazhudavur road, Kadirkammam, Puducherry-605009.  
Phone : 09944758049  
Fax : 0413-2277289  
E-mail : drmalinirb@yahoo.co.in

**DECLARATION ON COMPETING INTERESTS:**

No conflicting Interests.

Date of Submission: **Jul 07, 2011**  
Date of per review: **Aug 02, 2011**  
Date of acceptance: **Aug 14, 2011**  
Date of Publishing: **Nov 11, 2011**