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## CASE REPORT

### A Pre-Auricular Solitary Tuberculous Ulcer

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#### ABSTRACT

Cutaneous tuberculosis occurring sporadically in atypical sites could cause a diagnostic dilemma and lead to delay in treatment. We describe a 6-year old child who presented with a chronic, non-healing ulcer over the right pre-auricular region. There was no improvement with treatment from various practitioners over 2 months. On evaluation, we found that he had a negative smear for acid fast bacilli and a normal chest radiograph, but the Mantoux test done on him was strongly positive. His response to 3-drug anti-tubercular treatment further confirmed the diagnosis. The awareness of uncommon clinical forms of tuberculosis over atypical sites could help child health care providers diagnose the condition early.

**Key words:** tuberculous ulcer, pre-auricular area, children.

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#### Introduction

Tuberculosis of the pre-auricular area is uncommon [1]. We describe here, a 6-year old child who presented with a chronic, non-healing ulceration of the right pre-auricular region. With various treatments by different practitioners over two months, the ulcer did not respond but increased in size. A positive tuberculin test and response to anti-tuberculous treatment subsequently confirmed the diagnosis. This article highlights the continued, sporadic occurrence of the uncommon clinical form of tuberculosis over an atypical site, leading to misdiagnosis and delay in treatment.

#### Case Report

A 6-year old male child presented to us with a non-healing ulceration of two months duration, involving the right preauricular area. It was associated with crusting and scanty serous and occasionally blood stained discharge. There was a history of swelling in the same area, which increased in size and ruptured spontaneously. This was followed by development of an ulcer which gradually increased in size. There was no history of cough, weight loss, anorexia, rise of temperature in the evening, or night sweats. There was no history suggestive of systemic illness. The patient had been receiving treatment from various practitioners in the village, without any improvement. There was no history of tuberculosis in the family. However, his father's friend who had pulmonary tuberculosis used to frequently visit the house and mingle with the child.

He received BCG vaccine and the scar was present. He weighed 15kg. His height and head circumference were 106 cm and 48 cm respectively. He was afebrile with pulse rate of 90/min, respiratory rate of 22/min and

blood pressure of 120/70mm Hg. His oral cavity and tonsils were normal. Cardio-respiratory system and abdominal examination were normal. Cutaneous examination revealed a single ulcer of 5 x 6 cm size over the right preauricular region [Table/Fig 1] with an underlying sinus tract. The ulcer had undermined bluish margins. There was an unhealthy granulation tissue, scarring and scanty serous discharge. There were two discrete, non-tender, firm right pre-auricular lymph nodes of 1.5cm.



(Table/Fig 1) Pre-auricular ulcer of 5x6cm size

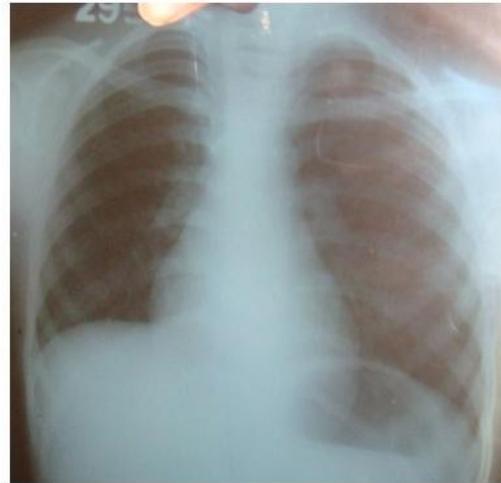
Investigations revealed haemoglobin levels of 11.6gm/dL and a total leukocyte count of 6500/mm<sup>3</sup> with 54% lymphocytes and 35% neutrophils. The erythrocyte sedimentation rate was 35mm/1<sup>st</sup> hour. The Mantoux test was performed by injecting 0.1 mL (5 TU) of the purified protein derivative (PPD RT23) on the volar surface of the left forearm and the induration was found to be 18mm at 72 hours [Table/Fig 4].



(Table/Fig 4)Induration of Mantoux test (18mm)

The test for acid fast bacilli (AFB), done on the smears from the scanty discharge of the lesion was negative on two examinations. Saliva tested was also negative for AFB.

HIV testing was negative. His chest radiograph was normal [Table/Fig 5]. A biopsy and the PCR test could not be done due to financial constraints.



(Table/Fig 5) Normal chest radiograph

Considering the diagnosis of tuberculosis, he was started on antituberculous treatment based on the revised national tuberculosis control program (3 drug regimen, DOTS H3R3Z3). At 2 months follow up, there was no discharge and the sinus was obliterated [Table/Fig 2].



(Table/Fig 2)Healing of ulcer after 2 months of therapy

At 4 months follow up, the ulcer was healed and he gained weight. Following completion of antituberculous therapy, the ulcer healed well, with the formation of a scar [Table/Fig 3] and he weighed 16kg.



(Table/Fig 3) Complete healing with scar after completion of antituberculous therapy

## Discussion

Cutaneous tuberculosis, a form of extrapulmonary mycobacterial disease, still remains an underdiagnosed entity. This, in part, is because of the occasional uncommon clinical presentations with the involvement of atypical sites. The most common form of cutaneous tuberculosis in children is scrofuloderma. The sites of predilection are the neck, the submandibular region, the lower limb, axillae and the inguinal region [1],[2]. As a result, tuberculosis may not usually be considered in the differential diagnosis of the cutaneous lesion involving the pre-auricular region. In the current case, the solitary skin lesion in an otherwise asymptomatic child was treated with multiple courses of antibiotics, with no improvement for 2 months. This resulted in the development of a large ulcer that left behind a scar, even after proper diagnosis and successful treatment.

Cutaneous tuberculosis accounts for about 1.5% of extrapulmonary tuberculosis cases [1]. Most cases are seen in the age group of 10 to 14 years, with no significant male or female preponderance except scrofuloderma that tends to occur more commonly in girls. Manifestations of cutaneous tuberculosis can be varied in children. Scrofuloderma and lupus vulgaris are the two most common forms reported in India [1],[2]. In the present case, the solitary cutaneous ulcer was observed in a 6-year old male child.

Children acquire the infection from infected adults. In true cutaneous tuberculosis, the bacilli reach the skin either from the

exogenous or endogenous focus [2]. Scrofuloderma, the most common form, is usually unilateral and results from the direct invasion of the tubercle bacilli into the skin from an underlying tuberculous focus, which is most often the lymph nodes. The cervical group of lymph nodes is commonly affected. The other groups of lymph nodes that can be involved are the axillary, inguinal, parasternal, epitrochlear, submandibular, occipital, supraclavicular, and pre- and postauricular nodes [2],[3],[4]. Scrofuloderma usually starts as subcutaneous nodules or a swelling, leading to the formation of cold abscesses, which, over a period of months, rupture to form the sinus tracts or ulceration. The ulcers are typically shallow and are undermined with bluish margins.

The Mantoux or tuberculin test can be positive in 80% [1], [2] of the children with different forms of cutaneous tuberculosis, more often with a localized form of the disease (91.8%). [2] The gold standard for the diagnosis of cutaneous tuberculosis is the direct demonstration of the organism either in a tissue smear or biopsy, or by isolation in culture. But it may be difficult, as organisms are scanty in cutaneous tuberculosis. In the present case, the tuberculin test was strongly positive but the smear examination was twice negative for AFB.

In addition to the routine laboratory tests, evaluation for underlying systemic tuberculosis is suggested for all children. The incidence of underlying systemic involvement with different cutaneous tuberculosis varies from 1.7 to 53.4%, with frequent involvement of lungs (12.6% to 20%) and lymph nodes (29.2%) [1], [2], [3], [4], [5] Systemic involvement is more in scrofuloderma. In our case, there was no systemic involvement. In the present case, the boy had received BCG vaccine. No significant differences between the vaccinated and the unvaccinated groups were found in children with cutaneous tuberculosis [1],[2].

Cutaneous tuberculosis can be treated with the standard regime used for pulmonary tuberculosis, which consists of an intensive phase with four drugs, rifampicin, isoniazid, pyrazinamide, and ethambutol for the initial 2 months, followed by 4 months of continuation therapy with two drugs (rifampicin and INH)[1],[2],[3]. Ethambutol in children younger than 5 years needs proper monitoring. Patients with extensive skin involvement and the underlying systemic disease may need a longer period of treatment. We treated our child as per the guidelines of the revised national tuberculosis control program of the Government of India. According to these guidelines, cutaneous tuberculosis is treated with three drugs, rifampicin, INH, and pyrazinamide, thrice weekly for the first two months, followed by two drugs, rifampicin and INH, for the following four months. A complete cure has been observed.

Clinical manifestations of skin tuberculosis are often due to a profound inflammatory response to a relatively low burden of organisms. This is reflected in the low yield of diagnostic tests; consequently, the diagnosis of tuberculosis is often based upon a positive skin test, epidemiological information and clinical characteristics [1],[2],[5]. Further, usefulness of a therapeutic trial of antituberculous drugs as diagnostic tool in developing countries like India, has been reported [5].The authors suggested that considerable response at the end of 6 weeks would appear to prove the diagnosis of cutaneous tuberculosis. In the present case of chronic non-healing ulcer, clinical characteristics and a strong tuberculin reaction favoured the diagnosis of

tuberculosis, and a good response with cure following antituberculous medications confirmed the diagnosis.

In conclusion, the increased awareness of the uncommon manifestations of cutaneous tuberculosis at atypical sites might help child health care providers to diagnose the condition early.

### Contributors

RB was involved in the treatment of the case, literature search, manuscript preparation, approval and drafting of the manuscript. BKG was involved in the treatment of the case and literature search and helped in the manuscript preparation.

### Consent

Patient's father has given consent for the publication of images for academic purpose.

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