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Tubercular Abscess on Right Arm in an Immunocompetent Infant - A Rare Case

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ABSTRACT

Soft tissue infections with Mycobacterium tuberculosis have become common. This makes the clinicians to think of tuberculosis as a part of differential diagnosis in cases of abscess especially in an endemic area. We hereby report a case of right arm tubercular abscess in an infant caused by *Mycobacterium tuberculosis* which was confirmed by Ziehl-Neelsen stain, histopathology and also CBNAAT and the patient responded well with Anti tubercular treatment.

Keywords: Soft tissue infection, Mycobacterium tuberculosis, abscess.

INTRODUCTION

Tuberculosis is a chronic granulomatous infection which can present in an atypical form. Skin and soft tissue involvement is a rare form of Mycobacterium tuberculosis infections constitutes 1-2%. However, detection of Mycobacterium tuberculosis is always an important part of differential diagnosis of skin and soft tissue involvement in endemic areas. [1]

We herein report a case of tubercular Skin & soft tissue abscess formation in an infant.

CASE HISTORY

A healthy four months old male child was brought to the paediatric OPD with history of swelling over right arm for 1 month, which was spontaneous in onset & gradually increased to present size.

History of immunization till date. BCG scar present.

No significant birth or family history.

On clinical examination over right deltoid aspect, swelling was 2 x 2 cm, soft, non-tender with no rise in temperature. No erythema or ulceration or discharge was seen. Vital signs remained normal and patient was afebrile.

1cm long elliptical incision was done and 2-3ml of pus drained. Entire lesion excised in toto. Aspirate was sent for routine microbiology culture along with mycobacterial culture. Grams & Ziehl Neelsen (ZN) staining were performed and inoculated onto Blood agar, MacConkey agar and Lowenstein Jensen (LJ) medium.

Gram's Stain showed few WBC's with no organism.

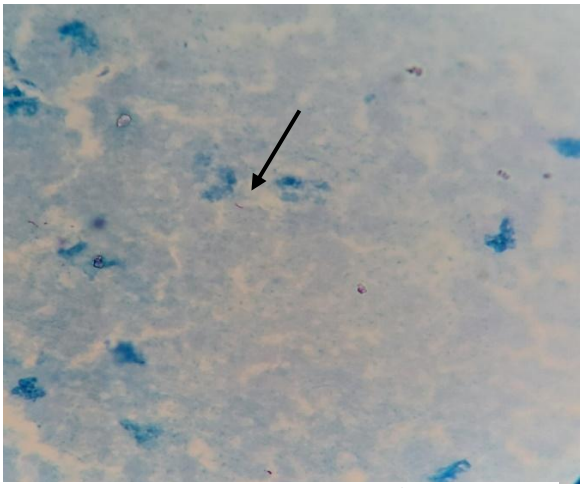

Figure 1: Ziehl Neelsen Stain showing acid fast bacilli (100x)

Pus sample was found positive for AFB (acid fast bacilli) on Ziehl Neelsen (ZN) staining. (Figure 1)

Aerobic bacterial culture was sterile (on Blood agar and MacConkey agar).

LJ medium yielded growth after 6 weeks of incubation which was rough, tough and buff coloured. ZN stain was performed from the colony which was positive for acid fast bacilli. (Figure 2)

Figure 2: Lowenstein – Jensen medium showing rough, tuff and buff colored colonies

Pus Sample was also sent to GeneXpert MTB/RIF assay which corroborated to AFB staining by detecting Mycobacterium tuberculosis sensitive to Rifampicin

Excision biopsy was sent for histopathological examination. Section showed skin with mild acanthosis. The deep subcutaneous tissue showed a cavity lined by palisading histiocytes with ill-defined granulomas, occasional giant cells, granulation tissue and mixed inflammatory infiltrate with necrotic material. Neutrophilic micro abscesses were also noted. Excision biopsy features were consistent with acute or chronic inflammatory process – abscess.

There was no evidence of primary focus of tuberculosis on clinical and radiographic examination. Hematological parameters were normal.

Patient was treated with anti-tubercular treatment for which the child responded well.

DISCUSSION

Tuberculosis (TB) caused by *Mycobacterium* is known as disease of poverty. India has an estimated incidence of 26.9 lakh cases in 2019 (WHO).

Tuberculosis is usually considered as an adult pulmonary disease, but it is also seen in young children from TB-endemic countries, especially in areas affected by poverty, social disruption, and human immunodeficiency virus (HIV) where it can be seen as both pulmonary and extrapulmonary form. [2]

In India, the annual incidence of TB in paediatric age group was 0.26 million accounting for 8.9% of overall incidence.[3] Children differ from adults TB as children are much more likely to develop extra-pulmonary TB, as many as 25% of childhood TB cases are extra-pulmonary cases, compared with 16% in adults.[4]

TB is most primarily transmitted via an airborne route, whereas hematogenous or contiguous spread from a focus of infection causes extrapulmonary manifestations including in the skin. However, a primary infection in a susceptible individual can occur through direct inoculation of mycobacteria into the skin or mucosa by trauma or injury.[5]

Occult hematogenous TB or sporadic dissemination, takes place for a very short time. The bacilli which are seeded at various organs become active again during periods of lowered immunity and progress to active lesions, or remain quiescent, containing viable bacilli. [6]

In patients with primary infection, at the injection site or at the traumatic sites, micro hematoma which occurs, acts as an area of lowered resistance resulting in seedling of tubercular bacilli that get fixed at these sites and later progress to abscess formation. [7]

The presence of caseating granulomatous lesions in the biopsy and/or

presence of AFB in such material is the hallmark of diagnosis. [8] Sometimes histopathology examination, demonstration of an acid-fast mycobacterium in the aspirated pus or a culture of the scrapings from the abscess wall may be required. [9] Recently, PCR has been used for the detection of *M. tuberculosis* DNA, which also has the added advantage of distinguishing *M. tuberculosis* from non-tuberculous mycobacterium. [10]

In our case, tubercular origin of abscess was microbiologically confirmed by positive AFB microscopy, positive CBNAAT supplemented by clinical findings such as normal systemic parameters, clinical response to ATT. BCG scar was present on left arm ruling out erroneous BCG vaccination in the right arm.

We suggest, probably occult haematogenous dissemination of *Tubercle bacilli* from primary focus somewhere else in body might get dislodged and multiply to form an abscess. Such dissemination of tubercle bacilli from primary focus may take one week to three months and last for a very short time. [11]

CONCLUSION

Tuberculosis *abscess* in immuno-competent infant is less common and poses diagnostic challenge as it's not considered in initial differential diagnosis. The attending physician should think of the possibility of a primary tuberculous abscess, even when the joints and bone adjacent to a superficial abscess are intact for early diagnosis and complete treatment for a better outcome.

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