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Case Report

Cutaneous tuberculosis presenting as abdominal wall cellulitis: a case report

Jaskirat Kaur Sandhu*, Satpreet Kaur

Department of Pediatrics, Guru Gobind Singh Medical College and Hospital, Faridkot, Punjab, India

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***Correspondence:**
Dr. Jaskirat Kaur Sandhu,
E-mail: jaski1989@gmail.com

ABSTRACT

Tuberculosis (TB) continues to be a prevalent disease worldwide; according to World Health Organization (WHO), children and young adolescents represent about 11% of all people with TB globally. Although TB often is cited as a disease that commonly occurs in underdeveloped countries, the evolution of drug-resistant forms of TB and infection sensitivity of immunocompromised individuals have made this disease as a focal point for developed countries as well. Although pulmonary TB is the most common form worldwide, but TB can infect any organ of the body. An uncommon version- cutaneous TB- affects <2% of all individuals with active form of TB. This case report describes a 4-month-old child who presented to us with abdominal wall cellulitis following a history of fall related injury. Incision and drainage of the pus from the fluctuant area grew acid fast bacilli on Zeihl-Neelsen staining. After the child didn't show any improvement with intravenous antibiotics, empirical anti-tuberculosis therapy was initiated after which there was marked improvement. Cutaneous TB constitutes a very small percentage of extra-pulmonary tuberculosis and is rarely seen in paediatric age group.

Keywords: Scrofuloderma, Cellulitis, Cutaneous, Ulcer, Mycobacterium

INTRODUCTION

The disease tuberculosis is perhaps as old as the mankind, with evidences of the disease being found in the vertebrae of the Egyptian mummies. But it was not until 1882 that Robert Koch discovered the causative agent as Mycobacterium tuberculosis. According to World Health Organization (WHO) 2018 global tuberculosis report, tuberculosis is one of the top 10 causes of death worldwide; and the leading cause from a single infectious agent. In India, tuberculosis continues to be the biggest public health problem. Cutaneous tuberculosis is a relatively uncommon entity, comprising 1-1.5% of all extra-pulmonary tuberculosis manifestations. It is characterized by a spectrum of multiple distinct clinical and histo-pathological presentations. Clinical features in children remain mostly the same as that in adults with cutaneous tuberculosis, but lymph node involvement and systemic disease is much more common in children.[2] However, it is often missed because of its unusual manifestations, as well as lack of experience of physicians.

CASE REPORT

A 4-month-old previously asymptomatic female child came with history of fall one week prior to admission. It was followed two days later by the appearance of redness and swelling over the left side of abdomen and chest. She had no previous history of fever, cough or decreased appetite, although after fall, the child used to be irritable and had reduced oral intake. There is no complaint of vomiting, seizure episode or bleeding from any site. Past history, including antenatal, natal and postnatal course, was insignificant. The patient was fully immunized till date (although BCG scar was absent). There was no known contact with any person diagnosed with tuberculosis or having chronic cough. Prior to her current visit, she was admitted in a private hospital for one week where

intravenous antibiotics were given but was then referred here for further management. She had no known medical problem, and her family and social history were unremarkable.

Physical examination revealed an irritable, but otherwise healthy and well-nourished child. On admission, her vitals were pulse rate 130 beats/min, respiratory rate 38 breaths/min, axillary temperature 101°F and SpO_2 94%. There was no pallor, icterus, cyanosis or lymphadenopathy. The patient was having intensely pruritic lesions with erythematous papules in web spaces, wrists, arms and lower abdomen. Local examination of abdomen revealed an 8×5 cm fluctuant swelling on the lateral aspect in left hypochondriac region. It was associated with redness, tenderness and increased local temperature. Chest examination revealed bilateral conducted sounds only. Rest of the examination was normal.

On investigating the child, complete blood count revealed anaemia (Hb 7 gm/dl) and total leucocyte count (TLC) of 27000 with neutrophilic predominance (68% neutrophils, 25% lymphocytes). C-reactive protein was found to be elevated (169 mg/dl). The results of human immune-deficiency virus (HIV) testing were negative. The patient's erythrocyte sedimentation rate (ESR) was 65 mm/hr in the first hour, Montaux revealed no induration and Gastric lavage for Cartridge based nucleic acid amplification test (CB-NAAT) was negative. Chest X-ray showed mild streaky opacities in perihilar region. Blood culture showed growth of Enterococcus species. Incision and drainage at the site of swelling led to drainage of purulent fluid which showed polymorphonuclear neutrophils, total proteins 3.5 gm/dl (albumin 1.7 gm/dl) and glucose 6 mg/dl. Fluid culture grew Acinetobacter baumannii, with sensitivity to polymyxin B. CBNAAT for the fluid was negative but ZN staining showed growth of acid fast bacilli. Ultrasonography of the abdomen showed a heterogenous collection with thick internal echoes, involving superficial subcutaneous and muscular plane in left lateral chest wall region.

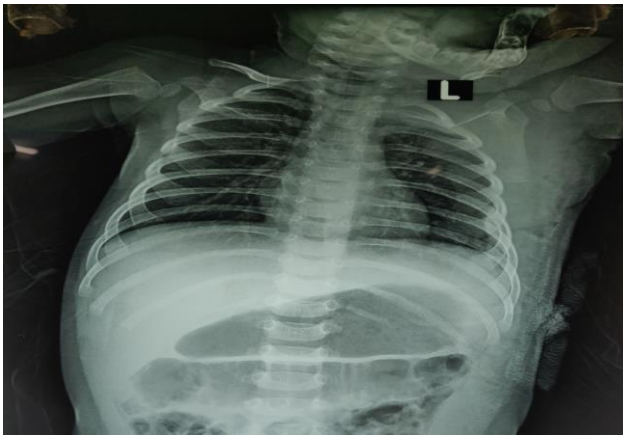

Figure 1: Chest X-ray of the patient showing perihilar opacities.

Patient was initially started on intravenous ceftriaxone, ampicillin and clindamycin in view of raised TLC and C-reactive protein (CRP). Clinical improvement was seen but fever persisted. In view of positive blood culture, linezolid was also given. Despite 10 days of iv antibiotics, fever persisted and pus was seen discharging from the I and D site. The margins of the site showed an ulcer with bluish undermined margins with slight serosanguinous discharge. In view of the above findings, patient was started on empiric anti-tuberculosis therapy as per weight (isoniazid, rifampicin, pyrazinamide and ethambutol). Patient responded with disappearance of fever and gradual healing of the ulcer site. She was discharged after 21 days of hospital stay and called for follow-up.

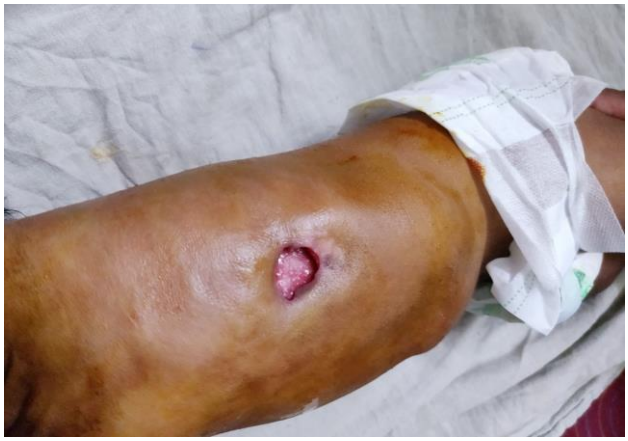

Figure 2: Tuberculous ulcer showing bluish undermined margins.

DISCUSSION

Cutaneous tuberculosis is a rare form of TB and presents with non-specific and varied clinical presentations.[3] Scrofuloderma is the most common form of cutaneous TB in India (50% cases) followed by lupus vulgaris in 42.86%, tuberculosis verrucosa cutis in 4.76%, and lichen scrofulosorum in 2.38% cases.[4] Other than *Mycobacterium tuberculosis*, infection can rarely be caused by *Mycobacterium bovis* or other atypical mycobacteria. Pulmonary TB, at present or in the past, is an important risk factor, which was absent in the current case. It is more at the site of trauma, as seen in the current case. Limbs are the most common sites for cutaneous TB in India whereas neck, face and trunk are commonly involved in western world.

Lupus vulgaris is the commonest form of secondary cutaneous tuberculosis. It develops in a previously sensitized host having a high degree of tuberculin sensitivity. Lupus vulgaris results both from inoculation and from endogenous spread through hematogenous or lymphatic route from underlying infective focus. Rarely, it may develop following direct inoculation of the bacilli into the skin or at the site of BCG vaccination.[5] In this case, the lesion developed as abdominal wall cellulitis following a history of trauma.

Diagnosis of cutaneous TB is a challenge, owing to difficulty in recovering the bacilli.[6] Generally, the diagnostic methods have a low sensitivity and specificity for cutaneous TB compared with the pulmonary form of TB. For suspected cutaneous TB, it is advised to do a tuberculin sensitivity testing (TST), obtain a chest X-ray and perform examination of skin sample/fluid. WHO recommends diagnosis of TB, including cutaneous TB, using the Xpert MTB/RIF assay.[7] This was found to be negative in our patient. But another method of diagnosis includes Zeihl-Neelsen staining of the collected specimen. The fluid obtained by incision and drainage in our case was found to test positive for acid fast bacilli on ZN stain.

Another important feature of cutaneous TB is the formation of tuberculous ulcer, which has characteristic bluish undermined margins and pinkish white base.[8] In our case also, following incision and drainage at the site of cellulitis, there was development of ulcer with bluish undermined margins. This further helped in suspecting tuberculosis clinically in our patient.

Treatment of cutaneous TB is similar to pulmonary TB as per the WHO recommendations. The treatment includes a 2-month intensive phase consisting of treatment with four drugs-isoniazid, rifampicin, pyrazinamide and ethambutol. This is followed by a 4-month continuation phase with three drugs-isoniazid, rifampicin and ethambutol. In our case, the treatment was started with the four anti-tuberculosis drugs, to which the patient responded clinically with the disappearance of fever and healing of the lesion.

Early detection of cutaneous TB through patient initiated and screening pathways needs to be reinforced. It will help in alleviating death and disability related to TB. A strong clinical suspicion for cutaneous TB should be kept in mind if a skin lesion is not healing with routine antimicrobial treatment.

CONCLUSION

This report presents the case of a patient with a rare form of extra-pulmonary TB. Cutaneous TB should be suspected in a child presenting with a skin lesion with or without discharge, especially following a history of trauma. These cases should also be investigated for pulmonary TB. Cutaneous TB is uncommon and differential diagnosis requires multidisciplinary approach. TB prevention using BCG vaccination should be encouraged.

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