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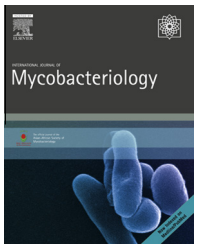

Case Report

Chronic oozing skin lesions in children: Possible tuberculosis? Two case reports ☆

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ABSTRACT

Cutaneous tuberculosis is frequently misleading and challenging, as it mimics a wide differential diagnosis. Here, we present two pediatric cases with chronic multiple ulcerating nodules. Proper history, physical examination, and histopathological analysis are included in the workup of suspected skin tuberculosis. Diagnosis was confirmed by positive culture for mycobacteria.

Case 1

A 6-year-old female patient presented with a painless lesion in the middle of the back discharging serous fluid, as well as another swelling in front of the right ear. The condition started 1.5 years ago with an edematous nodule on the right upper eyelid that was treated with antibiotics, but it enlarged and closed her eye. It was diagnosed as an abscess, underwent surgical excision, and healed by fibrosis. One month later, another swelling appeared in the right upper part of the neck, starting as a small papule and enlarging in size. The skin overlying it became purplish in color, followed by ulceration ending in scarring. During this period, the patient was febrile, with no toxemic manifestations and no evidence of other system affliction.

After 2 months, swelling appeared on the face beside the lobule of the right ear in the pre-auricular area, followed by other three swellings in the middle of the back, which opened and discharged serous fluid and did not respond to antibiotic treatment. The patient experienced low-grade fever and loss of both appetite and weight.

The discharging fluid from the back swelling was examined by fine-needle aspiration and diagnosed as suppurative necrotizing granulomatous inflammation. There was no

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response to treatment with broad spectrum antibiotics, and bacterial and fungal cultures from the discharging fluid were negative, Therefore, she was referred for consultation with a tuberculosis (TB) expert.

On physical examination, all vital signs were normal. The patient was of average weight, there was no lymphadenopathy, and systemic examination revealed no abnormalities. On the right upper eye lid, there was a small scar 2 cm in length (Fig. 1).

Examination revealed a regularly bordered, pink, raised lesion with a central fibrous scar on the right side of the face (2 cm × 5 cm), in front of the lobule of the right ear, and in the right upper part of the neck (2 cm × 6 cm; Fig. 2).

In the middle of the back, there were three ulcers, with the largest one measuring ~4 cm × ~5 cm, with undermined edges oozing serous fluid and surrounded by crusty, irregular, pale granulation tissue (Fig. 3).

Routine biochemical analysis, complete blood count, and urine analysis were all normal. Erythrocyte sedimentation rate (ESR) was 65 for the 1st hour. The chest radiograph was normal, and chest computerized scan revealed left apical fibrotic scarring likely related to an old granulomatous infection. No signs of active pulmonary tuberculosis were present. Magnetic resonance imaging of the vertebral bone showed normal results.

The tuberculin skin test (Mantoux test) was positive (induration 25 mm × 28 mm). Three samples of sputum and swabs from discharging fluid for acid-fast bacilli were all negative. The discharging fluid was taken for culture for TB.

A skin biopsy from the back lesion was taken for histologic examination and also for culture for TB. The histologic examination revealed non-caseating epithelioid granulomata with pseudoepitheliomatous hyperplasia suggestive of TB of the skin.

Case 2

A 5-year-old female presented with multiple swellings and discharging sinuses (oozing thick, whitish fluid) over the skin of the left upper part of the neck and submandibular area. The surrounding skin was purple-blue in color with elevated edges.

Six months later, the patient developed two upper-left cervical swellings and one submandibular swelling that was treated with multiple courses of antibiotics with no response. These swellings began to open by fistula to the outer skin, oozing thick white fluid (Fig. 4).

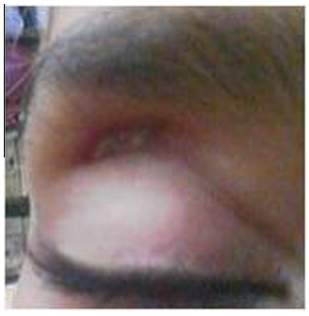

Fig. 1 – Scar on the right upper eye lid.

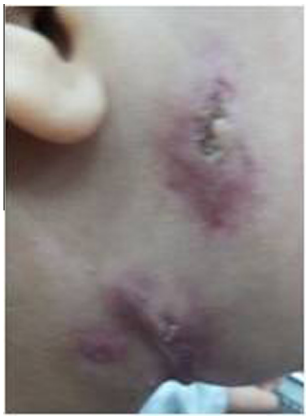

Fig. 2 – Lesion in the upper part of the neck and in front of the right ear.

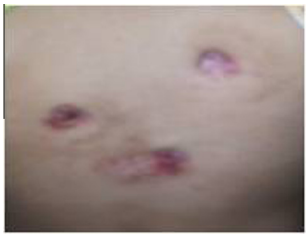

Fig. 3 – Three ulcers on the middle of the back.

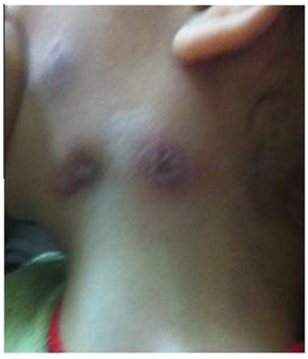

Fig. 4 – Skin lesions.

The patient had no history of chest disease and no chest symptoms, and no contact history with a TB-related case. Routine biochemical analysis, complete blood count, and urine analysis were all normal. ESR was 70 for the 1st hour, and the chest radiograph was normal. The tuberculin test was positive (induration 22 mm × 24 mm), and a quantiferon TB gold test was positive. Gastric lavage was negative for mycobacteria.

Swabs from the discharging fluid were sent for pyogenic culture and culture for acid-fast bacilli. A neck ultrasound revealed multiple bilateral-cervical, left-supraclavicular, and left-axillary lymph nodes (LNs) ranging from 1.4 cm to 1.7 cm. Some of the cervical and supraclavicular LNs were forming cystic turbid abscesses from 0.7 cm to 2.3 cm in size.

Skin and LN biopsy was done, with the skin showing dense dermal infiltration by chronic inflammatory cells and

minimal epithelioid granulomata and sinus-tract formation. The LN architecture was mostly replaced with caseating epithelioid granuloma with few multinucleated giant cells (Fig. 5).

Both patients received Bacillus Calmette–Guérin vaccine. A scar is now present at the site of injection. The patient had no history of previous pulmonary TB since birth, and developmental and family histories were unremarkable, with no family members having a history of TB.

Discussion

TB ranks alongside the human immunodeficiency virus as a leading preventable cause of death from infectious disease. In 2014, there were an estimated 9.6 million new TB cases, with 1 million of them in children [1]. In Egypt, according to World Health Organization estimates of TB burden, the prevalence rate of 2014 was 26 per 100,000 people, while the incidence rate was 15 per 100,000 people [2]. Cutaneous TB is a rare form of extrapulmonary TB that accounts for 1.5% of cases [3]. Cutaneous TB can mimic the clinical features of many other skin diseases [4], therefore, it is important to consider TB in a suspected clinical picture [5]. Childhood skin TB continues to be a health problem in tropical countries and represents a large percentage of all cutaneous TB cases [6]. Cutaneous TB has a wide range of clinical presentations and variable differential diagnosis, making diagnosis difficult despite recent advances in diagnostic techniques [7]. Both infectious and noninfectious diseases of the skin should be considered in any potential case of cutaneous TB [8].

Here, we presented two cases of childhood TB in immunocompetent female children that included chronic oozing ulcers. In both cases, pyogenic infection was excluded due to absence of bacteria in smears and cultures of discharging materials, as well as absence of response to broad-spectrum antibiotics. Fungal cultures were also negative, and malignancies were not considered due to negative histopathology.

In both cases, immunodeficiency was ruled out (patients had normal CD3, CD4, CD8, CD56, CD19, and CD16 counts), and the granulocyte function and collagen profiles were normal. Treatment was started in both cases depending on the tuberculin skin test, histopathology, and chronicity of lesions showing no response to broad-spectrum antibiotics. Therapeutic regimens included short courses with first-line anti-TB drugs for 6 months. Both cases showed good responses to treatment within 4 weeks in Case 1 and 8 weeks in Case 2. Marked improvement in the lesions was observed by the end of treatment (Fig. 6).

In both cases, cultures from oozing fluid were positive for *Mycobacterium tuberculosis* and sensitive to first-line anti-TB drugs. Patients were investigated thoroughly before treatment, and baseline investigations were recorded and followed for potential adverse effects from drugs. Patients were given a schedule for follow-up, and during follow-up periods, there was no evidence of relapse or recurrence and no adverse effects related to drugs reported. Patients completed treatment and will be followed up with for a sufficient period of time. Close contacts of both cases were screened for TB, with none showing evidence of infection.

The clinical pictures included positive tuberculin skin tests and suggestive histopathology as the main clues for diagnosis, taking into consideration the epidemiologic pattern of TB. A favorable response to anti-TB treatment was supportive; however, diagnosis was confirmed only when culture results were positive. Mycobacterial culture remains the most reliable method to confirm the presence of mycobacteria and anti-TB sensitivity [9].

Multiplicity of lesions and multifocal disseminated involvement in scrofuloderma and lupus vulgaris is common [6]. In Case 1, the face and neck lesions resembled scrofuloderma (SFD) and the back lesion resembled ulcerative lupus vulgaris (LV), while in Case 2, lesions were consistent with SFD. SFD and LV are the two most common forms of TB in children [10], with SFD being the most common form of cutaneous TB seen in children. SFD arises due to direct extension of the infection from an underlying tuberculous focus into the skin. LNs are the most common foci, with cervical node infection with SFD of the neck region is the most common site of involvement [11]. LV is the second most common type of TB seen in children [12]. LV is mostly seen in the lower half of the body, involving legs, knees, thighs, buttocks, and feet, although involvement of the upper limbs and trunk is also known to occur [13]. Histopathology of LV lesions reveals typical epithelioid granulomas in the upper dermis, with lymphocytes and Langhans giant cells in up to 80% of cases. The remaining cases show nonspecific changes involving SFD granulomatous involvement of the entire dermis, with giant cells as the predominant cell infiltrate. Caseation necrosis, ulceration, and abscess formation are commonly encountered [14].

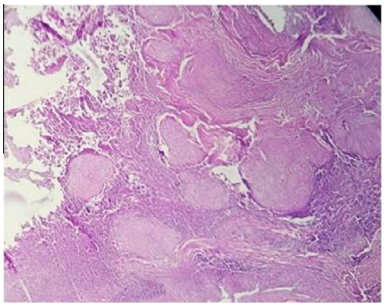

Fig. 5 – Histology slide of skin and lymph node biopsy.

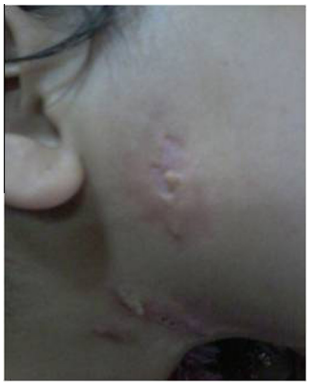

Fig. 6 – Face ulcers after treatment (Case 1).

The non-caseating epithelioid granulomata seen in Case 1 did not exclude TB, as in many studies reporting non-caseating tuberculous granuloma [15]. Absence of caseation was reported in LV. Pai et al. [16] reported fourteen cases of LV in which histopathological examination revealed lymphocytic infiltrates, Langerhans cells, and epithelioid granulomas, with caseation in three out of 14 cases (27.2%) and granulomas without caseation in 11 out of 14 cases (78.5%) [16]. Endogenous infection resulting from hematogenous spread of the infection or direct extension is the possible route of infection [17].

In our cases, both responded well to anti-TB treatment within 4–8 weeks, similar to reports from similar studies. Ramam et al. [18] reported that a clinical response should be expected between Week 4 and Week 6 of treatment in cases of cutaneous TB [18].

In conclusion, although the incidence of cutaneous TB is rare, it should be considered in patients presenting with suggestive skin lesions. Early diagnosis and initiation of treatment are important to achieve complete recovery and avoid deformities. Increased awareness of TB is highly recommended.

Ethical considerations

Written informed consent from the parents of patients was obtained before submission of this manuscript.

Conflicts of interest

The authors declare no actual or perceived conflicts of interest.

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