Case Report

Primary Tuberculosis, Phlyctenular Conjunctivitis and Erythema Nodosum: A Rare Association

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Abstract

Primary tuberculosis (TB) are usually pulmonary, an increase in extra-pulmonary TB as cervical lymphadenitis has been reported frequently. Phlyctenular Keratoconjunctivitis (PKC) and Erythema nodosum (EN) are manifestations of an immunological response to tuberculosis. EN and PKC may rarely be associated with this, but are usually found separately. In the recent past, we have not found any case reports with these associations which prompt us to present this case.

Keywords: Phlyctenular keratoconjunctivitis; Erythema nodosum; Lymphadenopathy.

Introduction

Tuberculosis (TB) is a leading cause of morbidity and death in all ages globally according to the 2025 WHO Global Tuberculosis Report, estimated new cases of tuberculosis (TB) were 10.7 million, of which 11% were children.[1] Mycobacterium tuberculosis infection can cause severe TB disease in young children, particularly infants <2 years old.[2] Diagnosis in this age group is challenging due to the paucibacillary nature of paediatric TB, the non-specific and often acute disease presentation, and the difficulty in collecting respiratory samples for diagnostic testing.[3] In Bangladesh TB incidence is 36 per thousand population among the 0-14 years age group.[4] Pulmonary TB is the commonest type of TB in children. Extrapulmonary disease is also common (around 30-40% of cases).[5]

Initial lesions are usually pulmonary, although an increase in extra-pulmonary TB has been reported in recent years. These frequently involve the head and neck, with the most common presentation being a mass in the cervical region.[6] Additionally, primary TB of the orofacial region is more commonly found in children and adolescents than in adults.[7,8] EPTB may provide difficulty in diagnosis if it presents primarily without pulmonary involvement.[9]

PKC represents an allergic cell mediated response in cornea and/or conjunctiva to some antigen, to which they have already become sensitized.[10] Erythema nodosum is a skin condition where red lumps appear on the shins and less commonly forearms and thighs. This is a painful disorder of the subcutaneous fat that can manifest with tender, erythematous, subcutaneous nodules.[11] Erythema nodosum and phlyctenular conjunctivitis both are hypersensitivity reactions of primary TB.[12] Though PKC is still found in association with TB erythema nodosum is now a days a rare association.[10,13,14] The present study highlights the rare association of these two conditions with primary extrapulmonary TB in an eight-year-old girl.

Case: A nine-year-old female child presented to the department of Paediatrics at Ad-din Women's Medical College Hospital complaining of low-grade fever for

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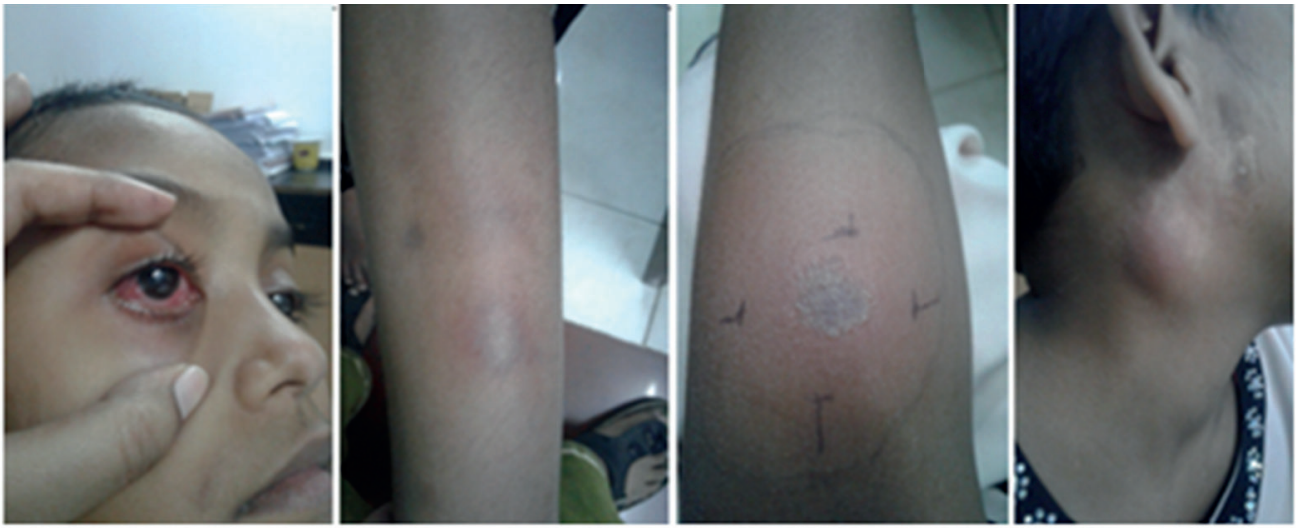

Figure : A. Phlyctenular keratoconjunctivitis B. Erythema nodosum C. MT 28mm. D. Lymphadenopathy

three months with evening rise of temperature which subsided in early morning with profuse sweating. Mother also complained of a painless swelling in her right mandibular angle for two and a half months. Fifteen days prior to admission mother noticed some red colored tender lesion on shins and continuous watering and redness from both eyes. The child was a student of a local madrasa and lived in the dormitory where she was exposed to a TB patient six months ago.

On examination, the child had cervical lymphadenopathy, largest one was the right jugulodigastric node, 2.5×2.5 cm approximately, soft, rounded, non-tender, mobile and showed signs of matting without any discharging sinus. Lymph nodes of other regions were not palpable.

On skin survey, erythema nodosum were found on the both shins. Phlyctenular conjunctivitis was found in both eyes.

Other systemic examinations revealed no abnormality. CBC report showed Hb% was 12.1 gm/dl, TC was 10,380/cu mm, N was 64% and L was 24% and ESR was 49 mm in 1st hour. Chest X-ray was normal, MT was positive (28 mm). FNAC of the lymph nodes showed epithelioid cells, lymphocytes, histocytes and polymorphs in the background of casaeation necrosis which are consistent with TB but chest X-ray was normal. A diagnosis of primary TB lymphadenitis was made and the patient we started on short course antitubercular therapy (ATT) with isoniazide, rifampicin, ethambutol and pyrazinamide for two months followed by isoniazide and rifampicin for four months. Topical steroid was used for eyes and conjunctivitis was cleared within two weeks. Her weight began to increase two months after initiation of treatment and lymph nodes become normal in size within five months of treatment.

Discussion

Lymphadenitis is the most common clinical presentation of extra-pulmonary tuberculosis. Tuberculous lymphadenitis most frequently involves the cervical lymph nodes. [15, 16] Cervical lymphadenitis, which is also referred to as scrofula, may be manifestation of a systemic tuberculous disease or a unique clinical entity localized to neck. It may represent a spread from the primary focus of infection in the tonsils.[12,15] In initial stage of superficial lymph node involvement progressive multiplication of the M. tuberculosis occurs, the onset of delayed hypersensitivity is accompanied by marked hyperemia, swelling, necrosis and caseation of the center of the nodes. This can be followed by inflammation, progressive swelling and matting with other nodes within a group. Adhesion to the adjacent skin may result in induration and purplish discoloration. The center of the enlarging gland becomes soft and caseous material may rupture into surrounding tissue or through skin with sinus formation. Mycobacterial infection should be considered in the differential diagnosis of a cervical swelling, especially in endemic areas. The duration of symptoms before diagnosis may range from few weeks

to several months.[15, 17] It may present as a unilateral single or multiple painless slow growing mass or masses developing over weeks to months, mostly located in the posterior cervical and less commonly in supraclavicular region .[15,17,18]

PKC and erythema nodosum are two uncommon signs indicative of recent TB infection.[12,19] Phlyctenular keratoconjunctivitis is a nodular affliction characterized by the formation of a small, circumscribed lesion at the corneal limbus[20] and is a nonspecific allergic response in the cornea and/or conjunctiva, to a variety of antigens.[21] Conjunctival phlyctens are usually transient and asymptomatic, but occasionally in larger phlyctens, frank pustular conjunctivitis may develop with subsequent penetration into sclera, leading to permanent scar formation. Corneal phlyctens present with lacrimation, photophobia and blepharospasm and tend to leave opacities, leading to permanent vision impairment or occasionally blindness.[21] Tuberculosis as an etiological association, is being supplanted by staphylococcal infection and worm infestation in the developed world. Tuberculosis has been implicated in 77% (86/112) of all cases of PKC from India. PKC lesions were observed to be more severe and recurrent in patients with tuberculosis. The most common underlying tubercular focus was found to be the lungs, followed by tubercular lymphadenopathy.[10] Tubercular phlyctenular conjunctivitis usually regresses completely with antitubercular therapy.[22]

Erythema nodosum is a skin condition where red lumps appear on the shins and less commonly forearms and thighs. This is a painful disorder of the subcutaneous fat that can manifest with tender, erythematous, subcutaneous nodules. Erythema nodosum is a well-known delayed hypersensitivity reaction to a variety of different stimuli such as infections, autoimmune diseases or drugs, depending on the country of the patient's origin.[11] The association of erythema nodosum with tuberculosis is well known, especially in endemic regions.[23] Some series reported TB as the second most common cause of secondary erythema nodosum, whereas others consider Mycobacterium tuberculosis infection as a rare cause.[13,14, 24] In a recent study found that almost all patients with primary TB presented with EN whereas 20% of those with EN had tuberculosis.[25] A strong association of EN with TB within one month of diagnosis was also found in a study.[23] Similarly, a study reported that among clinical forms of TB, primary TB is unique to cause erythema nodosum, frequently seen in children and young adolescents. It may even manifest before the development of a skin-test reaction to tuberculin.[24]

We have diagnosed the girl as a case of extrapulmonary primary TB because no focus was found in the lungs but there is evidence of cervical TB lymphadenitis with simultaneous presence of PKC and EN, which are hypersensitivity reactions of primary TB.

Primary TB as cervical lymphadenitis with phlyctenular keratoconjunctivitis (PKC) and erythema nodosum (EN) are rare associations and never been reported previously.

Conclusion

TB is a systemic disease which may give rise to cervical lymphadenitis as an extra-pulmonary manifestation. The most usual signs and symptoms are the appearance of a chronic, painless mass in the neck, which is persistent and usually grows with time. Primary extra-pulmonary tubercular lymphadenitis with presence of phlyctenular conjunctivitis and erythema nodosum is a rare association. Matted firm, non-tender cervical lymphnode in a child is suspicious of tubercular origin, if it is associated with EN it is highly suspicious and if EN and PKC are present, it is highly suggestive of tuberculosis.

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