EXTRA PULMONARY TUBERCULOSIS OF THE HEAD AND NECK REGION IN PEDIATRIC POPULATIONAN

A Case Study by Dr.Abdul Azees.V.K., India
(MBBS, MD Pediatrics Student of Texila American University)
Email: drazees229@gmail.com

ABSTRACT

Tuberculosis is the most common communicable disease world wide. In this era of immune-compromising disease like acquired immune deficiency syndrome, is necessary to have knowledge of the different presenting features of various rare manifestation of tuberculosis. Young individuals are more prone to such lesion because lack of immunity, close grouping with infected patients and the general increased chances of varying presentation in such patients. This study groups together rare presentation of extrapulmonary tuberculosis of the head and neck region in an effort to increase the recognition of this disease.

KEYWORDS: Extrapulmonary tuberculosis, primary, head, neck, paediatric.

INTRODUCTION

Tuberculosis is regarded as the most common communicable disease worldwide (1).Tuberculosis is World's leading cause of death from a single infective agent and the rising incidence lead the World Health Organization (WHO) to declare the disease a global emergency (2, 3).Among the factors associated with the reversal of a previous decline in this infection are the increased global travel and a rising prevalence of immunodeficiency through HIV infections or drug therapy.

Tuberculosis used to be a common disease of the upper respiratory tract before the introduction of ant tuberculosis therapy, but nowadays it is a rare complication even in endemic tuberculosis area (4).Despite the contact between pulmonary secretions containing a high bacillary load and the mucous membranes of the upper respiratory tract, tuberculosis of the head and neck area, excluding laryngeal forms, is rare and constitute only 2-6% of extrapulmonary tuberculosis and 0.1-1% of all forms of tuberculosis (5, 6).Therefore, a correct differential diagnosis with other similar and more frequent lesions, especially carcinoma or different granulomatous diseases is crucial.

Young individuals are more prone to such lesion because of their lack of immunity, close grouping with infected patients and the increased chances of varying presentation. In this article, we have tried to group together, some very rare presentation of primary tuberculosis, which may

initially be very difficult to diagnose. These findings highlight the need for a thorough check up , and the utilisation of complete investigational protocol when studying patients suspected of extrapulmonary tuberculosis of the head and neck region.

MATERIAL AND M ETHODS

We carried out a prospective study in department of Otolaryngology, Kannur Medical College, Kannur India for the period March 2011-February 2012.In the study patient presenting to the Outpatient Department of Koyili hospital on routine OPD days were screened for tuberculosis. Those who fulfilled the following criteria were included: all patients with age less than 12 years were considered, those with pulmonary tuberculosis were not considered, primary tubercular lymphadenopathy were not considered, and only primary tuberculosis(diagnosed through proper histopathological test) of the sites pertaining to the head and neck were considered.

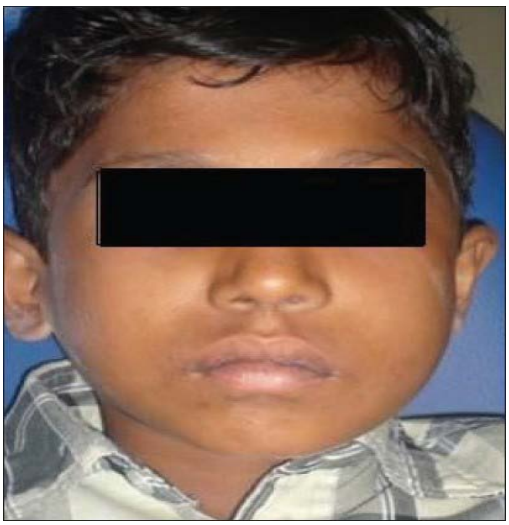
RESULTS

The history, examination and histopathology findings, AFB staining, chest X-ray results, response to treatment and diagnosis of ten patients were shown in Table 1.

Table 1

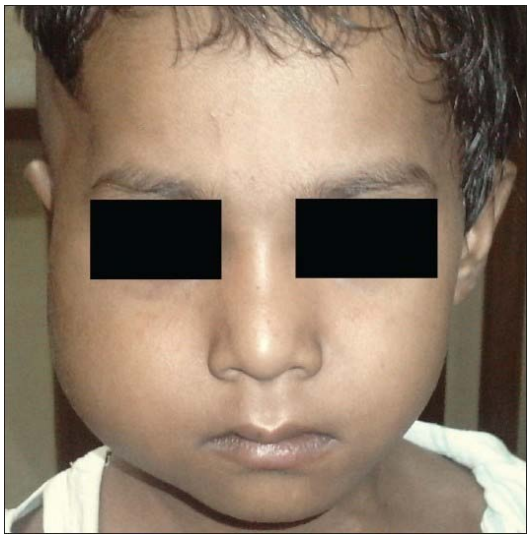
Comparison of the history, examination and histopathology findings, AFB staining, chest X-ray results, response to treatment, and diagnosis between the cases

	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
History	Epistaxsis (1 month), decreased vision 15 days, bulging of R eye-15 days, at the time of presentation only perception to light and rays were present in both the eyes	Swelling-left lower jaw (1 year) gradually increasing, no pain or redness, no decrease in swelling with antibiotics	Swelling below the right eye (8 months) gradually increasing in size, slight pain and redness present. H/o evening rise of fever +ve	Swelling right side of face (6 months) gradually increasing, H/o low grade fever, no pain and redness, immunization complete	Swelling left side of face (4 months), sinus present just in front of left ear with H/o cont, painless discharge (3 months), no pain and tenderness, evening rise of fever +ve, immunization history complete	Sore throat (1 year), mild fever with evening rise (1 year)	Foreign body sensation in throat with occasional episode of blood tinged sputum, several course of antibiotics taken with no relief	Swelling occipital region (1 year) gradually increasing, pain in the neck with stiffness, fever low grade	Swelling upper lip (6 months), occasional episode of bleeding, no h/o insect bite, no H/o allergies, no H/o trauma	Sore throat (6 months), foreign body sensation, pus-discharge over posterior pharynges al wall, foul breath
Examination	Mild right-eye proptosis, expansion of the dorsum of the nose nasal endoscopy (proliferative mass filling the right nasal cavity and naso pharynx)	Swelling left angle mandible (3 × 3 cm), firm, nontender, nonmobile fixed to underlying bone normal overlying skin	Swelling right malar region (4 × 4 cm), nontender, fluctuant, noncompressible, hyper-pigmented overlying skin	Swelling involving the right parotid region with normal overlying skin, no tenderness, no redness, noncompressible, nonreducible	Diffuse enlargement of the left parotid gland (2 × 1 cm), sinus present over lying skin, discharge present (non foul smelling), serous, yellowish in colour, surrounding skin hyperpigmented slightly inflamed	Right tonsil enlarged with presence of pale granulation on the anterior pillar, palpation right tonsil firm, did not bleed on touch, rest of oral cavity within normal limits, multiple enlarged lymph node present on right side neck	Left tonsil enlarged and erythematous, palpation tonsil appeared firm and bleeds on touch, right tonsil normal on inspection and palpation, rest of the oral cavity was normal on examination no enlarged lymph nodes	Swelling occipital region-(7 × 7 cm) nontender, fluctuant, noncompressible, no cough reflex	Swelling involving the whole upper lip, mucosa lip (normal in color fissuring present), lip-firm consistency non-tender, single (2 × 2 cm) lymph node in the submandibular region	Granulation present on the uvula, slough present on the posterior pharyngeal wall, bleed on touch, b/l tonsillar fossa normal, no lymphadenopathy
Histopathology	Caseating granuloma	Non caseating granuloma	Pus-AFB positive	Caseating granuloma	Caseating granuloma	Caseating granuloma	Pus-AFB positive	Pus-AFB positive	Non caseating granuloma	Caseating granuloma
AFB staining	+ve	-ve	+ve	+ve	+ve	+ve	+ve	+ve	-ve	+ve
Chest X-ray	WNL	WNL	WNL	WNL	WNL	WNL	WNL	WNL	WNL	WNL
Response to treatment	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
Diagnosis	Nasal tuberculosis with intracranial extension	Mandibular tuberculosis	Zygomatic tubercular abscess	Parotid tuberculosis	Parotid tuberculosis	Tonsillar tuberculosis	Tonsillar tuberculosis	Pot's spine	Upper lip tuberculosis	Uvular tuberculosis



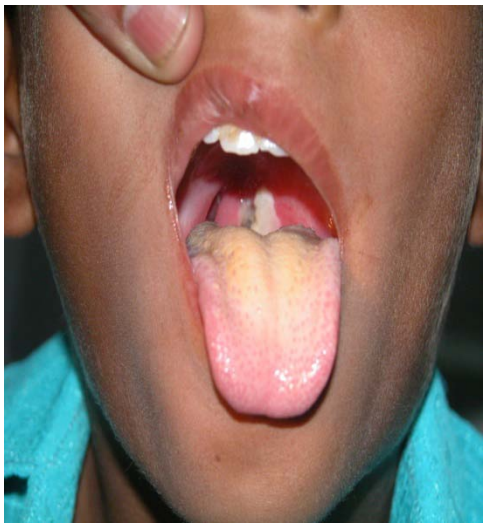
Case 2

Swelling in left lower jaw, gradually increasing, no pain or redness, no decrease in swelling with antibiotics



Case 4

Swelling involving the right parotid region with normal overlying skin, no tenderness, no redness, noncompressible, nonreducible



Case 7

Left tonsil enlarged and erythematous with foreign body sensation in throat

Case 8

Swelling in occipital region, nontender, fluctuant, noncompressible, no cough reflex

DISCUSSION

Tuberculosis has previously been the disease which has caused most mortality in humans. With increasing use of modern chemotherapeutic agents, the disease has almost disappeared in developed countries even though it is still prevalent in Southeast Asia. At present, however, even in developed countries with high prevalence of immune-compromising disease like AIDS, the incidence of tuberculosis has started to increase. The systemic factors that favour the chances of oral infection with tuberculosis include lowered host resistance (7), and increased virulence of the organisms. The local predisposing factors may be poor oral hygiene (8), local trauma (9), and the presence existing lesions like leukoplakia (10), and periapical granulomas (11).

Tuberculosis of the oral cavity and pharynx is rare and most of the medical literature on this condition is the form of case reports. The most frequent location of infection is: tounge (12, 13), gum (13, 14) and palate (16, 18).Fifty percent of cases with oral tuberculosis present with a concomitant pulmonary tuberculosis. Recently, in a review of 42 cases of oral tuberculosis,Mignogna et al, found that a third of their episodes were primary forms of infection(19).Although the pathogenesis of oral involvement is not definitely established , it appears most likely that the organisms gain entry into the mucosal tissue through a break in its surface. The probable importance of an intact mucosal epithelium in providing protection against

the infection is supported by the observation of Abbot et al, who isolated the tubercle bacilli from mouth washings of 44.9% of the patients with active pulmonary lesions (21).

There are only few previous reports of isolated uvular involvement of tuberculous myco-bacterial infection (22).It is important, therefore, either to establish why the uvula may have become involved by mycobacterial infection, as in our patient or to decide whether it was a concomitant infection. Trauma is known to occur to the uvula, during brushing of teeth especially in the Indian population where the practice of brushing teeth with Neem leaves is so common. These wooden sticks can easily injure the uvula resulting in penetration of the mucosal barrier. Potentially pathogenic mycobacteria have been identified in environmental sources in large numbers previously (22).

Thus trauma to the uvula that is followed by gargles with contaminated water can result in primary uvular tuberculosis. However, this is a theoretical mechanism that would difficult to substantiate and although our patients give a history of using neem sticks for brushing did not clearly predate the onset of the uvular symptoms .However, following this practice over very long period as in our patient can result in this presentation.

Nasal tuberculosis extremely rare (23) and other forms of granulomatous diseases must be considered first to rule out primary nasal tuberculosis. Nasal obstruction and rhinorrhoea are the most frequent symptoms, although epistaxis, the presence of ulcerative lesions or recurrent polyps can be observed. A recent review reports 36 cases showed predominance in middle aged women (24).Our case was unusual in that it occurred in a boy. Also, our review of the literature turned up only one other case that featured intracranial involvement(25) which makes our case all the more unusual.

Tuberculosis of the jawbone is relatively rare. Involvement of the maxilla and mandible usually results in tuberculous osteomylitis. The mandible shows a greater predisposition to the infection than the maxilla. In a study conducted by Chapotel (26), fifty cases of tuberculous Osteomylitis involved the lower jawbone only. Tuberculosis of the jawbones may be secondary or primary and occurs because of either deep extension of the gingival lesion, from an infected post-extraction socket or through hematogenous spread of the infection (27).In our patient, a dental injury preceded the formation of tuberculous Osteomylitis.

Mycobacterium tuberculosis infection of the salivary glands is rare, even in countries with a high prevalence of tuberculosis. There are 2 distinct forms-a localized form and a diffused form involving the entire gland due to direct spread from adjacent nodes or primary paranchymal involvement. The diagnosis is made through fine needle aspiration and radiological investigation like contrast enhanced CT scan.

Special investigations may help to establish the diagnosis but are often unreliable. The least invasive diagnostic investigation is tuberculin skin testing. The tuberculin skin test is usually positive in tuberculosis: however, a negative test does not rule out the disease. In all our cases the tuberculin skin tests were highly positive. The erythrocyte sedimentation ratio may be elevated, as was the case in all our patient, and thus it is a good therapeutic indicator but is not specific.

Confirmation of the diagnosis can be made with the following criteria: a) compatible histopathologic appearance of biopsied tissue (granulomas with epitheloid cells), b) demonstration of AFB on biopsy specimen, and c) growth of Mycobacterium tuberculosis from the biopsy specimen (28, 29).However, initial microbiologic investigation with conventional acid-fast strains (e.g.Ziehl-Neelsen) and the fluorochrome procedure with stains such as auramine can be unreliable and are negative in upto 50% of cases.

Culture of mycobacteria is time consuming, requiring 5 to 6 weeks to produce results. The yield is also low. In the literature, cultures are reported to be positive in 50% to 70% of patients (30, 31).The diagnosis is therefore often made by a combination of the clinical picture, histological finding, and response to antituberculous medication. The histopathological features of caseous granulomas were positive in all patients except two but in those, the diagnosis was only made when these children responded to the antitubercular treatment that was started empirically.

CONCLUSION

Our study highlights the fact that tuberculosis is more common than is thought especially in young individuals. Even though we did not compare our data to other studies in an adult or paediatric population, the mere presentation of so many rare cases of tuberculosis, highlights the fact that this infection is still present in paediatric population especially in the Southeast asian region.These findings suggests that all patients with unusual presentation or with no response to conventional treatment should be investigated for tubercular infection eventhough these patients might not be immunocompromised.

This study was carried out to make medical practitioners more aware of the unusual presenting feature of primary tubercular infection at unusual sites, in paediatric population and the steps taken to investigate and treat such patients.

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