Case Report

Periocular Tuberculosis

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ABSTRACT

Tuberculosis has reemerged as a serious public health problem in recent years. The periorcular manifestations of tuberculosis are uncommon and diverse. We present two cases of periocular tuberculosis. One patient had a history of painless non-healing ulcer in the right periorbital region inferiorly and temporal fossa. Initially, it was on inferior side and, later on same type of lesion occurred in temporal fossa. Both the lesions developed communication in the form of sinus. Other patient was referred with the suspicion of chronic dacryocystitis with history of watering and painless swelling since 9 months and not responding to systemic antibiotics. Both cases had no known history of systemic tuberculosis, only the periorbital findings were presenting manifestations of systemic tuberculosis. In both cases anti-tuberculosis regimen was advised. In conclusion, ocular tuberculosis can have variable clinical manifestations and occasionally appears as a dacryocystitis or non-healing ulcer in periorbital region. A high degree of clinical suspicion is important in cases not responding to antibiotics.

KEY WORDS: Tuberculosis. Dacryocystitis. Painless ulcer. Ophthalmology

INTRODUCTION

Tuberculosis is a chronic infectious disease caused by acid-fast bacilli belonging to Mycobacterium tuberculosis complex. The most frequently encountered human agent is Mycobacterium.[1] It is the leading cause of death worldwide. The problem has aggravated due to human immunodeficiency virus (HIV) pandemic and the recent increasing incidence of microbial resistance to antibiotics.[2] There were an estimated eight to nine million new cases of tuberculosis in the world in 2000, of which three to four million were pulmonary with sputum smear positive.[3] Tuberculosis generally affects the lungs, although other organs are involved in up to 20% of cases. The incidence of ophthalmic manifestations in patients known to have systemic tuberculosis is only 1-2%.[4].Ocular and periocular involvement is most likely to occur as part of a post primary infection due to direct hematogenous spread or less commonly a secondary hypersensitivity phenomenon alone.[5] The diagnosis of ocular tuberculosis is often problematic.[6] The physical findings may be suggestive but not diagnostic. Culture or direct histopathlogical examination of infected tissue can provide definitive proof of ocular infection.[7,8] We describe the clinical findings, diagnosis, and treatment of two patients who had tuberculosis of periocular region.

CASE REPORTS

Patient 1: A five years old boy presented with one year history of painless ulcer and discharge in inferior periorbital region of right eye and right temporal fossa **(Figure I)**. He did not have fever, respiratory symptoms or any history of weight loss. Parents of the child gave history that initially lesion developed in the inferior periorbital region of right eye and after 5 months another lesion appeared on temporal side of the orbit in temporal fossa. The child received various types of antibiotics for a period of one year but the lesion continued to progress and deteriorate. The ocular examination revealed ulcerative lesions with a sinus formation extending from inferior periorbital to temporal fossa. There was no impairment of ocular motility or proptosis. Best corrected visual acuity of both eyes was 6/6, anterior segment was normal, media clear and the fundus finding was also normal. The complete blood count showed increased total leukocyte count with lymphocytosis and raised erythrocyte sedimentation rate (ESR, 55 mm 1st Hour). Montoux test showed 9 millimeter zone of indurations after 72 hours. No bacterial growth was seen on culture of discharge of lesion. The acid fast bacilli was detected on Zehil Neelson staining. **(Figure II)** An incision biopsy was taken from margin of ulcer for histopathological report which showed ulceration and keratosis of stratified squamous epithelium with infiltration of subepitheloid tissue by multiple granuloma. Each granuloma composed of epitheloid cells, Langhan's type Giant cells and rim of lymphocytes, suggesting Tuberculosis.

(Figure III) The clinical course and pathological findings suggested tuberculosis, the possible cause of periocular lesion and sinus formation in between two lesions. The patient responded to anti-tuberculosis therapy and cured in 9 months of treatment.

Patient 2: A fourteen years old girl was admitted with history of watering and painless swelling at medial canthus of left eye since 9 months. **(Figures IV and V)** She had no history of fever, or weight loss. Despite of aggressive antibiotic therapy the swelling was progressing. On examination, she had features of chronic dacryocystitis with regurgitation test negative and hard non-tender mass palpable at the site of sac, associated with submandibular lymphadenopathy. Visual acuity of both eyes was 6/6 and no other finding was seen in anterior and posterior segments of eye. Chest x-ray was normal, examination for acid fast bacilli in sputum was negative. ESR was elevated (85 mm 1st Hour). The complete blood count showed elevated total leucocyte count with lymphocytosis. Incision biopsy was taken for histopathological reports, which revealed granulomatous lesions. Each granuloma was composed of epitheloid cells, Langhan's type of giant cells and ring of lymphocytes, suggestive of tuberculosis. **(Figure VI)** Based on clinical and laboratory findings, a therapy for tuberculosis dacryocystitis was advised. She responded to anti-tuberculosis treatment and the swelling subsided at the nine months of treatment.

FIGURE I:
PERIORBITAL TUBERCULOSIS AFTER ONE MONTH OF ANTI-TUBERCULOSIS TREATMENT

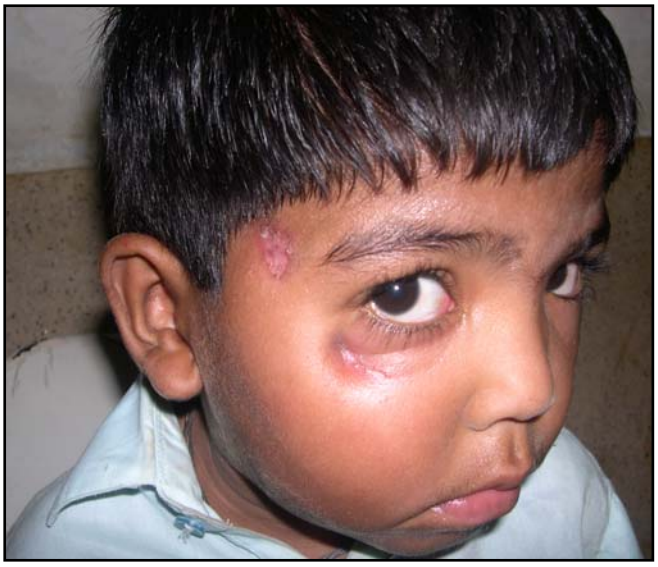


FIGURE II:
ACID FAST BACILLI ON ZEHIL NEELSON STAINING

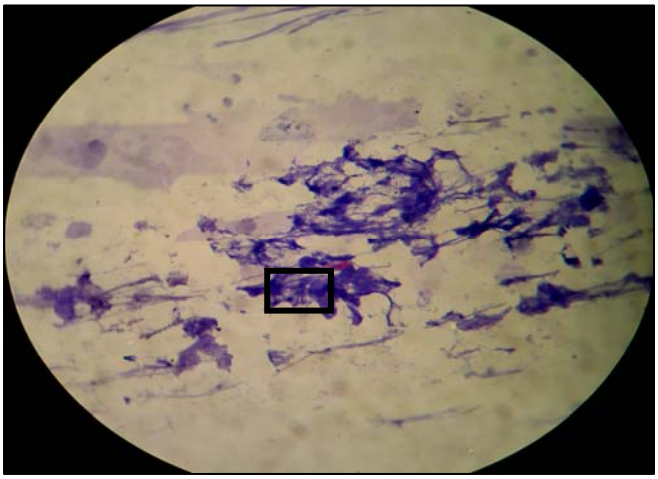


FIGURE III: TUBERCULOUS GRANULOMA ON HISTOPATHOLOGICAL EXAMINATION

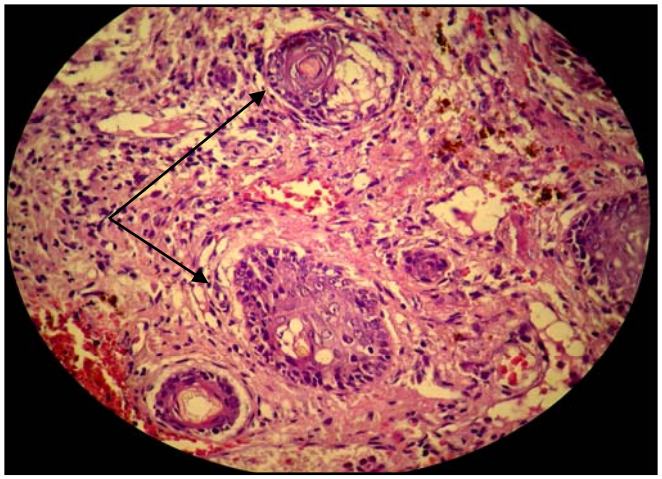


FIGURE IV: TUBERCULOSIS DACRYOCYSTITIS

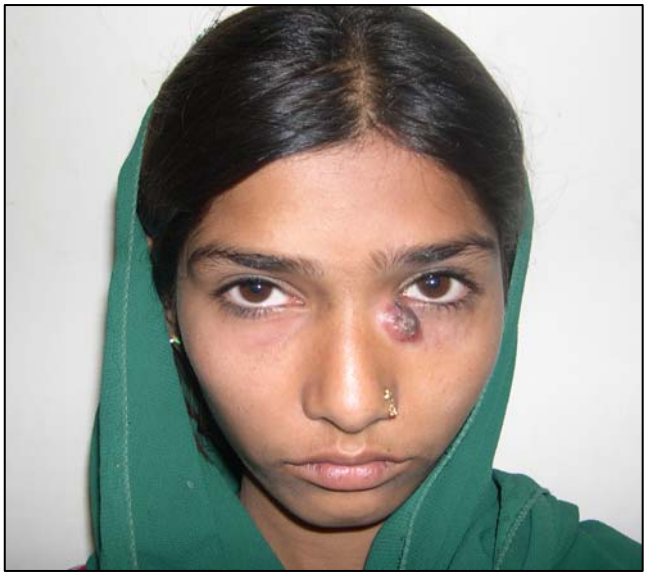


FIGURE V: PRESENTATION OF TUBERCULOSIS DACRYOCYSTITIS

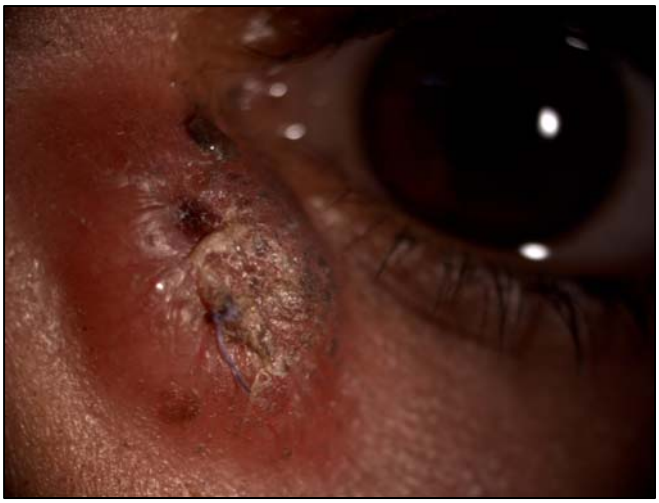
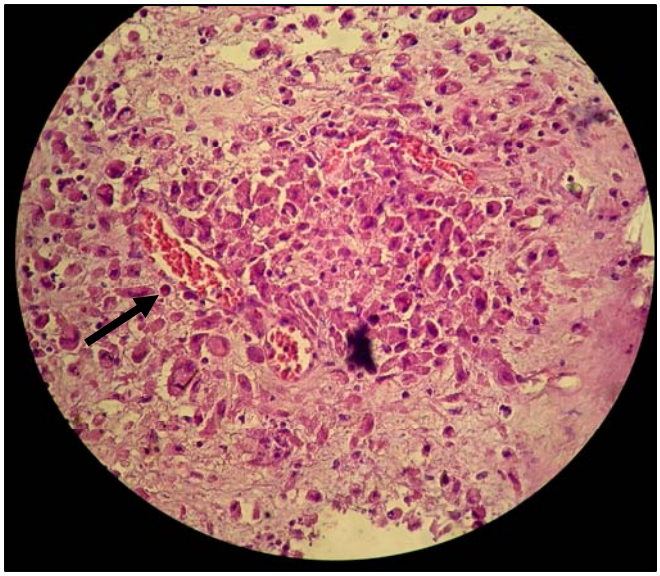


FIGURE VI: TUBERCULOSIS GRANULOMA OF DACRYOCYSTITIS



DISCUSSION

Tuberculosis is the leading infectious cause of morbidity and mortality worldwide.[9] It produces foci of granulomatous inflammation, usually in the lungs, but can involve practically every body organ.[2] Tuberculosis may involve any part of the eye and may appear in different clinical forms, which may be primary or secondary in nature. The clinical manifestations of ocular tuberculosis are non-specific and protean. In primary ocular tuberculosis, there are no other systemic lesions, where as secondary ocular tuberculosis is defined as an infection resulting from contagious spread from an adjacent structure or hematogenous spread. Orbital involvement by tuberculosis, even in endemic areas, is rare. It can present as periostitis of orbital margin, tuberculoma of orbital tissues or lacrimal gland or periorbital skin infection and inflammation of the nasolacrimal sac may present as chronic dacryocystitis. Dacrocystitis is uncommon presentation of systemic tuberculosis.[10] We dealt two cases of Tuberculosis, with different periocular presentation, periorbital lesion with sinus formation in between lesion and dacryocystitis. The diagnosis was made using result of acid-fast bacilli on microscopic analysis and granulomatous type lesion with langhan's type giant cells from histopathological report in case one, while in case two, granulomatous type lesion with langhan's type of giant cells. The diagnosis of ocular tuberculosis is complicated by the difficulties associated with ocular sampling for microbiologic evaluation. A presumptive diagnosis is commonly based on the finding of acid-fast bacilli during microscopic examination of diagnostic specimen.[2] A definitive diagnosis is dependent on a positive culture of the organism from a diagnostic specimen, which is time consuming. The tuberculin skin test is of limited value, because of its low sensitivity and specificity. Recently, one of the most promising diagnostic technique, the amplification and detection of specific segments of DNA by polymerase chain reaction, was used to diagnose with high sensitivity and specificity.[11] Moreover, it is especially useful for diagnosing primary ocular tuberculosis because only a small sample is required and viable cells are not required. Despite the difficulties of diagnosis, the treatment of tuberculosis is relatively effective and cost efficient. Systemic therapy should always be given as the primary treatment for ocular tuberculosis manifestations because pulmonary or other foci of disease may coexist. Five major drugs considered the first line agents to treat tuberculosis are; Isoniazid, Rifampin, Pyrazinamide, Ethambutol, and Streptomycin.[4] Their recommendation is based on their bactericidal activity, and their low rate of induction of drug resistance. A number of second-line drugs (Kanamycin, Amikacin, Capreomycin, Ethinoamide, Cycloserine and P-aminosalicyclic acid) are used only to treat patients with Tuberculosis who are resistant to the first line drugs. Any patient with disease highly suggestive of ocular TB, should be treated from the outset with multiple anti-tuberculosis chemotherapeutic drugs because of the increasing incidence of resistance to Isoniazid as well as compliance problem.[5] According to the World Health Organization and the International

Union against Tuberculosis and Lung Diseases; the resistance to one drug is higher than the combined form. We treated our patients with an initial phase of treatment with Isoniazid 5mg/kg, Rifampin 10mg/kg, Ethambutol 25mg/kg and Pyrazinamide 40mg/kg body weight for two months followed by a continuation phase with the first three drugs for 7 to 9 months, based on the response to treatment and possible drug sensitivity.

CONCLUSION

Ocular tuberculosis can have variable clinical manifestations and occasionally appears as a dacryocystitis or non-healing ulcer in periorbital region. A high degree of clinical suspicion is important in these cases who are not responding to systemic antibiotic therapy.

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