



Contents lists available at ScienceDirect

International Journal of Pediatric Otorhinolaryngology Extra

journal homepage: <http://www.ijporlextra.com/>

Case Report

Primary nasal tuberculosis with lacrimal drainage involvement

Nishi Gupta, MS^a, R. Vidya Janaki, MS^a, Mohammad Javed Ali, FRCS^{b,*}^a Shroff's Charity Eye Hospital, New Delhi, India^b Govindram Seksaria Institute of Dacryology, L.V.Prasad Eye Institute, Hyderabad, India

ARTICLE INFO

Article history:

Received 25 January 2017

Received in revised form

24 February 2017

Accepted 2 March 2017

Available online 6 March 2017

Keywords:

Tuberculosis

Lacrimal

Epiphora

Dacryocystorhinostomy

Endoscopic

ABSTRACT

Primary tuberculosis of the nasolacrimal system is a rare entity. We report two cases of nasal tuberculosis from an endemic area who presented with epiphora as the only symptom. Both cases had no nasal symptoms, no cervical lymph nodes involvement and no evidence of pulmonary tuberculosis. Histopathology of biopsy from nasal mucosa in both cases was consistent with tuberculosis. Tuberculin test and Quantiferon TB-Gold test were positive. The patients were treated with anti tubercular therapy along with endoscopic dacryocystorhinostomy. At three months post-operative follow up epiphora resolved and patients were asymptomatic.

© 2017 Elsevier Ltd. All rights reserved.

1. Introduction

There is a re-emergence of tuberculosis with immunodeficiency syndromes and drug resistance and it continues to be a public health issue in endemic countries like India. [1] Nasal tuberculosis accounts for approximately 6.7% of extra-pulmonary tuberculosis. [2] Involvement of lacrimal drainage system is even rarer and can be easily missed in absence of pulmonary involvement. [3–8] Most common nasal symptoms reported are nasal obstruction and nasal discharge. Lacrimal presentation can be with epiphora or dacryocystitis. [3–8] Nasolacrimal duct obstructions can be diagnosed clinically and aided with dacryocystography but does not give clues to the presence of tuberculosis. [3] We describe two such unusual cases from an endemic area who were diagnosed after histopathological examination of tissue biopsies from inferior turbinate, in patients who presented with epiphora as a predominant symptom.

2. Case report

2.1. Case 1

A 13 year old boy presented with epiphora and discharge from

his right eye of one year duration. On examination, right lacrimal sac was dilated, ROPLAS (Regurgitation on pressure over lacrimal sac area) test was positive and irrigation was suggestive of a nasolacrimal duct obstruction (NLDO). There were no complaints on the left side, however irrigation was suggestive of early partial NLDO. Nasal endoscopic examination revealed thick purulent discharge in the nose with friable mucosa, however there were no mass lesion (Fig. 1a).

Non contrast CT scan of orbits with multiplanar reconstruction showed evidence of right dilated lacrimal sac and nasolacrimal ducts (Fig. 1b and c). There were chronic bony changes of the lacrimal fossa suggestive of past osteomyelitis (Fig. 1b). With a working diagnosis of NLDO with infective rhinitis, empirical systemic antibiotics and nasal decongestants were initiated.

Two weeks later, the nasal mucosa was still unhealthy and suspicious with granulations over the septum and inferior turbinate (IT). A biopsy was taken from the IT for histopathological examination. Further enquiries revealed a positive family history for tuberculosis. However, pulmonary symptoms and neck swellings were absent. The patient was investigated for tuberculosis. The chest X-ray was normal. Tuberculin skin was positive with 25 × 24 mm induration after 72 hours (Fig. 1d) and the patient was immunocompetent and his HIV status was negative. TBFERON (M Tuberculosis IGRA) test was also positive. Tissue from the nasal mucosa showed numerous caseating epithelioid cell granulomas with dense chronic inflammatory cell infiltrate (Fig. 1e).

He was initiated on 9 months of Anti Tubercular treatment (ATT)

* Corresponding author. L.V.Prasad Eye Institute, Road No 2, Banjara Hills, Hyderabad 34, India.

E-mail address: drjaved007@gmail.com (M.J. Ali).

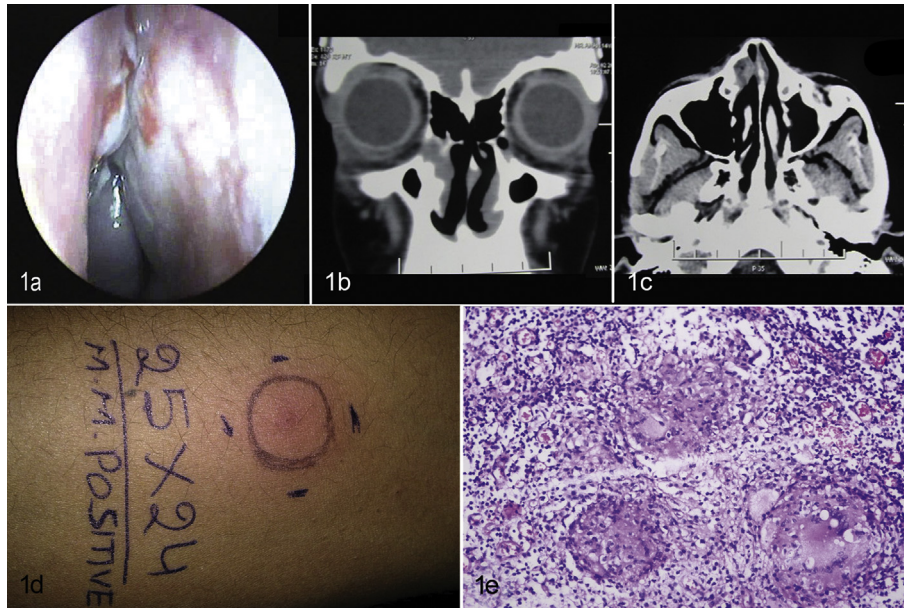


Fig. 1. Endoscopic view of the right nasal cavity showing the unhealthy mucosa with copious discharge (Fig 1a). CT scan orbits and paranasal sinuses, coronal and axial cuts showing dilated lacrimal sac and nasolacrimal ducts and bony changes in the lacrimal fossa (Figs 1b and 1c). External photograph showing a positive tuberculin test (Fig 1d). Microphotograph showing numerous epithelioid cell granulomas with Langhan giant cells (Fig 1e).

based on RNTCP (Revised National Tuberculosis Control Program) guidelines of India. His nasal mucosal appearance improved well but epiphora persisted. He was later successfully treated with right endoscopic dacryocystorhinostomy (DCR) with bicanalicular silicone stenting with Crawford intubation for 8 weeks. At three months post-operative follow up, lacrimal irrigation was patent and the patient was symptom free.

2.2. Case 2

A 19 year old girl presented with bilateral epiphora of 6 months

duration. She underwent bilateral endoscopic DCR, successfully in the right eye while the left side failed secondary to cicatricial closure of the ostium. The patient reported significant loss of weight over past 6 months. Probing revealed a distal bicanalicular block and nasal endoscopy showed left sided turbino septal synchia with complete cicatrization of the ostium. Patient underwent left revision endoscopic DCR with recanalization of the canaliculi with Sisler's trephine (Fig. 2a) and bicanalicular intubation (Fig. 2b). Intraoperatively mucosa over inferior turbinate appeared suspicious (Fig. 2c) and hence a punch biopsy was taken and sent for histopathology which showed numerous caseating

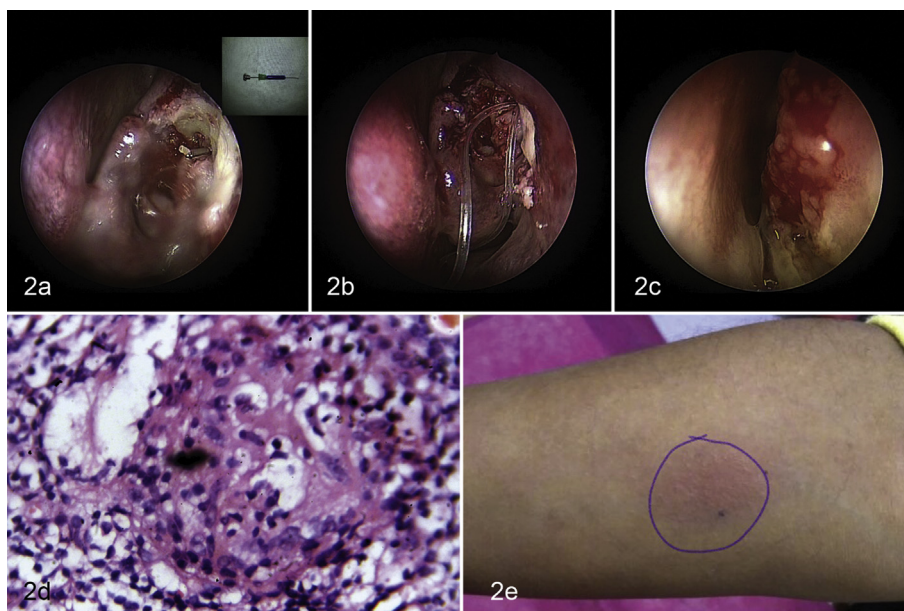


Fig. 2. Endoscopic view of the left nasal cavity showing Sisler's trephine and the trephined canalicular segment on the tip of the trephine (Fig 2a). Endoscopic views showing the intubated ostium at the end of surgery (Fig 2b) and the suspicious granular area of the inferior turbinate that was biopsied (Fig 2c). External photograph showing a positive tuberculin test (Fig 2d). Microphotograph showing numerous epithelioid cell granulomas with Langhan giant cells (Fig 2e).

epithelioid cell granulomas with Langhans giant cells indicative of granulomatous rhinitis (Fig. 2d). There were no pulmonary features suggestive of tuberculosis and lymphadenopathy was negative. Investigations revealed that the chest radiograph was normal, Tuberculin test was positive with 20 mm induration after 72 hours (Fig. 2e) and the patient was immunocompetent. TBERON (M Tuberculosis IGRA) was reactive. She was immediately initiated on the 9 month Anti Tubercular Treatment as per RTNCP guidelines. Three months postoperatively, she has gained 10 lb weight and lacrimal irrigation was patent and the patient was asymptomatic.

3. Discussion

Primary infection site of mycobacteria is the lung tissue and lymphatics. However, primary head and neck tuberculosis (TB) may occur without evidence of pulmonary involvement in up to 86% of cases. [2] TB has the potential to infect almost every organ system via lymphohematogenous dissemination and hence unusual presentations delay the diagnosis. [1–3] In the absence of pulmonary TB, symptoms related to lacrimal sac and nasal passage are non-specific and do not by themselves indicate the diagnosis of tuberculosis. Hence a high degree of clinical suspicion is needed for extensively investigating the patient to help the physician reach a diagnosis.

Very few cases of nasolacrimal tuberculosis have been reported in the literature. [3–8] Wong et al. [5] reported an unusual case of tubercular dacryocystitis in 36 years old male patient. He had twice failed an external DCR and during the 3rd surgery, gelatinous material was found in the sac and this material as well as the nasal mucosal tissue biopsy was found positive for tuberculosis. They suggested that secondary causes of dacryocystitis should be considered in young patients with recurrent DCR failures. Al-Maliki et al. [7] reported an incidental finding of nasal tuberculosis in otherwise healthy patient who underwent a conjunctivodacryocystorhinostomy with Jones tubes. They suggested that polymerase chain reaction of the nasal tissues could be a potentially useful investigation for nasal tuberculosis. In the current series, the case with recurrent dacryocystitis suggest that nasal tuberculosis could potentially result in secondary cicatrization of nasal ostia and extending proximally to involve bilateral distal canaliculi. Prompt ATT with Sisler's trephination of blocked

segment helped achieve good outcomes.

Isolation of tuberculosis from the nasolacrimal duct is uncommon, and diagnosis is often made by the appearance of granulomas on histopathological evaluation. QuantiFERON-TB Gold-In-Tube testing, tuberculin skin test and PCR could potentially be useful adjuncts in making the diagnosis. In our cases, both the Quantiferon and tuberculin tests were positive in addition to histological diagnosis and a good response to ATT.

Nasolacrimal tuberculosis either primary or secondary to pulmonary tuberculosis is rare, but owing to the increasing incidence of tuberculosis, it is advocated that otolaryngologists and ophthalmologists remain aware of this infection as a probable cause of unusual dacryocystitis in at-risk patients in endemic areas and those with unexplained surgical failures.

Financial disclosure

Dr Ali receives support from the Alexander Von Humboldt foundation for his lacrimal research.

Conflict of interest

None.

References

- [1] R.T. Williams, T. Douglas-Jones, *Mycobacterium marches back*, *J. Laryngol. Otol.* 109 (1995) 5–13.
- [2] A.M. Al-Serhani, *Mycobacterial infection of the head and neck: presentation and diagnosis*, *Laryngoscope* 111 (2001) 2012–2016.
- [3] M. Özer, Y. Özsüreki, A.B. Cengiz, et al., *Primary nasal tuberculosis in a 10-year-old girl*, 2016, *Can. J. Infect. Dis. Med. Microbiol.* (2016) 9128548.
- [4] F. Tosun, E. Tozkoparan, C. Erdurman, et al., *Primary nasolacrimal tuberculosis diagnosed after dacryocystorhinostomy*, *Auris Nasus Larynx* 34 (2007) 233–235.
- [5] S.C. Wong, V. Healy, J.M. Olver, *An unusual case of tubercular dacryocystitis*, *Eye* 18 (2004) 940–942.
- [6] C.D. Varley, N.D. Gross, D.P. Marx, et al., *Tuberculosis of the nasolacrimal duct*, *Ophthalm. Plast. Reconstr. Surg.* 27 (2011) e129–131.
- [7] A.F. Al-Malki, T.M. Issa, F. Riley, et al., *Nasolacrimal tuberculosis in a patient with Conjunctivodacryocystorhinostomy*, *Ophthalmic Plast. Reconstr. Surg.* 15 (1999) 213–216.
- [8] R. Abrol, N.M. Nagarkar, H. Mohan, et al., *Primary bilateral tubercular dacryocystitis with preauricular lymphadenopathy: a diagnostic difficulty of recent times*, *Otolaryngol. Head. Neck Surg.* 126 (2002) 201–203.