Tuberculous Dacryocystitis: Short Series Reporting Spectrum of Involvement

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Abstract

Objective: To report a short series of tuberculous dacryocystitis managed successfully by endoscopic dacryocystorhinostomy (endo-Dcr) and antitubercular drugs.

Design: A Short Series of Three Patients.

Participant: Three female patients with age ranging from 23- 50 years.

Testing/Intervention: The authors describe the clinical findings, radiologic study, and histopathologic study and important nasal endoscopic findings of all the patients.

Main Outcome Measures: Relief of symptoms, return of normal endoscopic picture and restoration of patency of the endo-Dcr.

Results: All the three patients had a successful outcome after antitubercular treatment and endo-Dcr.

Conclusion: Tuberculosis of the lacrimal sac is very rare and can be suspected during endo-Dcr and successfully treated by antitubercular drugs. Fnac can also be helpful in providing a diagnosis. The present study highlights the importance of keeping in mind the subtle findings in suspecting something different from usual and saving the patient from unnecessary morbidity.

INTRODUCTION

Tuberculosis (TB) still continues to be a public health problem in developing countries, and its incidence in industrialized countries has been increasing during recent years. Appearance of drug-resistant organisms, immigrations from endemic areas, insufficient health care’s and increased number of immune deficient patients may give rise to such a result [1]. Extra-pulmonary TB in the head and neck area are mostly seen as cervical lymphadenitis [2]. Nasal involvement is rare and was reported as a ratio up to 6.7% of extra-pulmonary TB [2]. Furthermore, primary TB of the lacrimal sac is extremely rare. These patients manifest no evidence of pulmonary TB. Smears for acid-fast bacilli and cultures from nasal samples tend to be negative. Granulation tissue, which sometimes can be seen at the lateral nasal wall on endoscopy may alert physician. However, investigations of granulation tissue in the lacrimal duct cannot be done without dacryocystorhinostomy. Ameticulos differentiation between granulomatous diseases of the region has to be made to establish the appropriate treatment. Here we present a short case series of primary lacrimal sac TB, one of which also had subcutaneous tuberculosis. All the patients were diagnosed after endoscopic dacryocystorhinostomy. The present series documents a variety of ways tuberculous dacryocystitis can present.

CASE PRESENTATION

Case 1

A fifty year old female presented with watering of left eye for the past 4 years. She also complained of bilateral nasal obstruction and intermittent swelling near the left medial canthus. History of fever, cough, nasal discharge, post nasal drip, bleeding from nose or any other ENT complaint was absent. She underwent some nasal surgery four years back, at some other centre, records of which were not available. CT scan showed soft tissue density in bilateral maxillary and ethmoid sinuses, and left frontal sinus (Figure 1A, B). Syringing of lacrimal apparatus, revealed...
obstruction in the left nasolacrimal duct. Nasal endoscopy showed deviated nasal septum to right along with crusts in left nasal cavity. Functional endoscopic sinus surgery with septoplasty and left dacryocystorhinostomy was done. The lacrimal sac region was covered with unhealthy greyish pink mucosa, which was removed and sent for histopathological examination. There were thick secretions in the frontal and maxillary sinuses along with polypoidal tissue in ethmoidal gallery and mucosal hypertrophy in maxillary sinuses (Figure 1C). Histopathological examination was granulomatous inflammation suggestive of tuberculosis. (Figure 1C, D, E). She was started on Category 1 of Anti-tubercular treatment (ATT) which included four drug regimens of isoniazid, rifampicin, ethambutol & pyrazinamide. Following treatment for 6 months, epiphora persisted for which repeat nasal endoscopy showed synechiae in left nasal cavity and some edematous tissue in the region of middle meatus. Biopsy was again granulomatous inflammation suggestive of tuberculosis. She was then switched over to Category 2 of ATT which included daily intramuscular injections of streptomycin 0.75 mg for 6 months, ethionamide tablet 250 mg twice daily, cycloserine tablet 250 mg twice daily and ofloxacin tablet 400 mg once daily for 1.5 years. After completion of therapy epiphora subsided but nasal discharge persisted. Third time biopsy was negative and she is on regular follow up.

**Case 2**

A 26 year old female presented with epiphora left eye and a swelling on the left cheek below the left eye 3 months after an endoscopic Dcr somewhere else (Figure 2A). There was no history of nasal discharge, nasal bleeding, or post nasal drip. There was no history of trauma, fever, cough or weight loss. Computed tomography showed soft tissue density in the left lower eye lid region measuring 1.6x1.3cm causing contour bulge in the skin anteriorly. This contour bulge also showed a communication with the operated site. (Figure 2B). Nasal endoscopy revealed oedematous and congested mucosa at the Dcr site (Figure 2C). Fine needle aspiration cytology from the swelling showed tuberculosis (Figure 2D, E). She was started on category 1 of ATT. She remains asymptomatic at 9 months of post treatment follow up.

**Case 3**

A 23 year old female presented with watering right eye for one year. There were no associated complaints of nasal obstruction, bleeding, post nasal drip and trauma. She gave no history of fever, cough, weight loss or any other significant complaint. Syringing revealed common canalicular duct obstruction. Computed tomography showed nearly normal study (Figure 3B). She underwent Endoscopic Dacrocystorhinostomy with intraoperative findings of some granulation tissue in the lacrimal sac region. Lacrimal sac had a thick wall with barely perceptible lumen (Figure 3C). These were sent for histopathological examination. The biopsy came out to be granulomatous inflammation (Figure 3D). She was started on Category 1 of ATT. She continued the treatment for two months, had some symptomatic improvement and discontinued the treatment on her own. Following this she again complaint of ephiphora along with swelling nears the medial canthus on right side. Nasal endoscopy showed granulations at the operated site (Figure 3E). She was labelled as a defaulter and was asked to resume the ATT assigned. After completion of therapy for 6 months her symptoms have improved and she is on regular follow up.

**DISCUSSION**

M. tuberculosis may involve any site of the head and neck as an extra-pulmonary presentation of the disease. Involvement of larynx, the middle ear, the oral cavity and the parotid gland with TB have been previously reported [3-6]. Neck mass, resulting from cervical lymph node is another common presentation in these patients [7]. In a recent study, which consists of 75 cases with
Figure 2 A Clinical Picture showing a small swelling below the left eye with overlying skin showing inflammatory changes.
B Computed tomography scan of nose and paranasal sinuses show a small air filled cavity causing a contour bulge below the left orbit. It is also showing a communication with the operated dcr site with an absent lacrimal bone (black arrow).
C Endoscopic Picture showing congestion and oedema at previously operated dcr site (curved arrow). Left sided middle turbinate can also be seen (straight arrow).
D Microphotograph showing Ziehl Neelsen staining showing acid fast bacillus (ZN stain x 100X).
E Microphotograph showing epithelioid cell granuloma in a background of polymorphonuclear cells (H&E x 40X)

Figure 3 A Clinical Picture showing essentially normal both the the eyes.
B Computed tomography scan of nose and paranasal sinuses showing heterogenous soft tissue density right lacrimal sac area which is marginally more pronounced than the left (blue arrow).
C Intraoperative Endoscopic Picture showing right sided lacrimal sac with hypertrophied walls and a barely perceptible lumen (blue arrow).
D Photomicrograph showing granulomatous inflammation in sub-epithelial tissue (H&E, x200).
E Endoscopic picture during follow up. A mound of granulation can be seen at the previously operated site (blue arrow).
head and neck TB, Al-Serhani reported that the cervical lymph nodes, the tonsils, the nose and the nasopharynx were the sites of involvement in order of decreasing frequency [2]. Involvement of lacrimal sac with primary TB is extremely rare. Only a few cases have been reported till date in the English literature [8, 9]. Therefore, it may be overlooked if there is no symptom of systemic TB. In the absence of pulmonary TB, symptoms related to lacrimal sac and nasal passage are nonspecific and do not strongly guide for the diagnosis. Patients are generally referred with obstruction of the lacrimal drainage system [8]. Coexisting nasal symptoms and findings like bleeding, nasal obstruction, intranasal granulation tissue or crusty may alert physician for investigation of a granulomatous disease [10]. However, findings of anterior rhinoscopy or even nasal endoscopy may be within normal limits in some cases [8]. Soft tissue density filling the involved lacrimal sac can be seen on computerised tomography. In our series all three patients presented with epiphora. Nasal obstruction was seen in only one of the patients. One of the patients presented with small abscesses near the eye. Computerised tomography showed a soft tissue density at the lacrimal sac area and maxillary sinuses. CT was also suggestive of an abscess near eye communicating with the dacrystocystorhinostomy in one of the patients. All these are unusual symptoms for a straightforward dacryocystitis patient hence must alert the clinician into investigating further. Nasal endoscopy is both diagnostic and therapeutic in these patients. In one of the patients it showed excessively oedematous and hypertrophic mucosa and near obliteration of the maxillary cavity. In another patient during endoscopic dacryocystorhinostomy the lacrimal sac was thickened with barely perceptible lumen which made the clinician send the sac wall for histopathological examination. The same patient also showed presence of a mound of granulation at the operated site during follow up endoscopic examination with recurrence of symptoms. The third patient showed an excessively hyperaemic mucosa with bleeding on touch even three months after the surgery. Reported literature reveals nasal endoscopy ranging from normal to hyperaemic mucosa in some [8, 11].

Our short series highlights a spectrum of disease of tuberculosis of the lacrimal sac. Case no 1 presented with lacrimal sac involvement associated with sinusosal involvement. Case no 2 presented with involvement of subcutaneous tissues which if not for finac confirmation could have involved the skin and presented as frank SCROFUŁODERMA. This case was probably missed by the clinician who operated for dacryocystorhinostomy earlier. Case no 3 presented with isolated lacrimal sac involvement. Tuberculoid dacryocystitis is routinely being diagnosed on histopathological examination. The histopathological examination in the first two cases and cytology in the third case showed ‘granulomatous inflammation with necrosis’ and not ‘non-specific granulation tissue’. The positivity of acid fast bacilli in tissue sections is only 35-40% due to reagents used in tissue processing. Thus this type of necrotizing granulomatous response even in absence of acid fast bacilli is consistent with tuberculosis. Also the patients improved on anti-tubercular treatment. Our series also highlights the importance of cytological examination wherever the lesion is superficial and can be sampled easily. Dacryocystorhinostomy is mandatory in these patients to relieve the obstruction and also to obtain tissue for histopathological examination as radiology is not of much help. Endoscopic Dcr has an advantage over external Dcr in these patients by avoiding the seeding of skin and subcutaneous tissues. All the three patients have been treated with antitubercular drugs, two with category one and one with category 2. All three are doing well at 6-9 months post treatment.

CONCLUSION

Tuberculosis of the lacrimal sac though rare, can present as isolated involvement, without any systemic symptoms. Diagnostic nasal endoscopy can be helpful in creating a suspicion and assisting the clinician in confirming the diagnosis. A very high index of suspicion is a must and a slight deviation from the normal endoscopic findings must alert the clinician. Cytological examination can also be helpful in diagnosis and avoiding a scar due to histopathological examination. Endoscopic Dcr must be given a try before embarking on external Dcr in all the cases of nasolacrimal duct obstruction.

REFERENCES