Failed Dacryocystorhinostomy due to Retained Silicone Tube: A Case Report

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Abstract

Purpose: To report a case of retained silicone tube

Case report: We report a case of 48-year-old Iranian lady who referred to the department of otolaryngology with 18 years history of epiphora and intermittent mucopurulant discharge from the left lacrimal canaliculi. She had external dacryocystorhinostomy (DCR) with silicon stenting for epiphora 18 years ago but epiphora had continued after surgery. Preoperative irrigation test revealed partial obstruction and in diagnostic nasal endoscopy the previous rhinostomy site was patent. She was operated with revision endoscopic DCR approach and an impacted 15 millimeters piece of silicon tube was removed from lacrimal sac.

Conclusion: This case should alert surgeons to the possibility of foreign bodies as a cause of persistent epiphora after DCR surgery.

Keywords: Foreign Body, Epiphora, Dacryocystorhinostomy, Silicone Tube

Introduction

Lacrimal excretory system foreign bodies are rare but they could impair draining function and might be presented as epiphora, recurrent attacks of acute dacryocystitis and in some patients, chronic dacryocystitis.1 Exogenous foreign bodies in most patients lodge in lacrimal sac or nasolacrimal duct after external manipulation.2-4 Foreign bodies in some patients have endogenous origin and in the form of dacryoliths may lead to lacrimal flow obstruction.5-7 In both forms for restoration of normal lacrimal drainage surgical removal of foreign bodies are necessary. Classic surgical approach is external dacryocystorhinostomy (DCR)8 but in recent years with rapid improvement of endoscopic techniques intranasal approaches introduce themselves as an effective substitute for external DCR.9,10 These approaches are helpful for preoperative diagnosis and effective for surgical removal of lacrimal foreign bodies. The objective of this report is to increase awareness of physicians to such a rare entity and to consider lacrimal foreign bodies as one of the important differential diagnosis of persistent epiphora after DCR.

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Case report

On February 2008, a 48-year-old woman with complaint of persistent epiphora and intermittent mucopurulent discharge from the left eye for 18 years referred to the department of otolaryngology of Besat hospital, Hamedan University of Medical Sciences. She had previous external DCR surgery with silicon stenting on the same eye 18 years ago in another center. Three months after that surgery silicon stent was removed but epiphora with lesser severity and intermittent mucopurulent discharge continued. During this period she had several ophthalmologic visits and different topical eye drops and systemic antibiotics were prescribed. At presentation physical examination by ophthalmologist revealed normal lacrimal punctums and there was no evidence of acute inflammation in the area of the left medial canthus. Regurgitation test was negative and in irrigation test forceful passage of fluid revealed partial obstruction. Finally she was referred to the otolaryngology department as a case of failed DCR surgery for more evaluation and revision endoscopic DCR if needed. Anterior rhinoscopy was normal and for direct visualization of previous rhinostomy site outpatient diagnostic nasal endoscopy under local anesthesia was performed. Previous rhinostomy site was patent with approximate 5×6 millimeter dimensions and silhouette of an abnormal foreign body could be seen inside the lacrimal sac space (Figure 1). For more complete evaluation dacryoscntintillography was done and partial obstruction in left lacrimal drainage system was reaffirmed. On the basis of the all above findings the patients were labeled as failed previous DCR surgery and became candidate for revision endoscopic DCR.

Under general anesthesia and after topical application of vasoconstrictor, with 0 degree nasal endoscope probing of superior and inferior canaliculi were done and lacrimal probe passed easily through the rhinostomy site to the nasal cavity (Figure 2). Then uncinectomy was done and lateral nasal wall drilled upwardly along the maxillary line with protected drill. During soft tissue removals around the rhinostomy site with Blekesly-Weil forceps a piece of silicon tube that was packed in internal common punctum was removed with some minimal resistance. The 15 millimeter length silicon tube surrounded by some granulation tissue and eyelashes around it was observed (Figure 3). After irrigation of surgical field with normal saline and careful hemostasis, new silicon stent was passed through the canaliculi to the nose (Figure 4). The day after surgery patient was discharged from hospital with chloramphenicol eye drop and systemic antibiotic. 72 hours later nasal crusts was removed endoscopically and then she was visited in weeks 1, 4 and 12. Silicon stent was removed 3 month after surgery. In 6 and 12 months postoperative follow-up epiphora was ceased completely and irrigation test after 12 months was normal.

Figure 1. Rhinostomy site with foreign body
T: Middle turbinate, R: Previous rhinostomy site, F: Foreign body

Figure 2. Probing through rhinostomy site
T: Middle turbinate, R: Previous rhinostomy site, P: Lacrimal probe passed through rhinostomy, F: Foreign body
Discussion
Obstruction of lacrimal drainage system is not an uncommon condition and encountered in clinical practice both by ophthalmologists and otorhinolaryngologists. Its etiologies are sometimes acute or chronic inflammation, trauma, congenital malformation and rarely foreign bodies that are lodged in different levels of this system.\(^1\)\(^-\)\(^8\)

In some cases both endogenous and exogenous foreign bodies are asymptomatic but in most patients they present themselves with epiphora, recurrent acute dacryocystitis or rarely chronic dacryocystitis. Dacryoliths that are endogenous foreign bodies usually create from gradual accumulation of inflammatory debris in lacrimal system, specially lacrimal sac. But in some cases external foreign bodies like eyelash acts as a primary nidus for dacryolith formation.\(^5\)\(^-\)\(^7\)

Dacryoliths could be found in 8-14% of patients who have had DCR surgery for persistent epiphora.\(^1\)\(^1\)

Exogenous foreign bodies usually lodged in lacrimal drainage system by manipulation of unauthorized persons or surgeries on this system or adjacent anatomical structures. Rarely this kind of foreign bodies may lodge inadvertently in different levels of the system. Jeong and Park reported a case of hand made wooden foreign body that was used for nasolacrimal duct probing by an unauthorized person and caused recurrent episodes of dacryocystitis and finally was removed by DCR surgery.\(^2\)

Tabatabaei et al reported a case of lacrimal foreign body.\(^3\) Owji et al presented a case of canaliculitis induced by a retained silicone tube knots.\(^4\) Felt reported a case where a small BB bullet was found on a dacryocystogram played the role of a check valve in lacrimal sac and interrupted the lacrimal drainage, causing chronic dacryocystitis.\(^1\)\(^2\)

During the past 20 years, silicone has been the preferred material for tubing of the canalicular system in children and adults. Before the advent of silicone, tubing was performed with polyethylene material. Two tubes of different size were used; a small one was inserted through the canaliculus and a large one used to stent the osseous opening of the lacrimal fossa. Levy and Monos reported a case of rhinolithiasis as a very late complication after external DCR with rubber gum and polyethylene stenting that was presented with episodes of purulent rhinorhea and local facial pain 21 years after operation and treated successfully by endoscopic removal of foreign body and calcified materials.\(^1\)\(^3\)

In our case lacrimal sac foreign body was a piece of silicon tube that was used as stent in previous external DCR. On retrospective enquiry we found that on the time of silicon tube removal it was pulled forcefully out through the lacrimal canaliculi and when it was impacted at the given site it was cut and the remaining part could not be found through the nose. The presenting signs and symptoms
of this case were completely similar to the failed DCR procedure, so she was referred to our department for more evaluation. Anterior rhinoscopy is normal in many of such cases, so we should emphasize on the role of the nasal endoscopy as a safe and rapid diagnostic method. In the nasal endoscopy condition of rhinostomy site could be evaluated and any foreign body, granulation tissue, scar formation or synechia between middle turbinate and lateral nasal wall could be found and appropriate treatment plan could be established.

**Conclusion**
To the best of our knowledge, there are no reports of a persistent chronic lacrimal sac foreign body caused by silicon tube stenting during DCR surgery. Exogenous foreign body should be suspected in patients who have had external or endoscopic DCR and who present complaint of persistent epiphora and other signs of lacrimal drainage system obstruction. A high index of suspicion is required.

**References**