Endoscopic Ultrasonic Dacryocystorhinostomy for Recurrent Dacryocystitis Following Rhinoplasty

Nadia Mostovych, MD  
*Thomas Jefferson University*

Mindy R. Rabinowitz, MD  
*Thomas Jefferson University*

Edmund A. Pribitkin, MD  
*Thomas Jefferson University*

Jurij R. Bilyk, MD  
*Wills Eye Institute*

Follow this and additional works at: [https://jdc.jefferson.edu/otograndrounds](https://jdc.jefferson.edu/otograndrounds)

Let us know how access to this document benefits you

Recommended Citation

[https://jdc.jefferson.edu/otograndrounds/8](https://jdc.jefferson.edu/otograndrounds/8)
Endoscopic Ultrasonic Dacryocystorhinostomy for Recurrent Dacryocystitis Following Rhinoplasty

Nadia Mostovych, MD1, Mindy R. Rabinowitz, MD1, Edmund A. Pribitkin, MD1, Jurij R. Bilyk, MD2

1 Thomas Jefferson University Hospital, Department of Otolaryngology-Head and Neck Surgery, 2 Wills Eye Institute, Oculoplastic and Orbital Surgery Service, Philadelphia, PA

ABSTRACT

The lacrimal sac is the structure most vulnerable to injury when performing osteotomies for rhinoplasty. When performed in a low lateral position or along the frontal process of the maxillary sinus, osteotomies have the potential to tear the medial canthal ligament and injure the underlying lacrimal sac resulting in dacryocystitis. We report a case of dacryocystitis in a 19 year old male who presented with recurrent episodes of pain, tearing, and discharge from the left eye that began five weeks after primary rhinoplasty. Ophthalmologic examination revealed a mild stricture of the left inferior canaliculus and partial left nasolacrimal duct obstruction (20% patency). Physical examination revealed a deep ostotomy with considerable nasomaxillary groove, remaining inferior to the frontal suture line, and without prior subperiosteal tunnels may reduce the risk of LDS injury. Epiphora and dacryocystitis may be successfully managed through endoscopic DCR without potentially disfiguring external DCR incisions. Finally, use of the ultrasonic bone aspirator should be considered in cases where bone fragmentation is suspected to help minimize risk to adjacent orbital soft tissue anatomy and to prevent injury to the lacrimal system.

REFERENCES


CASE PRESENTATION

A 19 year-old male presented with recurrent episodes of pain, tearing, and discharge from the left eye following primary rhinoplasty. He was found to have recurrent episodes of pain, tearing, and discharge from the left eye following primary rhinoplasty. Ophthalmologic examination revealed a mild stricture of the left inferior canaliculus and partial left nasolacrimal duct obstruction (20% patency). Physical examination revealed a deep ostotomy with considerable nasomaxillary groove, remaining inferior to the frontal suture line, and without prior subperiosteal tunnels may reduce the risk of LDS injury. Epiphora and dacryocystitis may be successfully managed through endoscopic DCR without potentially disfiguring external DCR incisions. Finally, use of the ultrasonic bone aspirator should be considered in cases where bone fragmentation is suspected to help minimize risk to adjacent orbital soft tissue anatomy and to prevent injury to the lacrimal system.

METHODS

The patient underwent a successful endoscopic dacryocystorhinostomy. In order to avoid comminution of the fractured lacrimal fossa and canal and potential injury to the orbit, the Sonopet ultrasonic bone aspirator (Stryker, Inc., Kalamazoo, MI) was employed to remove the bone overlying the lacrimal sac under image guidance (Figure 2). The lacrimal sac was opened widely to evacuate mucopurulent discharge. Additional bone along the anterior wall of the lacrimal sac was removed endoscopically (Figure 3) without complication. A Crawford tube was placed in the nasolacrimal duct to maintain patency. Post-operatively, cultures grew Staphylococcus aureus and he was treated with a six week course of ciprofloxacin after which the Crawford tube was removed.

RESULTS

At six months follow-up the patient had no evidence of epiphora, infection, pain or discomfort from the left eye.

CONCLUSION

Care must be taken to avoid LDS injury during the performance of lateral osteotomies. Low curved osteotomies using sharp instruments, following the nasomaxillary groove, remaining inferior to the frontal suture line, and without prior subperiosteal tunnels may reduce the risk of LDS injury. Epiphora and dacryocystitis may be successfully managed through endoscopic DCR without potentially disfiguring external DCR incisions. Finally, use of the ultrasonic bone aspirator should be considered in cases where bone fragmentation is suspected to help minimize risk to adjacent orbital soft tissue anatomy and to prevent injury to the lacrimal system.

INTRODUCTION

Epiphora following rhinoplasty is usually secondary to soft tissue edema causing compression of the lacrimal system and resolves within 1-2 weeks. However, epiphora that persists, especially longer than 2-3 months, and/or is complicated by dacryocystitis raises concern for damage to the nasolacrimal system (LDS).

The LDS contains lacrimal canaliculi, the lacrimal sac, and the nasolacrimal duct—connecting the LDS to the nasal cavity. The lacrimal sac lies in the lacrimal fossa of the lacrimal bone and is protected posteriorly by the posterior lacrimal crest and anteriorly by the anterior lacrimal crest, which is formed by the junction of the lacrimal bone and the frontal process of the maxilla. The medial canthal tendon provides further protection for the sac by passing anteriorly over the lacrimal sac and attaching to the frontal process of the maxilla.

The anterior wall of the lacrimal sac is closely associated to the posterior aspect of the medial canthal tendon by an aponeurotic lamina that attaches to the posterior lacrimal crest. However, the lacrimal sac remains vulnerable to injury as it lacks bony covering for 10-11 mm and is not fully protected by the medial canthal tendon. It is most vulnerable to injury from lateral osteotomy. An osteotomy along the frontal process of the maxilla may disrupt the medial canthal tendon and in turn injure the underlying lacrimal sac. A subperiosteal tunnel deep to the protective medial canthal tendon may also predispose the lacrimal sac to shearing injury. We describe the first case of recurrent dacryocystitis following rhinoplasty to be treated successfully by an endoscopic dacryocystorhinostomy.

CONCLUSION

Care must be taken to avoid LDS injury during the performance of lateral osteotomies. Low curved osteotomies using sharp instruments, following the nasomaxillary groove, remaining inferior to the frontal suture line, and without prior subperiosteal tunnels may reduce the risk of LDS injury. Epiphora and dacryocystitis may be successfully managed through endoscopic DCR without potentially disfiguring external DCR incisions. Finally, use of the ultrasonic bone aspirator should be considered in cases where bone fragmentation is suspected to help minimize risk to adjacent orbital soft tissue anatomy and to prevent injury to the lacrimal system.

REFERENCES