ABSTRACT

Objectives/Hypothesis: To compare the causes of dacryocystorhinostomy (DCR) failure between external and endoscopic techniques for the treatment of lacrimal obstruction.

Study Design: Retrospective cohort study

Methods: The study population consisted of 53 patients who underwent revision endoscopic DCR from 2002 to 2013. Patient demographics, surgical details, and identified causes of prior DCR failure were compared between those patients whose initial surgery was performed through an external vs. endoscopic approach.

Results: Reasons for DCR failure following external (n=32) vs. endoscopic (n=21) techniques included ostial closure (52.4% vs 53.1%, p=0.958), inadequate bone removal (23.8% vs 9.4%, p=0.151), sump syndrome (9.5% vs 9.4%, p=0.986), and adhesions involving the middle turbinate (57.1% vs 28.1%, p=0.035), ethmoid cells (14.3% vs 18.8%, p=0.672), and nasal septum (9.5% vs 15.6%, p=0.521). Septoplasty was more likely to be required at time of revision surgery when the initial procedure was external vs. endoscopic (71.1% vs 15.6%, p<0.001). Overall success rate for revision DCR was comparable between groups (71.4% external vs. 71.8% endoscopic). The reasons for failure of endoscopic and external DCR have not been previously compared. In this study, we aim to evaluate the shortcomings of each procedure.

INTRODUCTION

• Epiphora caused by nasolacrimal duct obstruction (NLDO) is treated effectively with dacryocystorhinostomy (DCR). The obstructed lacrimal sac is identified and drained into the nasal cavity through a skin incision in the medial canthal region (external approach), or the same can be accomplished with an endonasal approach by visualization through an endoscope (endoscopic approach).

• While success rates between the two approaches are similar in recent literature, selection of approach is still often dictated by surgeon preference. A recent survey of ophthalmic plastic surgeons revealed that external DCR was offered by 93.9%, while the endoscopic approach was offered by only 63.1%. The reasons for failure of endoscopic and external DCR have not been previously compared. In this study, we aim to evaluate the shortcomings of each procedure.

METHODS AND MATERIALS

• This is an IRB approved retrospective review of 53 patients who underwent revision endoscopic DCR from 2002 to 2013.

• Inclusion criteria were any adult (≥18 years of age at time of surgery) undergoing revision DCR for nasolacrimal duct obstruction.

• We excluded patients undergoing revision DCR with a history of tumor resection of the head and neck, radiation, autoimmune disease, and congenital facial anomaly.

• Patient demographics, comorbidities, and the number previous DCRs were recorded.

• The operative reports of each patient at revision endoscopic DCR were reviewed to identify the cause of prior DCR failure.

• The identified causes of prior DCR failure were compared between those patients whose initial surgery was performed through an external vs. endoscopic approach.

• SPSS 22.0 (Armonk, NY) was for used for statistical analysis. Chi-squared test was used to determine significant differences between groups.

RESULTS

• A total of 53 patients underwent revision DCR during the study period. In 32 patients, previous DCR was performed through an external approach. In 21 patients, the prior DCR was performed endoscopically.

• Table 1 below illustrates the patient demographics and pertinent history. The external and endoscopic groups were well matched.

• Adhesion to middle turbinate causing obstruction of the lacrimal drainage system was more commonly found in the external group (figure 1).

• Septoplasty was more likely to be required at revision surgery when the initial DCR was performed through an external approach (figure 2).

Table 1. Patient demographics and pertinent past history

<table>
<thead>
<tr>
<th>External</th>
<th>Endoscopic</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age (years)</td>
<td>57.7</td>
<td>56.9</td>
</tr>
<tr>
<td>History of CRS</td>
<td>66.6%</td>
<td>46.8%</td>
</tr>
<tr>
<td>History of dacryocystitis</td>
<td>38.0%</td>
<td>34.4%</td>
</tr>
<tr>
<td>History of facial fracture</td>
<td>10.0%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Average follow up (months)</td>
<td>8.3</td>
<td>11.8</td>
</tr>
<tr>
<td>Success rate</td>
<td>71.4%</td>
<td>71.8%</td>
</tr>
</tbody>
</table>

Table 1. Patient demographics and pertinent past history

• Adhesion to middle turbinate

• Adhesion to agger/ethmoid cells

• Adhesion to septum

• Lacrimal Ostium Closure

• Dacryolith

• Mass

• Polypoid CRS

• Canalicul problem

• Sump syndrome

• Inadequate bone removal

• Reasons for Failure from Previous DCR

DISCUSSION

• The endoscopic approach for revision DCR is an excellent method to identify and correct causes of failure of the initial operation.

• Previous studies note that mucosal fibrosis, intranasal synechiae, and small/negative bony window are the most common causes of DCR failure. This is consistent in our series, with the middle turbinate being the most common site of adhesion. We find that middle turbinate adhesion is more common after primary external DCR, perhaps because the middle turbinate is not visualized as clearly from an external route.

• In DCR surgery, the importance of septoplasty for both surgical access and prevention of postoperative adhesions is difficult to appreciate without endoscopic visualization. This factor may explain why septoplasty was more likely needed at revision DCR when the initial operation was external.

CONCLUSIONS

• Compared to endoscopic DCR, external DCR fails more commonly from obstructing adhesions involving the middle turbinate. Proper management of the middle turbinate and deviated nasal septum appears to be an important consideration during lacrimal surgery.

REFERENCES


