Study of success rates in endoscopic dacryocystorhinostomy with and without stenting

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Abstract

Background: The dacryocystorhinostomy (DCR) surgery involves fistulization of the lacrimal sac into the nasal cavity. DCR is currently the main stay of treatment of nasolacrimal duct (NLD) obstruction. It can be performed externally or endoscopically.

Aim: To evaluate the success rates of endoscopic DCR with silicone stenting comparing to those with DCR without stenting in patients with epiphora who failed medical treatment.

Material and methods: A retrospective study of 39 consecutive patients who underwent primary or revision endoscopic DCR with or without stenting was done at our hospital between January to July 2014. These patients were divided in two groups: Groups - A in which DCR was followed by stenting, Group – B in which no stent placement was done.

Results: There were more female patients – 28 (71.79%) than male patients – 11 (28.20%). The mean age was 40.44 years. Age range was 14–74 years. Both eyes were almost equally affected. Left eye was affected in 16 patients compared to 17 patients had right eye involvement. 6 patients had bilateral symptoms of which one eye was operated at a time. Revision cases included our own revision of endoscopic DCR without stenting 2 (5.12%) and of endoscopic DCR with stent 1 (2.5%). 4 of these patients had atrophic rhinitis, which was preoperatively controlled by appropriate medical treatment. 11 of these patients had deviated nasal septum in which 5 patients had undergone correction simultaneously. In our own revision cases of endoscopic DCR with stent, the cause was synechiae formation as simultaneous septoplasty with stenting was done. Revision cases of endoscopic DCR without stenting the causes were granulations and stoma closure. During revision surgery stenting was done.
Success rates in endoscopic DCR with and without stenting

**Conclusion:** Endoscopic DCR is a simple, minimally invasive procedure. In our study, we concluded that endoscopic DCR with stent placement had good results. Regular follow up after endoscopic DCR is necessary. Endoscopic DCR with stent has several advantages over classical external approach.

**Key words**
Dacryocystorhinostomy, Endoscopy, Stent.

**Introduction**
The dacryocystorhinostomy DCR surgery involves fistulization of the lacrimal sac into the nasal cavity. DCR is currently the main stay of treatment of nasolacrimal duct (NLD) obstruction. It can be performed externally or endoscopically. The advent of rigid endoscope has awakened interest in endonasal endoscopic DCR. Endoscopic DCR is well tolerated by patients with good success rates. Caldwell described the first intranasal DCR in 1893 [1]. Then in 1989, MC Donogh and Meiring [2] described the endoscopic endonasal DCR. Endonasal DCR surgery has advantages of preventing scar on the skin and preserving pump function of the nasolacrimal sac. Since then many modifications have been described. Different laser of Holmium: YAG, Argon, Co2 (carbon dioxide), Potassium titanium phosphate (KTP) have been tried. Many techniques advocate the use of silicone stent which is placed as a loop in the superior and inferior canaliculi, through the common canaliculus and lacrimal sac into the nose by an endoscope. This can be kept for two weeks to six months [3, 4]. The aim of this study was to evaluate the success rates of endoscopic DCR with silicone stenting comparing to those with DCR without stenting in patients with epiphora who failed medical treatment.

**Material and methods**
A retrospective study of 39 consecutive patients who underwent primary or revision endoscopic DCR with or without stenting was done at our hospital between January to July 2014. These patients were divided in two groups. Group - A in which DCR was followed by stenting, Group – B in which no stent placement was done. All patients were assessed by complete ENT and Ophthalmic examinations. In every patient with dacryocystitis, it is important to take a good history and carefully observe the patient. A thorough examination of the lacrimal system, included probing and sac syringing, to establish patency of the lacrimal system was done. In sac syringing where resistance to saline flow and regurgitation from opposite punctum was seen, nasolacrimal duct obstruction confirmed. Rigid nasal endoscopy was done in all patients. This procedure allowed septal deviation and any additional nasal or sinus pathologic conditions to be evaluated and so that can be corrected simultaneously with DCR or prior to it if required. Patients with evidence of lacrimal sac tumor, canalicular obstruction, dacryolith or traumatic obstruction were excluded from the study. Surgery was done in patients of chronic dacryocystitis or after resolution of acute inflammation. Informed consent regarding surgery and anesthesia obtained in all patients. Majority of patients were operated under local anesthesia. Patients below 18 years were operated under general anesthesia. The nasal cavity were packed with gauze strips soaked in 4% lignocaine with adrenaline (1: 1,00,000) 20 minutes prior to procedure. So we could achieve mucosal anesthesia and good vasoconstriction that improves patients’ co-operativity and helps in bloodless field. Surgery was carried out by 0° endoscope. Lignocaine 2% with adrenaline 1: 1,00,000, injected anterior and above to the anterior attachment of middle turbinate.
Success rates in endoscopic DCR with and without stenting

In this retrospective study, comparison of the outcome of stenting (Group - A) v/s non stenting (Group - B) in 39 consecutive patients who underwent endonasal DCR between January 2011 to July 2014 was done. There were more female patients – 28 (71.79%) than male patients – 11 (28.20%). The mean age was 40.44 years. Age range was 14–74 years as per Table 1.

Photo – 1: Endoscopic DCR.

Both eyes were almost equally affected. Left eye was affected in 16 patients compared to 17 patients had right eye involvement. 6 patients had bilateral symptoms of which one eye was operated at a time. Revision cases included our own revision of endoscopic DCR without stenting 2 (5.12%) and of endoscopic DCR with stent 1 (2.5%). 4 of these patients had atrophic rhinitis, which was preoperatively controlled by appropriate medical treatment. 11 of these patients had deviated nasal septum in which 5 patients had undergone correction simultaneously. In our own revision cases of Endoscopic DCR with stent, the cause was synechiae formation as simultaneous septoplasty with stenting was done. Revision cases of Endoscopic DCR without stenting the causes were granulations and stoma closure. During revision surgery stenting was done. Regular follow up was maintained for 6 months to 2 years and complications like granulations, adhesions, stoma closure were faced in cases were stent was not inserted. Although no definite time frame for stent retention has been established. It has been suggested that the

Results

In this retrospective study, comparison of the outcome of stenting (Group - A) v/s non stenting (Group - B) in 39 consecutive patients who underwent endonasal DCR between January 2011 to July 2014 was done. There were more
Silicone stent should remain in place for 6 to 12 months following surgery [5]. In this study, stents were removed after an average of 1–3 months. There were no major complications. We believed stenting is necessary in every patient and regular follow up should be maintained. At the end of this study, 76.92% patients were relieved of these symptoms completely. Success rate of endonasal DCR of Group – A, and Group - B at 6 months follow up was as per Table – 2.

**Discussion**

Dacryocystorhinostomy (DCR) is performed in cases of nasolacrimal duct obstruction to drain the lacrimal sac in chronic dacryocystitis [6]. DCR with or without stenting has been used widely in the treatment of NLD obstruction. There is some controversy regarding placement of stent during DCR surgery. Allen and Berlin reported a higher failure rate when stents were used [3]. Vishwakarma, et al. had a high success rate with silicone tubing [7]. During the study, we noted that the failure of endoscopic DCR especially in cases where no stent was used, were because of granulations and scarring near stoma. Technical error in locating the sac, intra operative bleeding hampering the vision or small obliterated atrophic sac or impaired canalicular function also leads failure of DCR. Endocanalicular stenting is believed to maintain the patency of the ostium during the post operative period & healing process.

**Conclusion**

Endoscopic DCR is a simple, minimally invasive procedure. In our study, we concluded that endoscopic DCR with stent placement had good results. Regular follow up after endoscopic DCR is necessary. Endoscopic DCR with stent has several advantages over classical external approach.

**References**


**Source of support:** Nil  
**Conflict of interest:** None declared.


**Table – 1**: Age distribution of cases.

<table>
<thead>
<tr>
<th>Age (in years)</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of cases</td>
<td>1</td>
<td>3</td>
<td>11</td>
<td>16</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>%</td>
<td>2.56</td>
<td>7.69</td>
<td>28.20</td>
<td>41.02</td>
<td>17.94</td>
<td>2.56</td>
</tr>
</tbody>
</table>

**Table – 2**: Success rate of endonasal DCR of Group – A, and Group - B at 6 months follow up.

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n = 39)</th>
<th>Success rate at 6 months</th>
<th>Failure rates at 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>25</td>
<td>22 (88%)</td>
<td>3 (12%)</td>
</tr>
<tr>
<td>Group B</td>
<td>14</td>
<td>8 (57.14%)</td>
<td>6 (42.85%)</td>
</tr>
</tbody>
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