

# Role of Endoscopic Dacryocystorhinostomy in Acute Dacryocystitis

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## ABSTRACT

**Introduction:** An endonasal approach was attempted by West in 1910. The aim of this technique was to make a communication between the lacrimal sac and nose at a point just above the junction of the sac with the duct. In 1917, West modified Caldwell's technique with a window resection over the lacrimal sac but the results were mediocre. West and Polyak were the first ones to perform this surgery. The aim of the study was to find out the role of endoscopic dacryocystorhinostomy in acute dacryocystitis

**Material and methods:** A prospective study was carried out in the Department of Otorhinolaryngology in conjunction with Department of Ophthalmology at Silchar Medical College and Hospital, Silchar for a period of one year on 9 patients.

**Results:** 6 cases showed complete improvement of symptom and rest showed satisfactory improvement.

**Conclusion:** Results are improving with the use of modern endoscopes, microsurgical instruments and lasers with a similar success rate to conventional external DCR.

**Keywords:** Endoscopic Dacryocystorhinostomy, Acute Dacryocystitis

## INTRODUCTION

The evolution of surgical therapy for lacrimal obstruction dates back to 1893 where Caldwell described an intranasal DCR performed via trephination of nasolacrimal duct.<sup>1</sup> The early intranasal approaches were abandoned because of poor exposure. After the introduction of rigid nasal endoscopes with improved optics, the intranasal approach to DCR was reconsidered. An endonasal approach was attempted by West in 1910.<sup>2</sup> The aim of this technique was to make a communication between the lacrimal sac and nose at a point just above the junction of the sac with the duct. In 1917, West modified Caldwell's technique with a window resection over the lacrimal sac but the results were mediocre. Others who attempted this technique were Polyak<sup>3</sup>, Kofler.<sup>4</sup> Some rhinologists have done dacryostomy to prevent scar on the face. West and Polyak were the first ones to perform this surgery. Massaro et al<sup>5</sup> described laser endonasal DCR in cadavers citing advantages over external DCR to include limited tissue thermal injury, elimination of external cutaneous scar and excellent haemostasis. Patient demand for less invasive and scarring surgery has renewed interest in endonasal approaches to DCR. Results are improving with the use of modern endoscopes, microsurgical instruments and lasers with a similar success rate to conventional external DCR. Modern fibre-optic endoscopes are being tried which can be passed through the canaliculi into the lacrimal sac and with laser assistance to open canalicular stenosis. The aim of the study was to find out the role of endoscopic dacryocystorhinostomy in acute dacryocystitis

## MATERIAL AND METHODS

A prospective study was carried out in the Department of

Otorhinolaryngology in conjunction with Department of Ophthalmology at Silchar Medical College and Hospital, Silchar for a period of one year. Local examination of all the cases was done carefully. A careful clinical examination and testing was done to diagnose the level of obstruction, the clinical examination includes- examination of lids and placement of puncta. ROPLAS regurgitation test, syringing and probing. Only 9 cases were of acute nasolacrimal duct obstruction and common canalicular block of the total reported case in the OPD. So, they were included in this study.

**Inclusion criteria:** All cases, irrespective of age and sex consisted of patients having epiphora, acute dacryocystitis and common canalicular duct block ascertained with probing were included in the study.

**Exclusion criteria:** Patients with noticeable lid laxity along with patients with suspicion of malignancy were excluded from the study. Patients with previous radiation therapy, post-traumatic lid and bony deformity were excluded from the study. The ethical clearance from the Institutional ethical committee and informed consent were taken from all the patients.

All cases diagnosed as common canalicular and nasolacrimal duct were subjected to detail and possible laboratory means. Complete haemogram comprising haemoglobin estimation, total count, differential leucocytic count, erythrocyte sedimentation rate were done. Nasal endoscopy was done preoperatively to see a clear picture of the nasal cavity. Preoperatively all the cases were prepared with necessary investigations and surgery was planned accordingly.

## STATISTICAL ANALYSIS

Statistical analysis was done with the help of descriptive statistics like mean and percentage. Microsoft office 2007 was used to make tables.

## RESULTS

The present study was conducted in the Department of Otorhinolaryngology at Silchar Medical College and Hospital, Silchar during the period of one year. The study consists of a series of 9 cases of dacryocystitis.

The results and observations of this study are presented in the table and discussed below. Table-1 shows that the third decade showed the highest incidence, 3 out of 9 (33.33%). This was followed by 2 cases (22.22%) in the second decade and 2 cases

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(22.22%) in the first decade. The youngest case recorded in this study was 9 year old girl and oldest one was 45 years old woman.

Table-2 shows that watering from the eye was the chief complaints in all the cases (100%), 7 cases (77.77%) along with watering present with swelling of the lower lid below medial canthal. 4 cases (44.44%) present with watering and nasal blockage.

Table-3 clearly demonstrates that in this study the patient came with duration of watering ranging from 4 months to 6 months. Majority of them had history of watering less than 6 months.

**Management**

All the 9 cases were subjected to surgery. Endoscopic examination is the ideal way of assessing the postoperative result.

All the cases operated were subjected to periodic check up at the interval of 1 week, 2 weeks, 6 weeks, 3 months and after 6 months for syringing and for any other complications. All the patients came for follow up and those presented with complication were planned for revision surgery as described previously and satisfactorily competent. Till date all are doing well and enjoying good health with no recurrence of epiphora. 7 cases showed complete improvement of symptom and rest showed satisfactory improvement initially but later from 3 months of the postoperative period, they came with a same episode of watering (table-4). All these patients, nasal endoscopy was done and found that 2 cases developed granulation at the rhinostomy window and 2 cases synechiae was seen between the rhinostomy site and middle turbinate. The synechiae is little and the patency is good.

**DISCUSSION**

9 cases of dacryocystitis belonging to different age groups have respectively been studied role of endoscopic dacryocystorhinostomy in the department of Otorhinolaryngology of Silchar Medical College and Hospital, Silchar. The key landmark is the ridge formed by the frontal process of maxilla and the root of the middle turbinate on the lateral nasal wall.

All the results and observations of the present study were compared with available literature. In this present study maximum number of patients belongs to the age group of 21-30 years (33.33%) followed by 11-20 years (22.22%). This was in conformity with observations of Cokkeser et al.<sup>6</sup>

In this study Male to Female ratio is 2:7. This seem to be comparative that the high incidence of dacryocystitis in Female as observed in this present study has been supported by many observations as the below mentioned authors listed in the table. Sprekelsen et al.<sup>7</sup> hypothesised that the high incidence of dacryocystitis in females may be the long term use of cosmetic is the important factors.

The higher incidence of this disease in females is attributed to the narrow lumen of the body canal in females (Muller).<sup>8</sup> In the present study, the duration of watering is in between 4 months to 6 months. Majority of cases presented with watering is less than 6 months and majority of watering from the left eye.

The critical factor necessary for achieving the 90-95% success rate was a wide bone removal so that the entire lacrimal sac was exposed.<sup>9-10</sup> Dolman reported that 75% were females

Age group in years	Numbers	Percentage
(A) 0-10	2	22.22%
(B) 11-20	2	22.22%
21-30	3	33.33%
31-40	1	11.11%
41-50	1	11.11%

**Table-1:** Showing age distribution

Presenting Features	No. of Patients	Percentage
Watering from eye	09	100.00%
Swelling of lower lid below medial canthal	07	77.77%
(C) Nasal blockage with watering of eye	04	44.44%

**Table-2:** Showing presenting features

Duration of watering	No of cases	Parentage
(A) 4 Months	06	66.66
(B) 5 Months	02	22.22
6 Months	01	11.11

**Table-3:** Showing duration of watering

Success	No. of Cases	Percentage
Complete success	7	77.77%
Satisfactory	2	22.22%

**Table-4:** Out come of the techniques

in his study of 354 cases.<sup>11</sup> Endonasal endoscopic approach for dacryocystorhinostomy is a straight forward, less time consuming, almost equally effective as external approach with minimal complications with added advantages of better aesthetic results, no facial scar and can be used as one stage procedure for correction of other associated nasal pathologies.<sup>12</sup> Although mild bleeding occurred in upto 25% and 10% cases of EESC-DCR and Ext-DCR, but most of the times it was self limiting. Only 5% of the cases required nasal packing. Tarbet and Coster observed bleeding in 3.9% cases of Ext. 14 DCR while Dolman observed it in 4.6% and 5.5% cases of Ext. DCR and EESC-DCR respectively.<sup>11,13</sup>

In our study we came found that the advantages of endoscopic dacryocystorhinostomy over external dacryocystorhinostomy are-

1. It provides a better aesthetic result with no external scar.
2. It allows a one stage procedure to also correct associated nasal pathology that may be causative.
3. It avoids injury to the medial canthus and or pathologic scar formation.
4. It preserves the pumping mechanism of the orbicularis oculi muscles.
5. Active infection of the lacrimal system is not a contraindication to surgery.
6. It is especially superior to the external approach in revision surgery.

Endonasal endoscopic approach for dacryocystorhinostomy is a straight forward, less time consuming, almost equally effective as external approach with minimal complications with added advantages of better aesthetic results, no facial scar and can be used as one stage procedure for correction of other associated

nasal pathologies.<sup>12</sup>

## CONCLUSION

In conclusion, endoscopic dacryocystorhinostomy is a valid alternative to external procedure in the management of nasolacrimal duct obstruction. It is a less invasive procedure, and efficacious method with a high success rate and good outcome. Current technology, with the introduction of endoscopic and imaging investigations dedicated to the nasolacrimal system, allow the site of obstruction to be detected and to perform micro invasive surgery, respecting the anatomical structures.

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