



## Original Research Article

## A study to compare outcome of anterior flap suturing versus double flap anastomosis in external dacryocystorhinostomy

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## ABSTRACT

**Aim:** To compare the results of anterior flap suturing with excision of posterior flaps and both anterior & posterior flaps suturing in external DCR

**Materials and Methods:** Total 46 patients were divided into 2 groups, 23 in each. In Group A cases with anterior flap anastomosis were included and in group B cases with double flap suturing were included. Comparison was done in terms of ease of procedure, total surgical time, recurrence and success rate. Mean surgical time was evaluated in both the groups.

**Results:** Mean age in years was  $53.56 \pm 7.19$ . Suturing the flaps was found convenient and easy in Group A (91.30%) in comparison to group B (13.04%). Total mean surgical time was  $55.09 \pm 3.96$  minutes. In Group A it was  $51.43 \pm 0.99$  minutes and in group B it was  $58.74 \pm 1.78$  minutes. In Group A mean surgical time was less in comparison to group B and it was statistically highly significant. Success rate assessed by patent syringing, was 91.30% in Group A and 95.65% in Group B.

**Conclusion:** Only anterior flap suturing with trimming of posterior flaps in comparison to double flap anastomosis makes external DCR an easy and less time consuming procedure.

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### 1. Introduction

Chronic dacryocystitis is due to inflammation of lacrimal sac and most common cause is obstruction at the junction of sac and nasolacrimal duct or within bony naso lacrimal duct. Repeated infections, dacryoliths, trauma or neoplasm could be the other reasons. Clinically it presents in chronic catarrhal or suppurative variety. Sometimes it presents with mucocoele or fibrotic sac. So bypassing nasolacrimal duct and restoring communication between lacrimal sac and nasal cavity is achieved either by external DCR or endonasal route.

External dacryocystorhinostomy (DCR), proposed by Ohm and by Dupuy-Dutemps and Bourguet in 1921<sup>1,2</sup> is still the most preferred technique though requires skill and difficult to do. Other alternatives are nasolacrimal duct intubation and transcanalicular laser DCR.<sup>3,4</sup> Caldwell

first introduced the endonasal approach for lacrimal surgery in 1893 and with advent of endoscopy instruments, comparatively it has become easier and then there is no external scar and neurovascular disruption. In spite of all these advantages external DCR is still preferred due to higher success rate though there is always apprehension about this surgery because of bleeding, unfamiliarity in structure and difficulty in suturing the flaps. The reported success rates of both procedures range from 63% to 97%.<sup>5</sup> Originally suturing of both anterior and posterior flaps was recommended and many surgeons still prefer double flap suturing though it is difficult due to space constraint and flap size is also smaller. Later on various modifications were made and suturing of anterior flaps was found to be equally effective. It is easier and less time consuming due to bigger flaps. Then to avoid overhanging of flaps sutures are passed through orbicularis so it doesn't fall back.

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## 2. Materials and Methods

We included 46 cases of chronic dacryocystitis who were undergoing DCR surgery in our institute RKDF Medical College H & RC from August 2018 to March 2019.

We divided them in 2 groups we included patients from 20 to 60 years. Mean age was  $53.56 \pm 7.19$  years. Mean age in group A was  $52.39 \pm 8.12$  years and in Group B is  $54.73 \pm 6.07$  years.

Group A includes patients with Anterior flap anastomosis

Group B includes cases with double flap anastomosis

### 2.1. Inclusion criteria

Cases of Chronic Dacryocystitis, catarrhal or suppurative infections with epiphora and positive regurgitation and cases of mucocoele.

### 2.2. Exclusion criteria

We excluded patients above 60 years, patients with fibrotic sac, canalicular block & atrophic rhinitis.

**Table 1:** Demographic profile

<b>Total No. of patients</b>	<b>46</b>
<b>Mean age ( In years)</b>	$53.56 \pm 7.19$ Group A ( $52.39 \pm 8.12$ ) Group B ( $54.73 \pm 6.07$ )
<b>Sex</b>	
Males	32
Females	14
<b>Laterality</b>	
RE	27
LE	19
<b>Clinical types</b>	
Chronic catarrhal type	40
Mucocoele	6

### 2.3. Preoperative evaluation

Positive regurgitation test and patients with mucocoele are suitable patients for DCR. We didn't include patients with canalicular block. Haematological investigations including blood sugar, bleeding and clotting time, tests to rule out HIV and hepatitis are carried out. ENT check up done to rule out nasal abnormalities. Blood thinners and anticoagulants are withheld one day before surgery. Haemostats and decongestant nasal drops are also given prior to surgery. Ethamsylate is a hemostatic drug which promotes platelet adhesion and also inhibits platelet disaggregation. Patient is prepared and kept nil orally so if required weak sedation can be given.

### 2.4. Surgical procedure

Topical 4% lignocaine instilled and nasal packing is done with the help of gauze soaked in 2% lignocaine adrenaline jelly in the ipsilateral nostril. It keeps the mucosa taut and checks the bleeding. Local block with sedation is preferred. Lignocaine 2% with 1:100000 adrenaline is infiltrated at medial palpebral ligament and then injected superiorly and inferiorly. Skin level deep curvilinear incision about 2cm is given 3-4 mm away from medial canthus, 2-3 mm above MPL and extending below. Superficial and deep head of MPL is incised and sac is separated with blunt dissector from lacrimal bone. Lamina Papyracea is a thin bone, it is broken with blunt dissector and with bone punch approximately thumb nail sized osteotomy is made involving lacrimal fossa and lacrimal crest and superomedial wall of naso lacrimal canal. Then nasal mucosa is exposed and with 11 no blade knife flaps are made and similarly flaps are made in medial wall of sac. In Group A, we made large anterior flaps and sutured them with 6-0 vicryl suture and posterior edge was trimmed. In Group B we made anterior and posterior flaps of both nasal mucosa and lacrimal sac making anterior flaps a bit larger and then sutured anterior to anterior flap and posterior to posterior flap and compared the results. Lacrimal probe passed through common canaliculus acts as a guide while suturing. While passing sutures through mucosa threads of gauze should be kept separate. When we make anterior flaps only, flaps are larger and may fall so sutures from anterior flaps are passed through orbicularis so that it is lifted anteriorly and chances of fibrosis are minimised. MPL and orbicularis closure is done and then skin is closed with 5-0 silk suture. Chloremphenicol eye ointment is applied. Small patch is applied and closed. Nasal pack is removed after 24 hours.

Follow up was done on the 7<sup>th</sup> day, at 21 days, 4<sup>th</sup> month and 8<sup>th</sup> month. Syringing was done and repeated syringing or probing was required only in case of blocked syringing usually due to clots. Success rate of procedure was assessed by patent syringing and absence of discharge or epiphora at last follow.

### 2.5. Statistical analysis

The collected data was entered in excel sheet. All statistical analysis was carried out using SPSS version 20 and appropriate statistical tools were used.

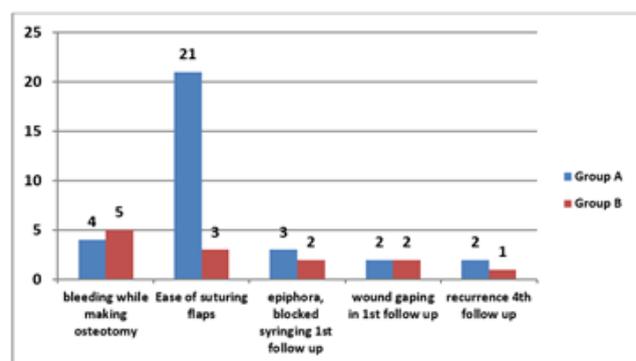
## 3. Results

In both the groups steps were similar till separation of sac from lacrimal fossa. Mean age of the patient was  $53.56 \pm 7.19$ . Mean age in group A was  $52.39 \pm 8.12$  and mean age in group B was  $54.73 \pm 6.07$ . In Group A we made large anterior flaps and included 23 cases and in Group B we included 23 cases and we did two flaps anastomosis. Total

mean surgical time was  $55.09 \pm 3.96$  minutes. In Group A it was  $51.43 \pm 0.99$  minutes and in group B it was  $58.74 \pm 1.78$ . In Group A mean surgical time was less in comparison to group B and it was statistically highly significant. (chi square value 46, p value  $< 0.001$ ). Difficulty in suturing was seen in 20 cases in group B while in 3 cases we didn't find it difficult as there was a large mucocoele. In Group A, out of 23 cases, we find difficulty in suturing in only 2 cases and it was due to thin nasal mucosa. Bleeding while making osteotomy was seen in 4 cases in group A and 5 cases in Group B and has no correlation with making one flap or two flaps. Partial block was seen on doing syringing in 3 cases in Group A and 2 cases in Group B at 1<sup>st</sup> follow up but improved with repeated syringing. Wound gaping was seen in 2 cases in each group. At 8<sup>th</sup> month follow up, recurrence was seen in 2 cases in group A and in 1 case in group B. So success rate was 91.30% in group A and 95.65% in group B.

**Table 2:** Showing comparative analysis of anterior flap anastomosis and two flap suturing

	Group A	Group B
Total no of patients	23	23
Mean surgical time	$51.43 \pm 0.99$ minutes	$58.74 \pm 1.78$ minutes
Ease of procedure	21 cases	3 cases
Bleeding while making osteotomy	4 cases	5 cases
Partial block seen on 1 <sup>st</sup> follow up	3 cases	2 cases
Wound gaping	2 cases	2 cases
Recurrence	2 cases	1 case
Success rate	91.30%	95.65%



**Fig. 1:** Comparative analysis between two groups

#### 4. Discussion

Endonasal DCR or laser DCR has been preferred over external DCR due to factors like scarring, greater tissue damage and haemorrhages.<sup>6,7</sup> Scarring can be avoided if incision is given along relaxed skin tension lines.<sup>8</sup> Though

tissue damage is comparatively less with endonasal approach but sometimes septoplasty<sup>9</sup> may be required and risk of bleeding can't be denied absolutely. Risk of bleeding is comparable with laser DCR.<sup>10,11</sup> As per literature success rate for endonasal DCR is reported as 75% while success rate for external DCR varies from 90-100%.<sup>12</sup>

External DCR is a difficult procedure and mainly it is due to dissection of sac, avoiding bleeders and then making and suturing flaps. It requires time as well as surgical experience and success rate varies as per the experience of surgeon. Best patients for external DCR are thin frail patients with large mucocoele and no nasal abnormality. Various modifications have been proposed so far.<sup>13-18</sup> Making of large anterior flaps, their suturing and elevating the flaps by passing the sutures through orbicularis instead of double flap anastomosis are some of the modifications, which is quite easy in comparison to double flap suturing. Balsechi et.al reported success rate of 100%.<sup>19</sup> So success rate of 90-100% has been reported in different studies with anterior flap anastomosis.<sup>20-22</sup> Time required is also less in single flap suturing. In our study we found success rate 91.30% in Group A and 95.65% in group B. Recurrence was noticed in only 2 cases in group A and 1 case in Group B.

#### 5. Conclusion

Large anterior flap anastomosis and excising posterior flaps makes external DCR comparatively an easy procedure. It saves time also. No significant difference in terms of recurrence is seen in comparison to two flap anastomosis.

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#### 8. Conflict of Interest

Nil.

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