

COMPARISON OF MODIFIED CONVENTIONAL DCR WITH ENDONASAL DCRBahubali Jain¹, Nitin Adgaonkar,**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: 40 patients of chronic dacryocystitis presented to our hospital underwent DCR. They were divided in two group Group A in which 20 patients underwent external dcr & in GROUP B 20 patient underwent endonasal dcr . This study suggests that both external and endonasal DCR surgeries have a high success rate with low incidence of any adverse events and high patient satisfaction and are generally comparable across all the measured parameter. This paper will discuss procedures and their results in detail.

KEYWORDS: DCR , CDC

INTRODUCTION: Dacryocystorhinostomy is the mainstay of treatment for obstruction in lacrimal passage beyond common canaliculus. Dacryocystorhinostomy involves the creation of an alternative route for drainage of tears, between the lacrimal sac and nasal cavity, bypassing the nasolacrimal duct. This is usually performed either by an external approach (external DCR) or through the nasal cavity using an endoscope (endonasal DCR). The external DCR technique was originally described in 1904¹ and was subsequently modified² by the addition of suturing of the nasal and lacrimal mucosal flaps in order to form an epithelium-lined fistula. Several case series have estimated the success rate of external DCR to be between 85% and 95%.³⁻⁸

The endonasal approach was introduced in 1893 by Caldwell⁹ and later modified by West¹⁰ and Halle.¹¹ During its early days, this approach failed to gain popularity due to lack of technology to allow good access to the nasal cavity. Following the introduction of the nasal endoscope,¹² interest in endonasal DCR increased. The procedure, in its present form, was introduced by McDonough et al.¹³

The apparent advantages of endonasal DCR over external DCR are its less invasive nature, shorter operative time and preservation of pump function of the orbicularis oculi muscle due to the absence of an external skin and orbicularis incision. Absence of an external scar, minimal morbidity and low complication rate has made endonasal DCR popular.

The disadvantages of endonasal DCR include a relatively smaller opening between the lacrimal sac and nasal cavity, high equipment cost and steep learning curve and some of these disadvantages are known to influence the success rate. Despite the advantages, the general impression is that endonasal DCR has a lower success rate than external DCR. This study aims to look at this hypothesis further.

This study is a prospective interventional case series looking at the procedure, outcomes, adverse events, success rates with external and endonasal DCR surgery.

MATERIALS AND METHODS:

40 patients of chronic dacryocystitis presented to our hospital underwent DCR.

Patient divided in two groups.

GROUP A: 20 Patients underwent external dcr performed by author.

GROUP B: 20 Patient underwent endonasal dcr performed by ENT SURGEON in our hospital.

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All patients with common canaliculi block, nasal polyp, benign growth of sac and nasal cavity were excluded from study.

INVESTIGATION:

1. Syringing.
2. ENT check-up.
3. Blood investigation viz.-BLOOD SUGAR, BT, CT, CBC.
4. Blood pressure.

Patients of age group 16 years to 65 years were taken for study with mean in forties.

All patients underwent surgery under local anesthesia but in endonasal dcr mild sedation was induced. All cases had primary acquired nasolacrimal duct obstruction. All patients were followed for 1 year after surgery. Clinical success was defined as patent lacrimal system on syringing and absence of symptoms.

The external DCR surgery was performed by the standard technique as referenced in the introduction. 12-14 mm long curved skin incision was made 3 mm medial to medial canthus. Blunt dissection was done to separate the orbicularis ocularis muscle fibres. Medial canthal ligament was cut. After exposing the anterior lacrimal crest, periosteum was incised with periosteum elevator. With a blunt dissection, sac was separated from lacrimal fossa and reflected on lateral side.

Lacrimal bone was fractured by blunt dissector and avoiding damage to nasal mucosa, bone was punched out and 1.5 cm bony opening was made. Sac was opened to make anterior and posterior flaps. Nasal mucosa flaps were designed in similar fashion. Posterior flaps were cut and anterior flaps were sutured by 6-0 vicryl suture. Wound was closed in layers.

The endonasal dcr was performed with the help of endoscope and TV set. Nasal mucoperiosteum was incised and then excised in the diameter of 5 mm to 8 mm to expose lacrimal bone at the anterior end of middle turbinate. Lacrimal bone was removed with bone nibbler and posteromedial wall of lacrimal sac excised having same diameter of bony osteum and nasal mucus periosteum. Cautery was applied and nasal pack was given for 12 hrs.

COMPARISON OF EXTERNAL DCR & ENDONASAL DCR			
Sl.No.		External dcr	Endonasal dcr
1	Nasal packing	required	required
2	Acute dacryocystitis	Not indicated	indicated
3	Lacrimal fistula	indicated	Not indicated
4	Skin incision	+	-
5	Tissue handling	Less +	++
6	bleeding	+	++
7	Endoscope & TV set	Not required	required
8	Post-operative scar	Faintly +	-
9	Closing of surgical wound	+	-
10	Surgical time	50-60 min	40-50 min
11	I/O bleeding	20%	25%
12	P/O bleeding	5	10
13	Wound dehiscence	nil	

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14	Success rate	90%	85%
Table 1			

RESULT: Study revealed intraoperative bleeding slightly more with endonasal dcr from nasal mucosa but in case of external dcr cause of bleeding was from angular vein and nasal mucosa. Success rate was comparable in both groups. Surgical time was more with external dcr but because of excellent visibility of operative site, simple instrumentation, cosmetically acceptable cutaneous scar external dcr is still surgery of choice for CDC.

DISCUSSION: A retrospective cohort study comparing success rates of endonasal (86 cases) and external (90 cases) DCR surgeries found statistically significant success rates with endonasal DCR (84% versus 70%, $P = 0.03$) at a mean follow-up period of seven months. Cokkeser et al.⁴ also found comparable success rates between external and endonasal DCR (90% versus 88%). Dolman et al. in a study looking at external DCR and non-laser endonasal DCR, also found both procedures to have equivalent success rates (90% versus 89%).

His group also found the nasal approach more rapid and more acceptable to patients who had an alternative technique used on the other side. Meanwhile a retrospective comparative cohort study found a higher success rate with external DCR when compared to endonasal DCR (82% versus 58%). However, it also found that the rate of symptom relief was similar in both groups.

This study suggests that both external and endonasal DCR surgeries have a high success rate with low incidence of any adverse events and high patient satisfaction and are generally comparable across all the measured parameters. The success rates in both groups were found to be equivalent meanwhile patient satisfaction was noted to be slightly higher with endonasal DCR surgery and this difference was significant. The latter may be higher due to the shorter surgery time; lack of external incision; quicker return to work and lesser follow-up appointments (no suture removal).

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