

## Management of intra-operative bleeding during dacryocystorhinostomy surgery

Ramesh Chandra Gupta<sup>1\*</sup>, Priyanka Gupta<sup>2</sup>

<sup>1</sup>Professor & Head, <sup>2</sup>Senior Resident, Department of Ophthalmology, LLRH, Ganesh Shankar Vidhyarthi Memorial Medical College, Kanpur

**\*Corresponding Author:**

Email: ramesh.gupta@gmail.com

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### Abstract

**Background & Objectives:** Dacryocystorhinostomy (DCR) is the operation of choice for the management of Nasolacrimal duct block in chronic dacryocystitis. Bleeding is the most common complications during the surgery which hampers further procedure. The present paper deals in depth with various techniques and modifications adopted to manage it.

**Method:** In the present study 2386 cases of chronic dacryocystitis were managed by the conventional external DCR surgery.

**Result:** In cases of mucosal bleeding, re-packing of nose by 4% xylocaine and adrenaline soaked cotton spindle in backward and superior direction to ensure packing in close contact with mucosa of middle meatus. Otherwise an adrenaline swab was applied at the site of bleeding and a pressure was applied for a few minutes or warm packs were applied which invariably stopped the bleeding besides some adjuvant. Bleeding from angular vein and adjoining muscle is prevented by compressing it by haemostatic retractors. In few we had to tie it with catgut. In cases of bony bleeding, Osteotomy of bleeding bone or bone wax is the answer.

**Conclusion:** Bleeding encountered in patient of chronic dacryocystitis during DCR surgery is usually easily manageable and leads to post-op success.

**Keywords:** Bleeding, Dacryocystorhinostomy

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### Introduction

Obstruction of the tear drainage system may be congenital or acquired. Although the causes of congenital and acquired obstruction are different, they both share similar principles of surgical management.

Dacryocystorhinostomy (DCR) surgery is designed to drain tears from the lacrimal sac into the middle meatus of nose. Despite the best efforts bleeding do occur during the operation. It obscures the operative field and hampers further procedure. Inadequate management of complications is often responsible for poor results. Usually bleeding in DCR occurs from:

1. Nasal Mucosa: Most commonly encountered.
2. Angular vein or small vessel in that area.

**Surface anatomy of angular vein:** The angular vein (venous angularis) formed by the junction of the frontal and supraorbital veins, runs obliquely downward, on the side of the root of the nose, to the level of the lower margin of the orbit, where it becomes the anterior facial vein. It is located approximately 5 mm anteromedial to the anterior lacrimal crest, or 8 mm medial to the medial commissure of the eyelids. It receives the veins of the ala nasi, and communicates with the superior ophthalmic vein through the nasofrontal vein, thus establishing an important anastomosis between the anterior facial vein and the cavernous sinus.

3. Muscular bleeding: It occurs due to damage of orbicularis oculi fibres during incision or separation at the time of dissection.

4. Bony bleeding: It is more common in osteoporotic bone and periosteal nutrient vessel.
5. Poorly pre operatively evaluated patients with systemic disease.

The main aim of this paper is to evaluate cause and site of the bleeding which are frequently encountered during surgery and also various management options have been highlighted.

### Materials and Methods

In the present study, we have reviewed 2386 cases of chronic dacryocystitis, in whom a conventional DCR surgery was performed.

In all cases blockage was localized at the junction of sac and nasolacrimal duct during syringing. Before preceding for the surgery all patients were thoroughly investigated for haemoglobin level, bleeding time, clotting time, random blood sugar, and blood pressure besides special tests if required in some patients. Nasal examination was done by an ENT surgeon to rule out any nasal pathology. Cases with canaliculus block were excluded from the study. DCG was done as and when required to confirm the site of block.

### Discussion

During the course of surgery 587 cases (24.6%) had bleeding complications. The source and site of bleeding was ascertained as follows:

S. No	Source of bleeding	No. of cases	%
1.	Bleeding From Nasal Mucosa	447	76.1
2.	Bleeding from angular vein	80	13.6
3.	Bleeding from bones	35	6
4.	Bleeding from muscles	25	4.3
5.	Bleeding from systemic and haematological disorder	0	0

### Steps to reduce/ control intra-operative bleeding

**Mucosal bleeding:** Re-packing of nose by 4% xylocaine and adrenaline soaked cotton spindle in backward and superior direction to ensure packing in close contact with mucosa of middle meatus. Adrenaline, 1: 80,000 in local infiltration anaesthesia helps to reduce haemorrhage by constricting blood vessels. Adrenaline with 4% Lignocaine in nasal pack also helps reduce the haemorrhage from nasal mucosa. Otherwise an adrenaline swab was applied at the site of bleeding and a pressure was applied for a few minutes or warm packs were applied which invariably stopped the bleeding besides some adjuvant. Use of collagen absorbable haemostat is also a good option.<sup>[1]</sup>

**Bleeding from angular vein:** Incision should be done 3-5 mm to the medial to the inner canthus, 2 mm above medial palpebral ligament, vertical for 4 mm and the outward and downward along anterior lacrimal crest to a spot 2 mm below inferior orbital margin. 'J' shaped incision is undermined along temporal edge but not nasal edge for risk of damaging angular vessels. If accidentally it is involved in the dissection we had to tie it with suture after holding with haemostat.

**Muscular bleeding:** It occurs due to damage of orbicularis oculi fibres during incision or separation at the time of dissection. Layer wise dissection of orbicularis is performed to prevent muscular bleeding. Bleeding is usually prevented by compressing it by haemostatic retractors. Small bleeders are managed by compressing with haemostatic retractors.

**Bony bleeding:** It is more common in osteoporotic bone and periosteal nutrient vessels. Osteotomy of bleeding bone or bone wax can be used to manage bleeding.

**Systemic and haematological disorder:** Bleeding time must be tested pre-operatively and if prolonged must be treated by haematologist prior to surgery to avoid intra-operative haemorrhage. Clotting time is equally essential as it determines clot formation and closure of bleeder by it. Any medication such as aspirin should be stopped prior to surgery after consulting the physician.

### Result

The control of per- operative haemorrhage is a prime concern for an ophthalmic surgeon performing

DCR surgery, the operative field is obscured and it becomes very difficult to recognize the lacrimal sac wall and nasal mucosa of middle turbinate. Obviously, if these two structures are misrecognized, the chances of success will cease. In addition, if patient is operated in general anaesthesia, the chances of trickling blood into naso-pharynx will increase in spite of tube in place, increases the possibility of grievous complications. As seen above, complications such as bleeding encountered in patient of chronic dacryocystitis during DCR surgery are few and usually easily manageable. Chances of success can be enhanced and risk of complications can be reduced to a greater extent by proper screening of patients and a meticulous surgery.

### References

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