

## Endoscopic DCR

**Epiphora**, or abnormal tearing, occurs because of blockage in the lacrimal drainage system, which impairs normal tear channeling into the nose. Recurrent infection may also occur as a result of the stagnation. The dacryocystorhinostomy operation, which involves fistulization of the lacrimal sac into the nasal cavity, may alleviate the symptoms. The operative approach to the sac may be external or endoscopic. The latter approach may use rigid telescopes or the microscope.

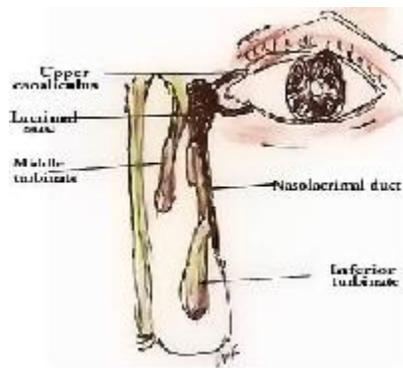
The endoscopic approach has several advantages, including the following:

- It provides a better aesthetic result with no external scar.
- It allows a one-stage procedure to also correct associated nasal pathology that may be causative.
- It avoids injury to the medial canthus and/or pathologic scar formation.
- It preserves the pumping mechanism of the orbicularis oculi muscle.
- Active infection of the lacrimal system is not a contraindication to surgery.
- It is especially superior to the external approach in revision surgery.
- It is much less bloody and messy than the external approach.
- Because of the facility of the approach, the perioperative time is shorter.
- The success rate is comparable to the external approach.

The disadvantages of endoscopic surgery include the following:

- It requires specialized training in nasal endoscopic surgery.
- The endoscopic equipment is an expense.

An image depicting the anatomy of dacryocystorhinostomy can be seen below.



Schematic coronal section through the lacrimal drainage system.

The operation is performed with the patient under local or general anesthesia. The nose is packed with a solution containing 2 mL of 1:1000 epinephrine and 2 mL of 4% Xylocaine. The packing is left in the nose for 10 minutes. A 30° endoscope, 4 mm in diameter, is used. The site of operation, in the area of the anterior attachment of the middle turbinate, is injected with 1% Xylocaine and 1:100,000 epinephrine solution.

The assistant passes a 20-gauge illuminated fiberoptic light probe (eg, Endo-illuminator, Storz) through the upper or lower canaliculus into the lacrimal sac. The light is located

endoscopically on the lateral wall of the nose, and its position is noted. The endoscope light may need to be dimmed to visualize the transilluminated light. This position corresponds to the posterior end of the lacrimal sac where it overlies the lacrimal bone.

A 1-cm diameter circle of mucosa is removed at this site of transillumination to expose the underlying bone. An Ellman Surgitron Radiosurgery Unit provides good hemostasis for this excision of mucosa. A portion of the uncinata process may also require removal to gain access. The underlying bone is removed with a drill. Some authorities advocate the use of the holmium:yttrium-aluminum-garnet (YAG) laser for this bone removal.

The thick bone of the frontal process of the maxilla is encountered anteriorly. The infundibulum or an anterior ethmoidal cell may overlie the lacrimal sac. After the position of the lacrimal sac wall is highlighted and confirmed, the light probe is removed. Reprobing with a metal probe allows tenting of the medial wall of the lacrimal sac. The lacrimal sac is opened with a 45° cutting forceps, and the opening is enlarged to approximately 1 cm, particularly in the inferior direction. No attempt is made at designing flaps.

Metal stents attached to silastic tubing at either end (eg, O'Donoghue DCR set) are passed through the upper and lower canaliculi and recovered through the nose with a Blakesley forceps. The metal stents are cut from the tubing, which is then stabilized to form a continuous loop around the canaliculi. This loop may be a knot or threading across butterfly 23-gauge tubing by two 16-gauge Insyte needles (Becton-Dickinson Autoguard). Alternatively, some authorities advocate the use of an otologic T tube as a stent.<sup>[1]</sup>

The revision dacryocystorhinostomy is ideally suited for the neophyte endoscopic surgeon. As a result of the preexisting bone deficiency from past surgery, a light probe is not necessary because the metal probe can tent and outline the lacrimal sac area. However, scarring from previous surgery may obscure the anatomy and cause some difficulty.

[Next Section: Postoperative Details](#)