



## Atlas of Nose and Paranasal Surgeries

- » Endoscopic Septoplasty—Two Handed Technique with Endoscope Holder
- » Endoscopic Septoplasty: The Open Book Method
- » Surgery for Nasal Polyposis
- » Excision of Nasal Tumor
- » Sublabial Approach for Maxillary Cyst
- » Repair of External Nose Defects
- » Endoscopic Dacryocystorhinostomy

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# Atlas of Nose and Paranasal Surgeries

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January 2019



This edition is created in India for free distribution in India.

This edition is published by Springer Nature India Private Limited.

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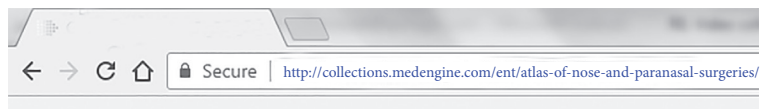
Printed and Bound by: Hi-Tech Printing Services Pvt. Ltd., Mumbai, India.

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### Step by step procedure to view the online contents and video(s):

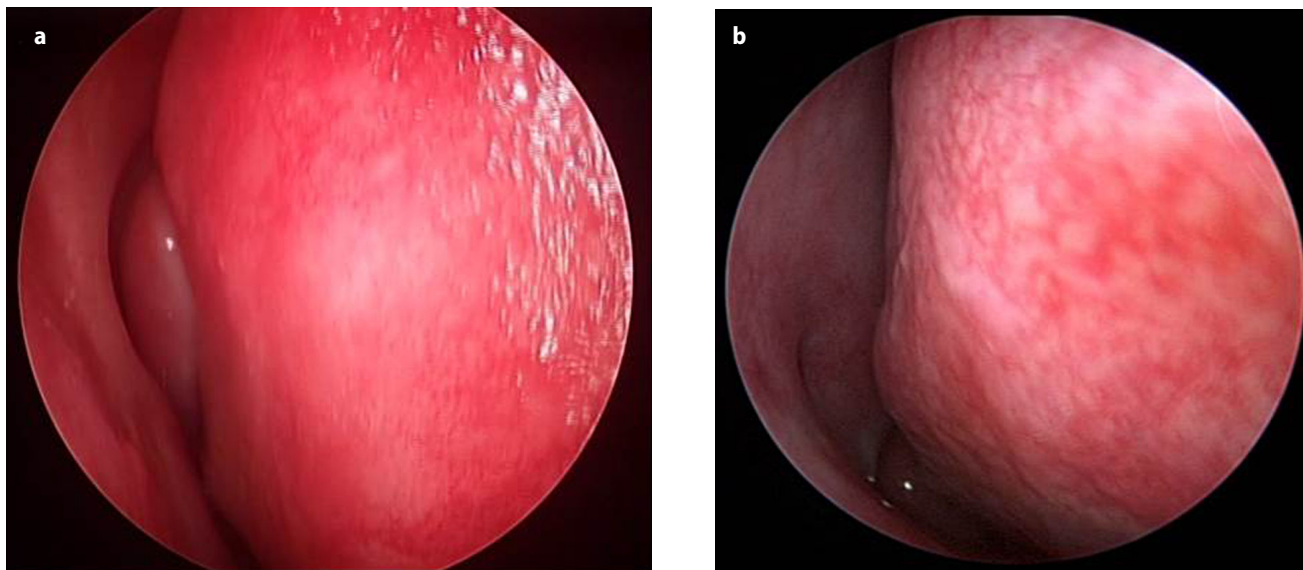
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## Endoscopic Septoplasty—Two Handed Technique with Endoscope Holder



Endoscopic septoplasty is a minimally invasive procedure allowing endoscopic guided removal of the deviated part of the nasal septum.

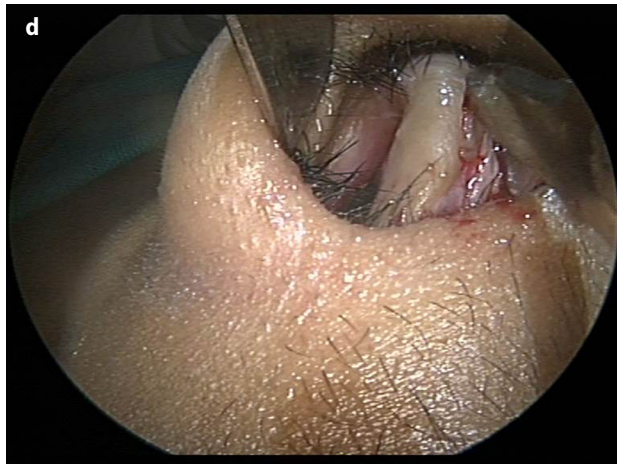
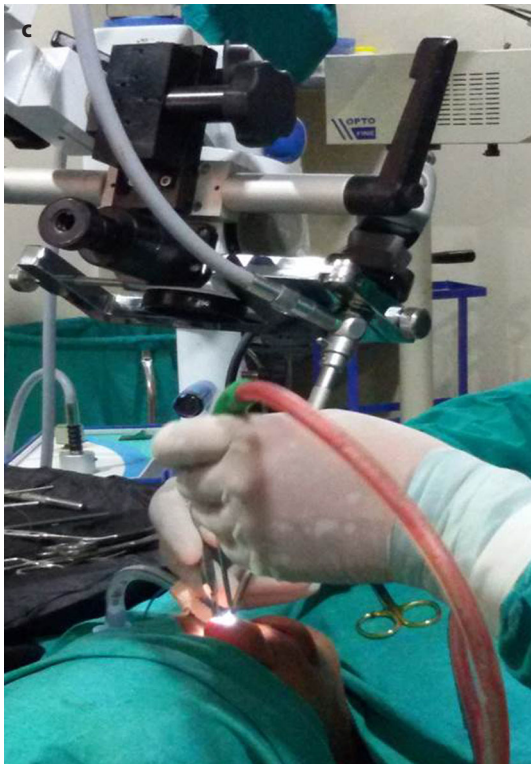
**a.** Gross C shaped DNS, **b.** Gross S shaped DNS.

Authors: M.M. Khan, S.R. Parab  
Title: Endoscopic Septoplasty—Two Handed Technique with Endoscope Holder: A Novel Approach  
Journal: *Indian J Otolaryngol Head Neck Surg.*  
DOI: 10.1007/s12070-016-0997-x  
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**c.** Endoholder in action.

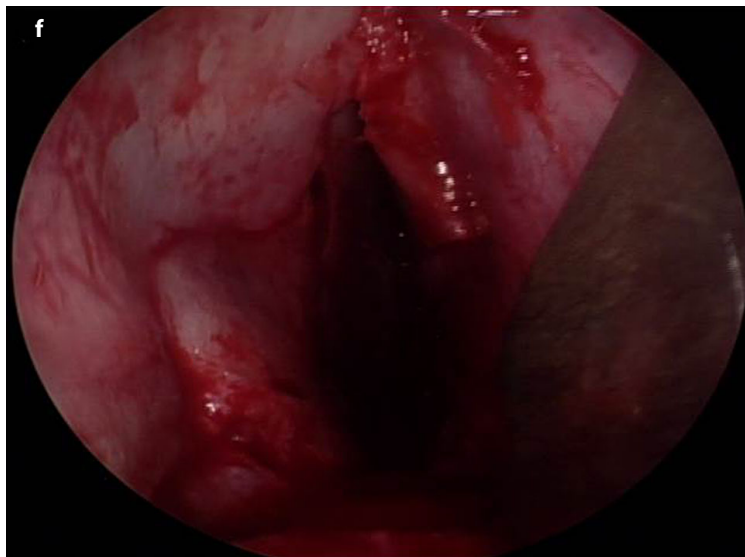
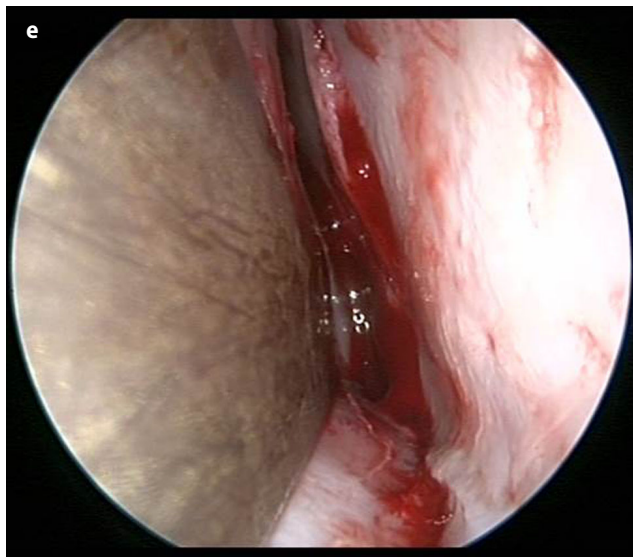
**d.** Endoscopic incision, note the use of two hands.

Authors: M.M. Khan, S.R. Parab  
Title: Endoscopic Septoplasty—Two Handed Technique with Endoscope Holder: A Novel Approach  
Journal: *Indian J Otolaryngol Head Neck Surg.*  
DOI: 10.1007/s12070-016-0997-x  
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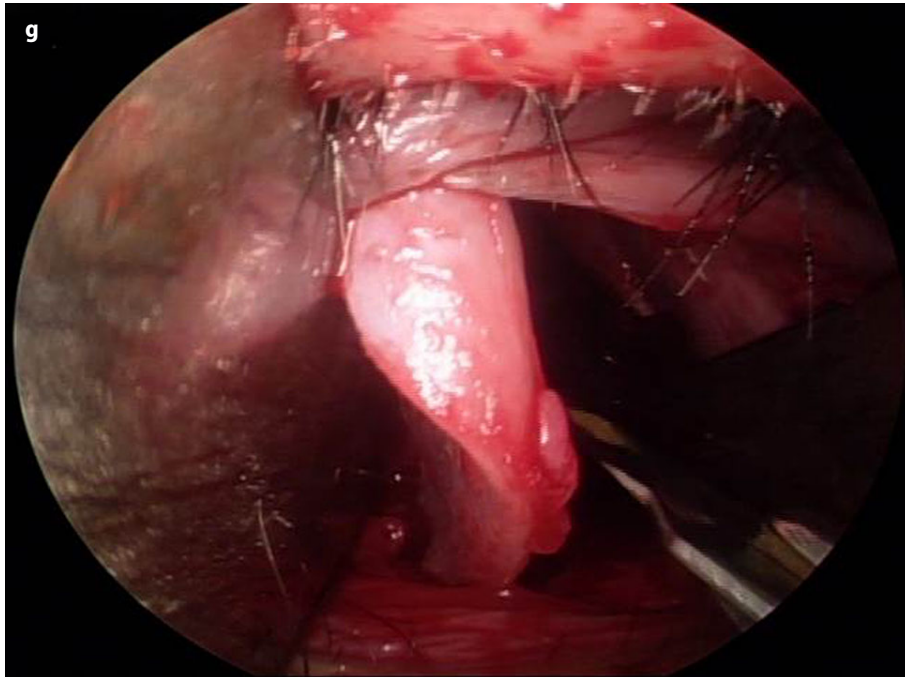
**e.** Elevation of mucoperichondrium, note the use of two hands.

**f.** Excision of septal deviation, note the use of two hands.

Authors: M.M. Khan, S.R. Parab  
Title: Endoscopic Septoplasty—Two Handed Technique with Endoscope Holder: A Novel Approach  
Journal: *Indian J Otolaryngol Head Neck Surg.*  
DOI: 10.1007/s12070-016-0997-x  
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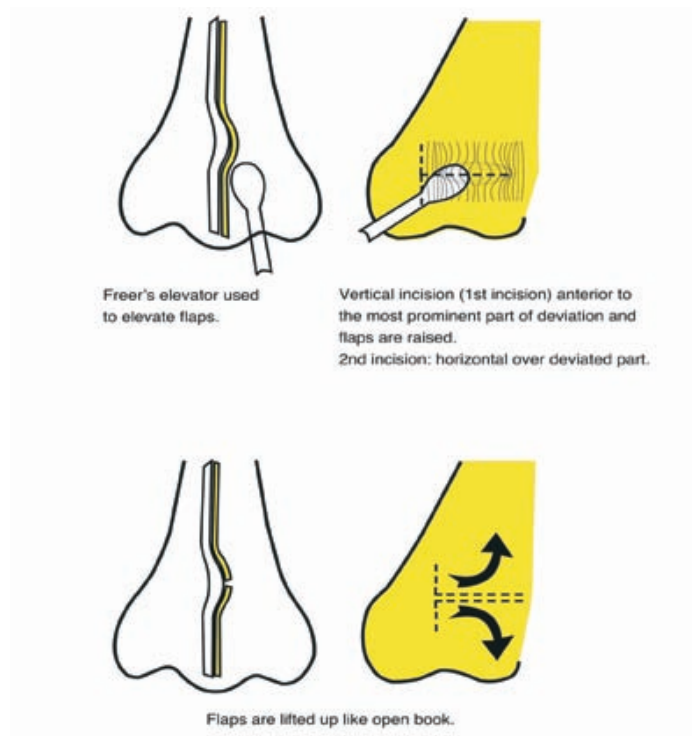
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**g.** Correction of ACD by cut and suture, note the use of two hands.

Authors: M.M. Khan, S.R. Parab  
Title: Endoscopic Septoplasty—Two Handed Technique with Endoscope Holder: A Novel Approach  
Journal: *Indian J Otolaryngol Head Neck Surg*  
DOI: 10.1007/s12070-016-0997-x  
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## Endoscopic Septoplasty: The Open Book Method

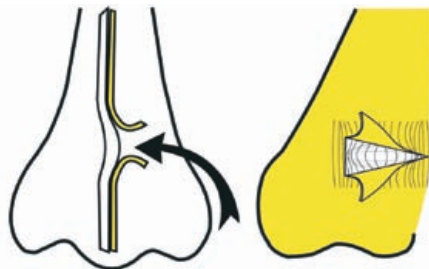


The incision is placed vertically just anterior to the point of maximal deviation on the convex side (Killian's incision). The mucoperichondrium is raised on this side under direct visualization using a 0 degree endoscope until the deviated portion is exposed. The raised flap is then divided horizontally along the horizontal axis of maximal deviation and the flaps are opened like a book (hence the open book technique) as required.

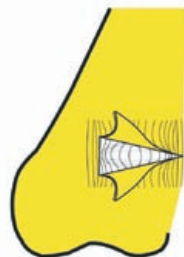
Authors: N. Prepageran, O. R. Lingham.  
Title: Endoscopic Septoplasty: The Open Book Method  
Journal: *Indian J Otolaryngol Head Neck Surg*  
DOI: 10.1007/s12070-010-0090-9  
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Deviated septum is exposed.



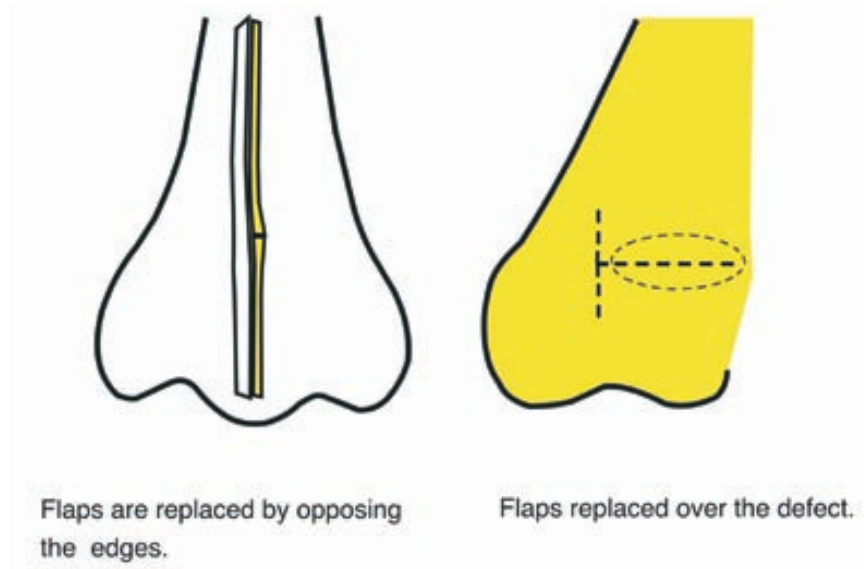
Deviated septum/ bony crest is removed.

This exposes the entire deviated segment very clearly with excellent visualization and evaluation. It also enables complete exposure of the septum from anterior-posterior (bony septum) and superior-inferior (maxillary crest).

Authors: N. Prepageran, O. R. Lingham.  
Title: Endoscopic Septoplasty: The Open Book Method  
Journal: *Indian J Otolaryngol Head Neck Surg.*  
DOI: 10.1007/s12070-010-0090-9  
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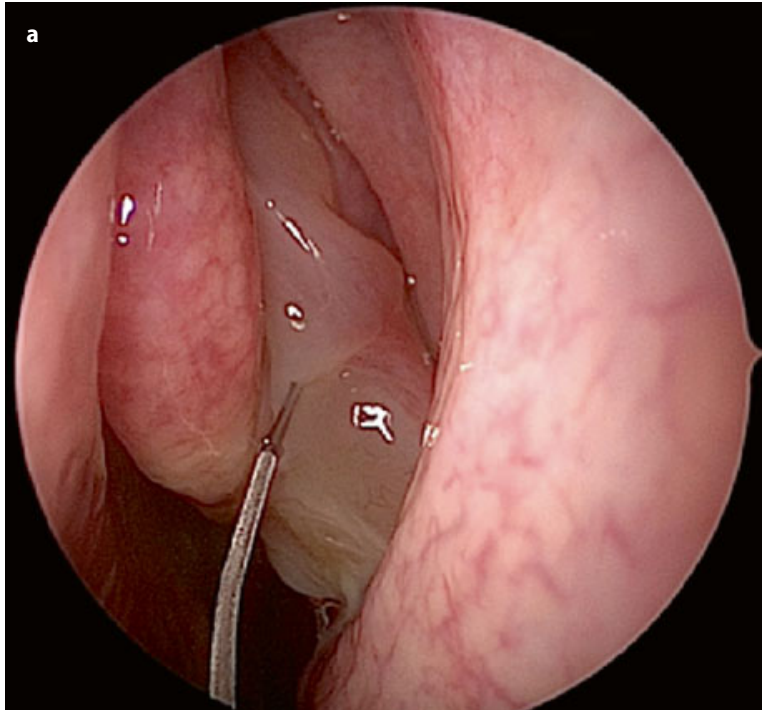
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The septal cartilage is then incised and stair stepped a few millimeters posterior to the initial mucosal incision. The contralateral mucoperichondrial flap is then raised. Flap elevation is continued bilaterally until the deviated segment is completely exposed. The open book method is only performed on one i.e., the convex side. The deviated segment is now excised with endoscopic scissors or punches. Deviated portions of bone from vomer and the perpendicular plate of ethmoid are removed if required. Maxillary crest are chiseled if required. This entire procedure is performed with endoscopic visualization and only the required septum is removed to achieve a patent airway. The flaps are then replaced back to their original position and often they are well opposed, thus suturing is not required.

# Surgery for Nasal Polyposis



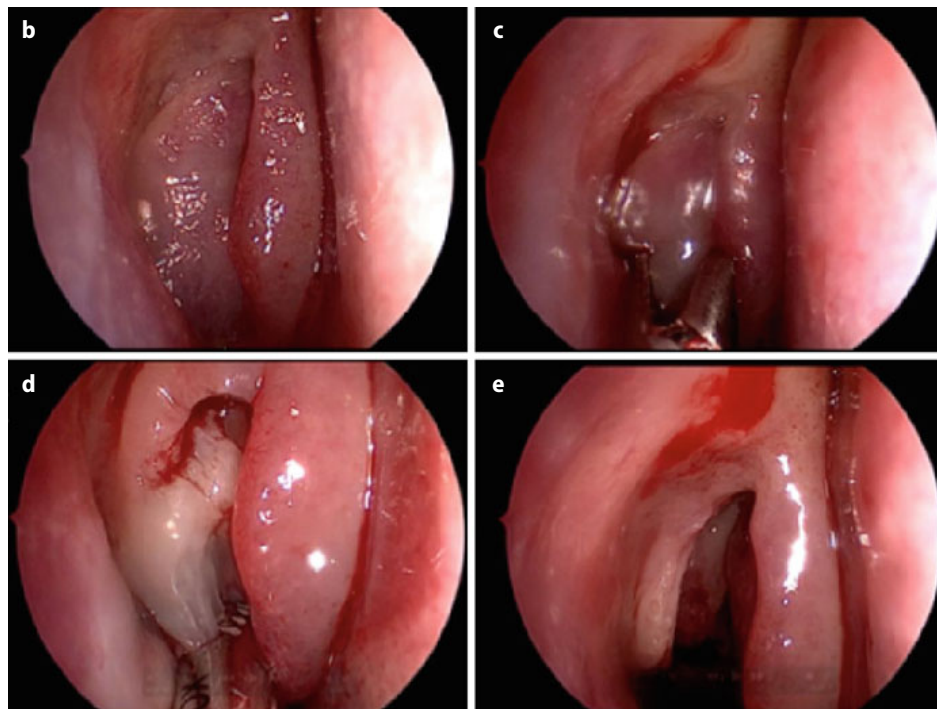
Nasal polyposis is a common disease that has a prevalence of 1–4 % of the population. Surgery for nasal polyposis is perhaps one of the most challenging yet rewarding procedures performed by the otolaryngologist. Surgical difficulty is amplified by the increased rate of bleeding encountered during surgery, the thinning of the lamina papyracea due to expansion from the polyps, the obstructed view of the frontal recess during its dissection, and the propensity for polyps to distort anatomy near vital neurological and vascular structures.

**a.** Left nasal cavity showing polyp filling the middle meatus. In this revision case, residual uncinate is seen lateral to the polyp and must be addressed.

Authors: J. Brunworth, P.J. Wormald.  
Title: Surgery for Nasal Polyposis  
Book: Practical Medical and Surgical Management of Chronic Rhinosinusitis  
DOI: 10.1007/978-3-319-16724-4\_28  
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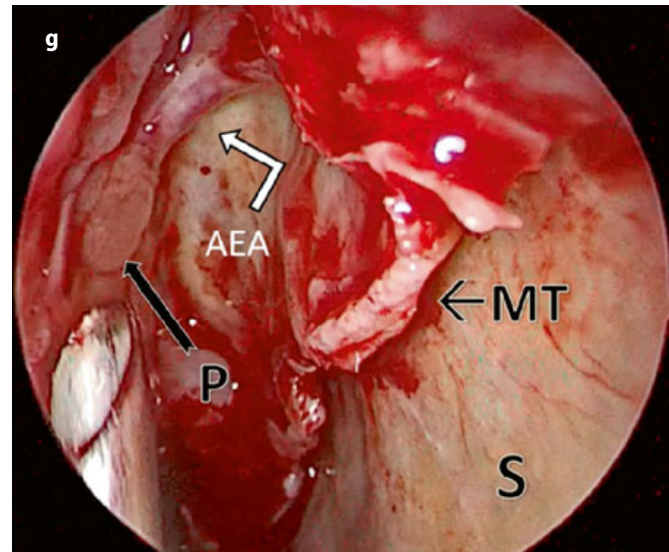
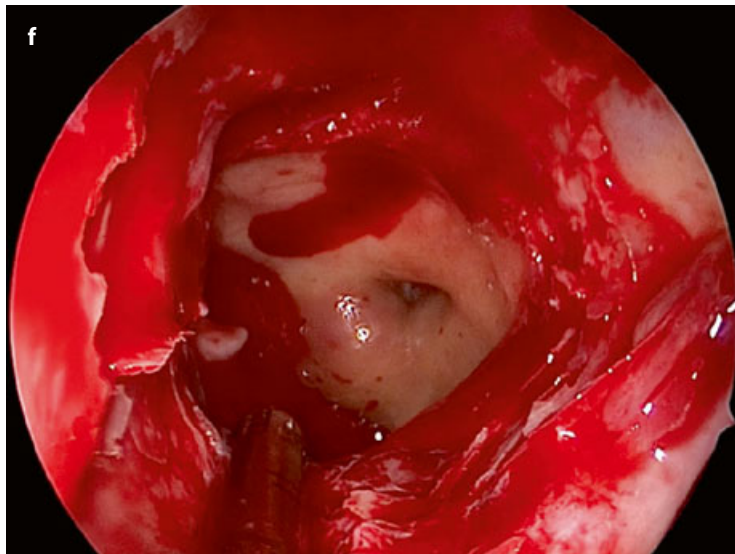
The figure shows progression of surgery for polyps. **(b)** Polyps in the middle meatus. **(c)** Representative piece taken for histology. **(d)** Microdebrider usage. **(e)** Exposed uncinata and bulla ethmoidalis. The remainder of the surgery is carried out in the same manner as non-polyp patients.

Authors: J. Brunworth, P.J. Wormald.  
Title: Surgery for Nasal Polyposis  
Book: Practical Medical and Surgical Management of Chronic Rhinosinusitis  
DOI: 10.1007/978-3-319-16724-4\_28  
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**f.** Wide left sphenoidotomy showing the optico-carotid recess posterolaterally, skull base superiorly, and orbit laterally.

**g.** Revision endoscopic sinus surgery (ESS) for polyps requiring an aggressive approach. Picture shows the suction curette approaching the polypoid tissue (P) near the anterior ethmoidal artery (AEA) that lies on a mesentery along the skull base. This case required a frontal drill-out as well as trimming of the middle turbinate (MT). The septum (S) is marked for reference.

Authors: J. Brunworth, P.J. Wormald.  
Title: Surgery for Nasal Polypsis  
Book: Practical Medical and Surgical Management of Chronic Rhinosinusitis  
DOI: 10.1007/978-3-319-16724-4\_28  
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## Excision of Nasal Tumor



**a.** Patient with nasal tumor involving part of the skin.

**b.** Perform wide excision of lesion including the skin.

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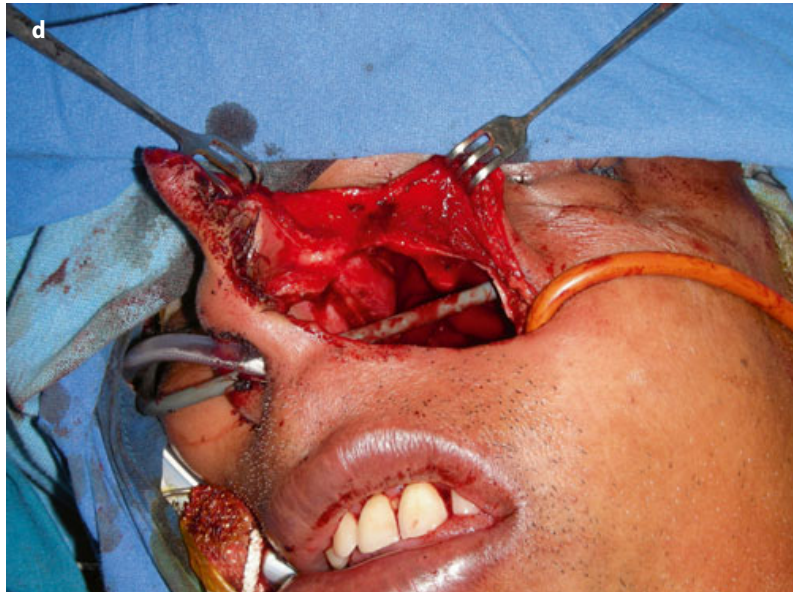
Author: N. Trivedi  
Title: Tumors of the Nose and Paranasal Sinus  
Book: Atlas of Head and Neck Cancer Surgery  
DOI:10.1007/978-81-322-2050-3\_11  
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**c.** Photograph showing specimen.



**d.** The reconstruction was planned with radial forearm free flap.



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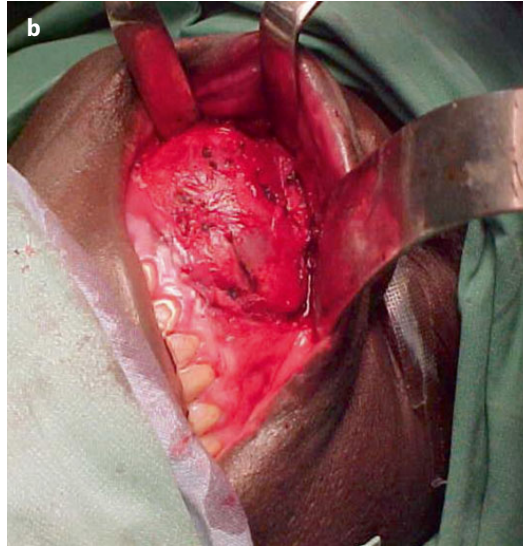
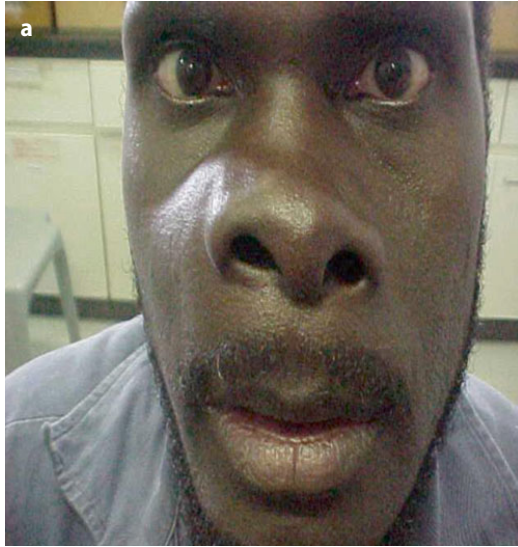


**e.** The flap is inserted to cover the skin defect.

**f.** The closure is complete. This defect could have been closed primarily with an advancement flap.

Author: N. Trivedi  
Title: Tumors of the Nose and Paranasal Sinus  
Book: Atlas of Head and Neck Cancer Surgery  
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## Sublabial Approach for Maxillary Cyst



**a.** Right nasolabial swelling due to cyst in the maxillary sinus.

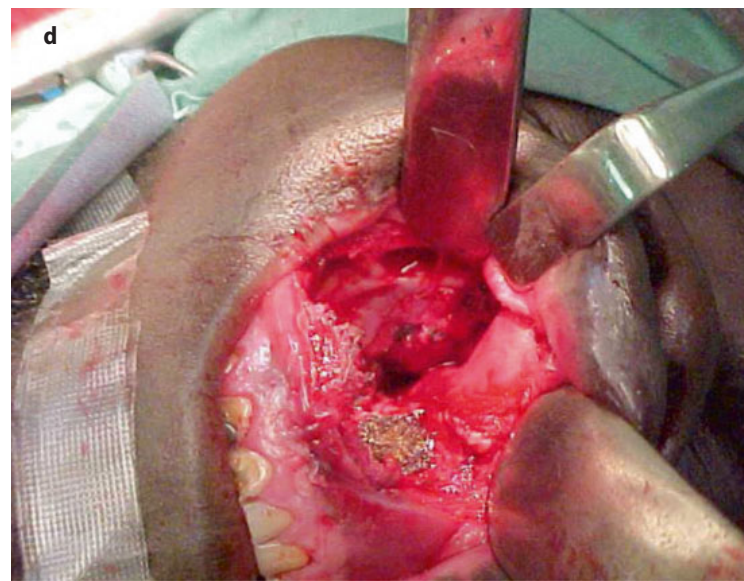
**b.** The incision begins 0.5 cm above the junction of the gingivolabial sulcus mucosa. It extends from the canine to the first molar tooth. The incision is made bone deep. The superior mucosal flap is raised preserving the neurovascular bundle in the infraorbital foramen.

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Authors: S.P. Dubey, C.P. Molumi  
Title: Nose and Paranasal Sinus  
Book: Color Atlas of Head and Neck Surgery  
DOI: 10.1007/978-3-319-15645-3\_1  
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**c.** A small gouge is placed at the canine fossa and hammered till the maxillary sinus antrum is entered taking care not to damage the root of the tooth. The opening is enlarged by nibbling the bone edges with a Kerrison rongeurs till adequate exposure is attained. In cases where the bone is thinned out by the tumor, this might not be necessary.

**d.** The tumor is removed and the cavity is packed with an acroflavin pack. An inferior meatus antrostomy is made. The end of the pack is kept in the nasal cavity and removed on the third post operative day. The sublabial incision is closed in layers.

Authors: S.P. Dubey, C.P. Molumi  
Title: Nose and Paranasal Sinus  
Book: Color Atlas of Head and Neck Surgery  
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## Repair of External Nose Defects

### Repair of Alar Defect with Full Thickness Skin Graft



**a.** Incision site is marked out for nasal basal cell carcinoma excision.

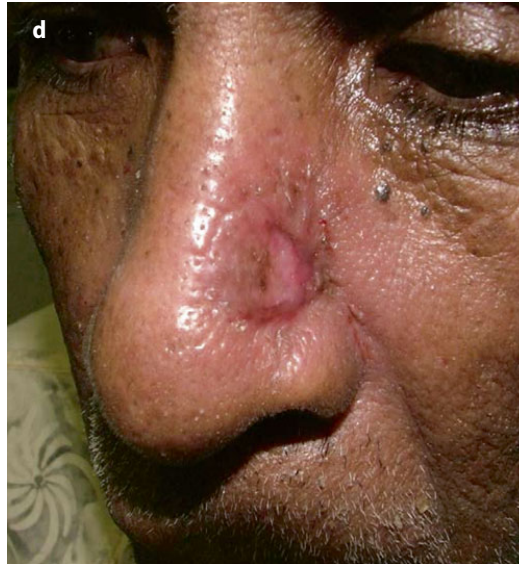
**b.** The defect after excision.

Authors: S.P. Dubey, C.P. Molumi  
Title: Repair of External Nose Defects  
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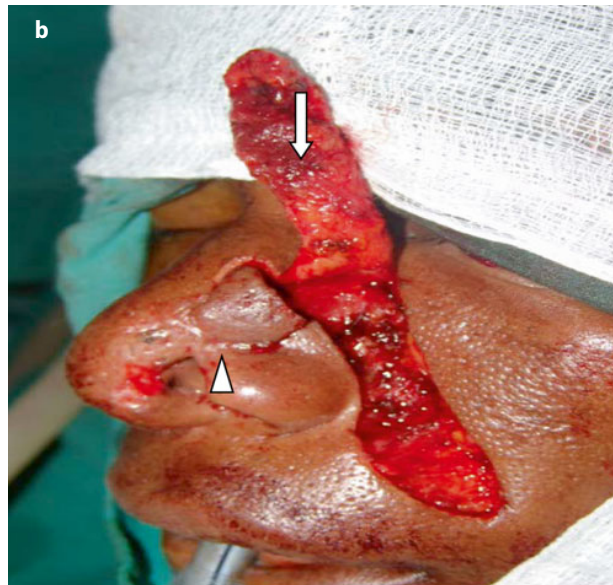
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- c.** Full thickness skin graft is harvested from the postauricular region.
- d.** Full thickness post auricular skin graft is used to close the nasal defect.
- e.** Wound heals without scarring, 10 weeks after operation.

Authors: S.P. Dubey, C.P. Molumi  
Title: Repair of External Nose Defects  
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## Superior-Based Nasolabial Flap for Reconstruction of Alar Defect



**a.** The flap is marked out for reconstruct of alar defect using a superior based nasolabial flap.

**b.** A nasal dorsum turnover flap (*arrow head*) and a superior based nasolabial flap (*arrow*) are raised.

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**c.** The nasal dorsum turnover flap is reflected down.

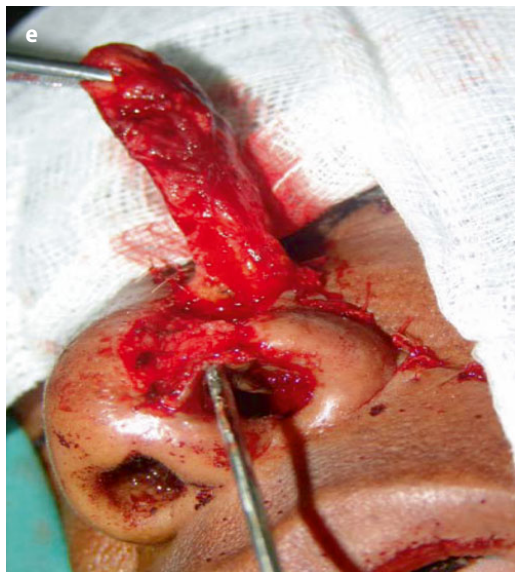
**d.** The nasal dorsum turnover flap is stabilized by suturing its lateral and basal sides with the respective parts of the vestibular skin.

Authors: S.P. Dubey, C.P. Molumi  
Title: Repair of External Nose Defects  
Book: Color Atlas of Head and Neck Surgery  
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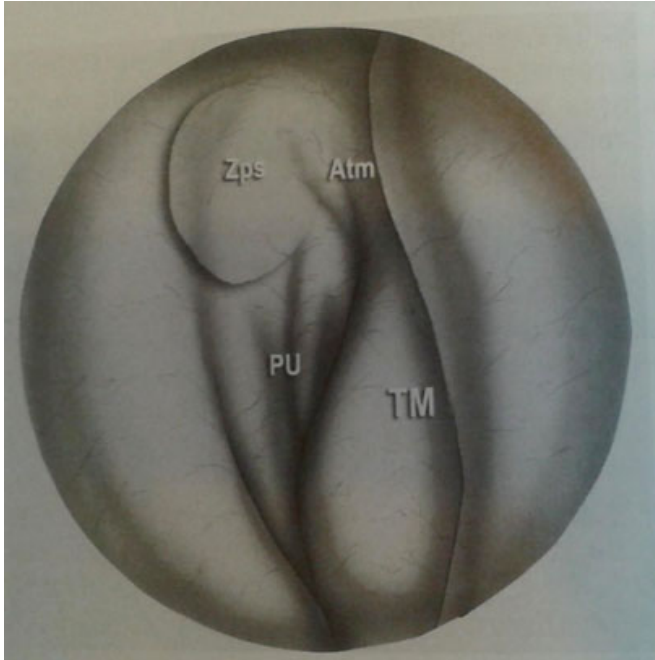
**e.** The donor area of the nasolabial flap is sutured; the nasal dorsum turnover flap forms the roof of the vestibule

**f.** The nasolabial flap is sutured with the nasal dorsum and with the turnover flap

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# Endoscopic Dacryocystorhinostomy



The lacrimal sac fossa is situated anterior and lateral to the middle turbinate; the ostium achieved in an external dacryocystorhinostomy (DCR) is at the anterior tip of the middle turbinate while in endoscopic approach it is in a more inferior site

Dacryocystorhinostomy is the procedure of choice for nasolacrimal duct obstruction and chronic dacryostenosis in the setting of patent canaliculi and a functional lacrimal pump. Two major approaches are utilized: external, via a transcutaneous incision, and endonasal endoscopically-guided.

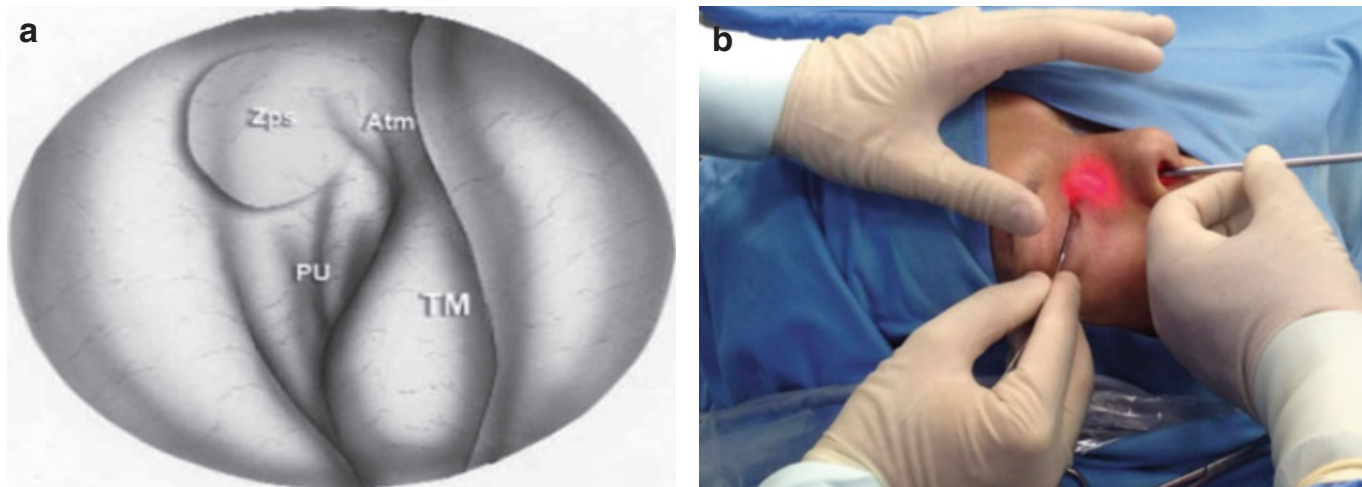
While endonasal DCR has been performed by both ophthalmic surgeons and otorhinolaryngologists (ENT) in the past, the advancement of nasal endoscope and functional endoscopic sinus surgery (FESS) has led to more ENT surgeons performing endoscopic DCR.

The surgical procedure is developed under general anesthesia, with controlled hypotension to reduce intraoperative bleeding. Before surgery a local anesthesia with Xylocaine combined with 5 % naphazoline (if possible) is performed, to have a good mucosal decongestion and for a better identification of surgical landmarks.

Endonasal view: *Zps* endonasal projection of the lacrimal sac, *PU* uncinate process, *TM* middle turbinate, *Atm* middle turbinate axilla

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Projection zone of the lacrimal sac. **a.** Draw; **b.** before surgery. *TM* middle turbinate, *PU* uncinate process, *Atm* middle turbinate axilla, *Zps* projection sac area zone. Before making the mucoperiosteal flaps to discover the lacrimal bone, a submucosal infiltration with adrenaline solution is made, in order to reduce bleeding.

Authors: M. Trebbi, F. Mattioli, D. Soloperto, M. Bettini, L. Presutti  
Title: Endoscopic Dacryocystorhinostomy  
Book: Endoscopic Surgery of the Lacrimal Drainage System  
DOI: 10.1007/978-3-319-20633-2\_6  
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**c.** Infiltration of the projection zone of the lacrimal area.

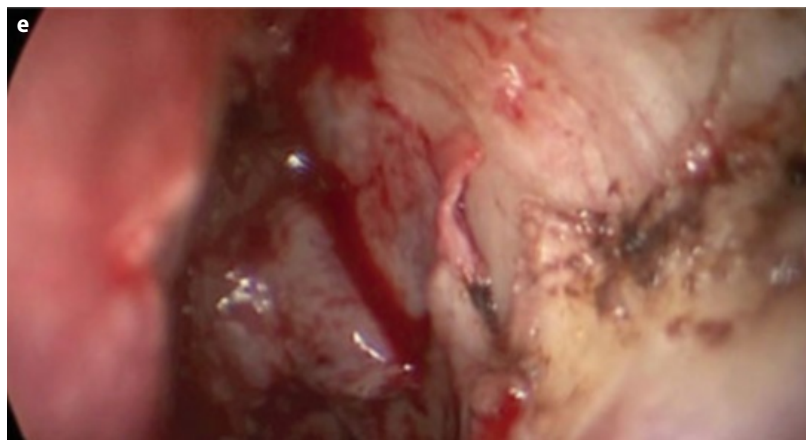
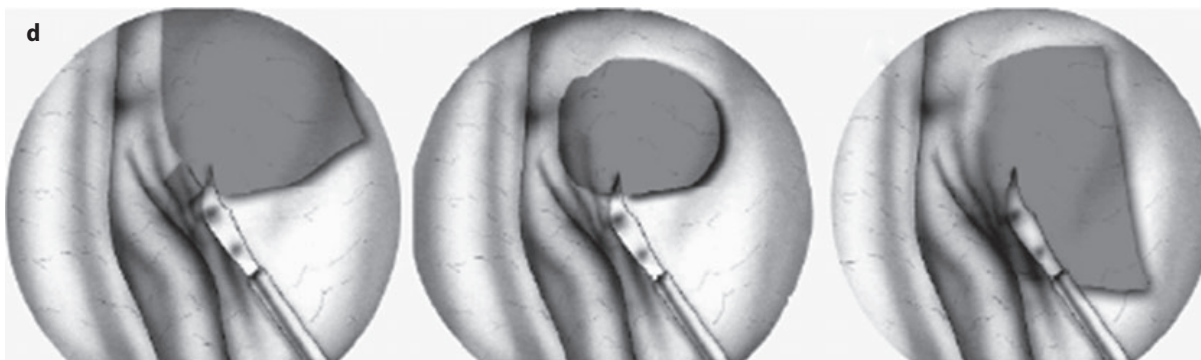
The site of infiltration is localized to the nasal lateral wall, near the lacrimal area, anterior to the uncinate process.

Authors: M. Trebbi, F. Mattioli, D. Soloperto, M. Bettini, L. Presutti  
Title: Endoscopic Dacryocystorhinostomy  
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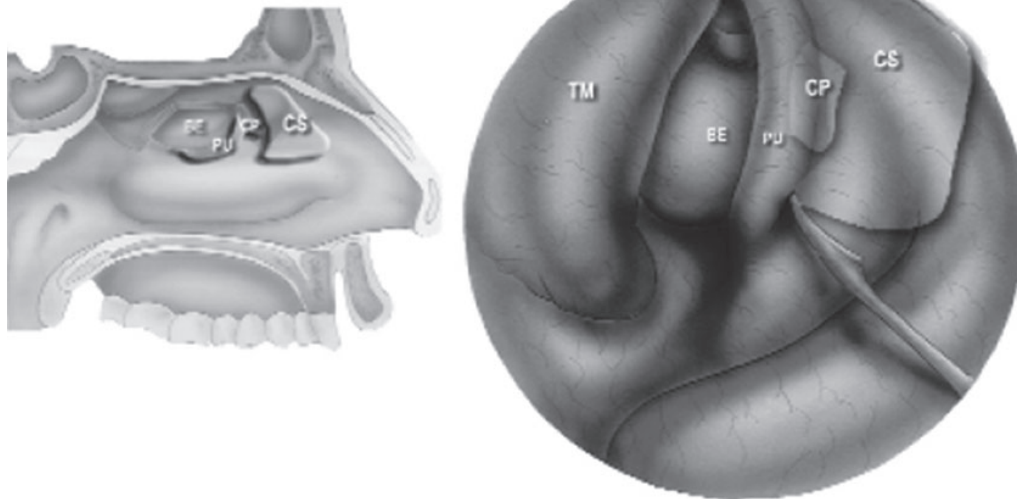


**d.** Mucosal incision.

**e.** Intraoperative view: the mucosal incision. To identify the lacrimal sac region, the most important structure is represented by the uncinata process, because just anterior to it there's the projection of the lacrimal sac.

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**f**

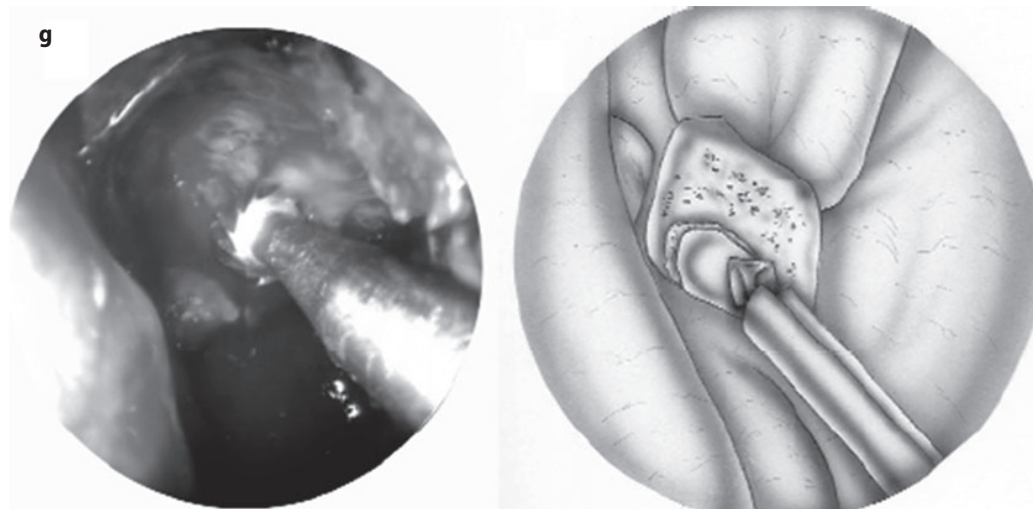


**f. Double mucosal flap technique.**

Many techniques are described to make mucoperiosteal flaps. Usually two flaps are performed, one little posterior and one bigger superior. Until flaps are superiorly and posteriorly moved, the bony wall that recovers lacrimal sac is exposed. Mucosal incision could be produced with many instruments, such as cold knife, radiofrequency knife, and laser technique.

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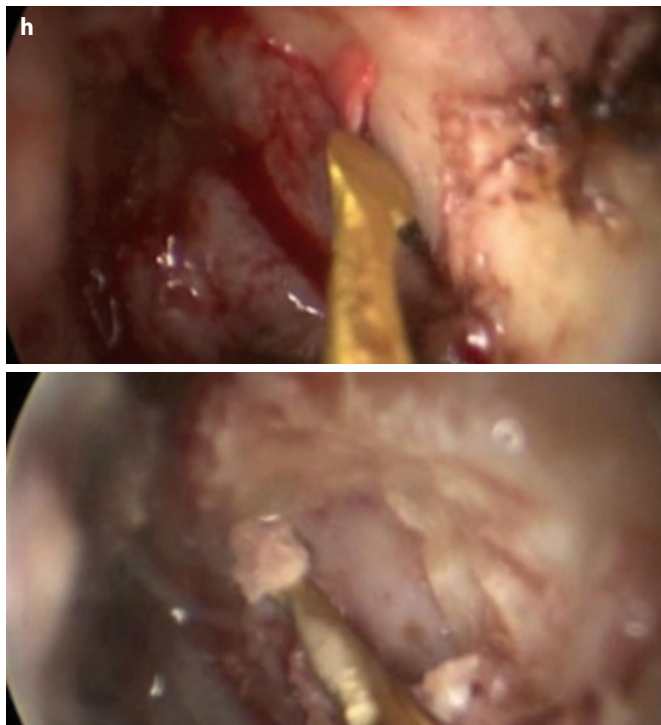
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**g. Lacrimal bone drilling.**

The bony wall removal is represented by the ascending maxillary branch and lacrimal bone. In case of rich pneumatization of agger nasi, the bone removal could interest some anterior ethmoidal cells also. This step can be conducted with drill, laser, or other instruments common to sinus surgery instruments.

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**h.** Lacrimal bone drilling with piezosurgery.

An interesting type of instrument is represented by piezosurgery, that can be often used in this step. The peculiarity of this technology is that a better respect of soft tissue and no hot damage is produced, on the contrary of drill. This technology consents to make an exeresis of only bone tissue, with maximum respect of nerves, vessels, muscles, and in general, soft tissue. The use of this instrument causes, on the contrary, a delay of surgical time.

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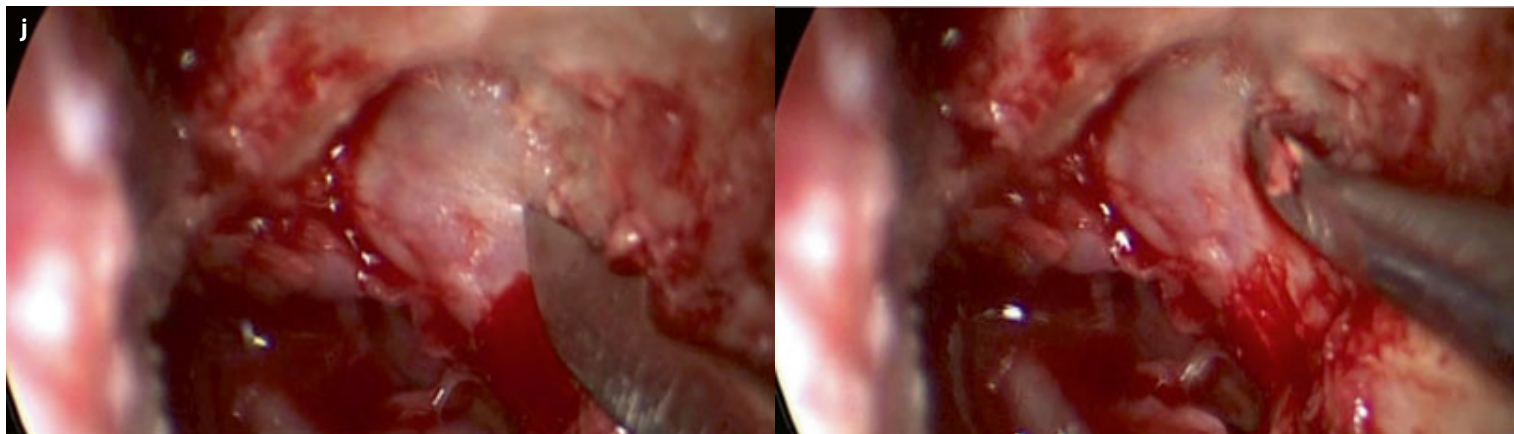
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**i. Lacrimal sac incision.**

Alternatively a sickle knife through the lacrimal canaliculi can be introduced, until sac is localized. External palpation of the lacrimal area is also a simple but effective method. Different surgical strategies to open the lacrimal sac are reported. Authors usually realize a mucosal posterior flap. The incision is made with a sickle knife.

...(continued)



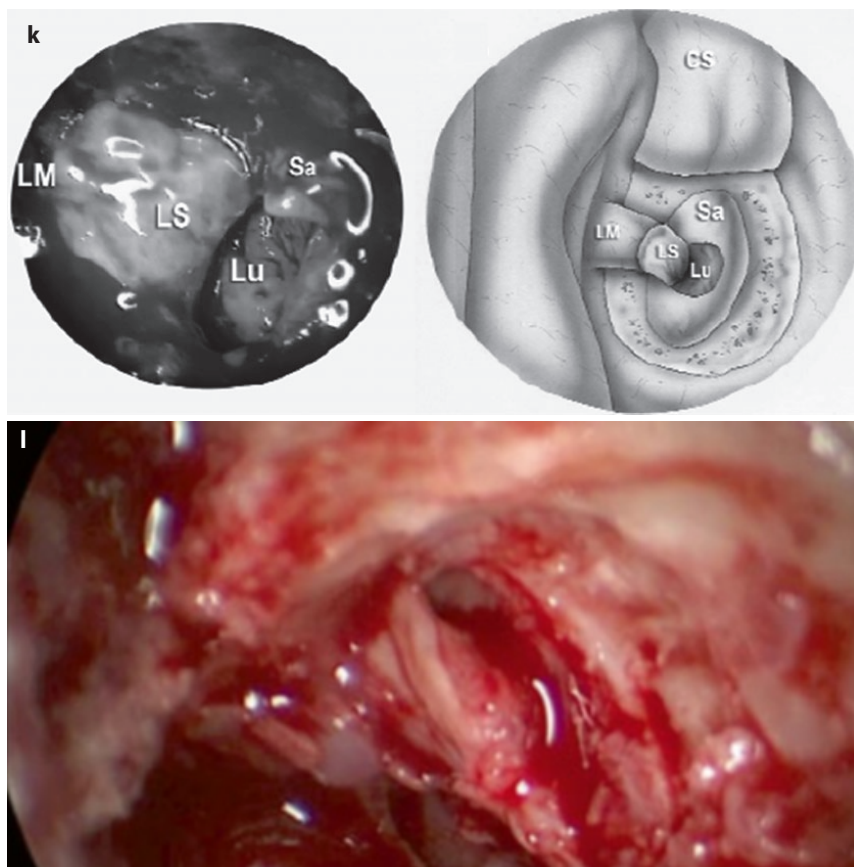
**j.** Intraoperative view. Lacrimal sac opening.

Authors: M. Trebbi, F. Mattioli, D. Soloperto, M. Bettini, L. Presutti  
Title: Endoscopic Dacryocystorhinostomy  
Book: Endoscopic Surgery of the Lacrimal Drainage System  
DOI: 10.1007/978-3-319-20633-2\_6  
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(continued)...



...(continued)



**k. Stomal stabilization.**

In case of chronic dacryocystitis, with recidivant infections, a purulent secretion can be visualized in this step. An aspiration with toilette and repeated lavages of this area is done. This posterior mucosal flap is just apposed to the posterior mucoperiosteal flap, precedently realized, in order to maintain open the surgical stoma.

**l. Intraoperative view. Stomal realization.**



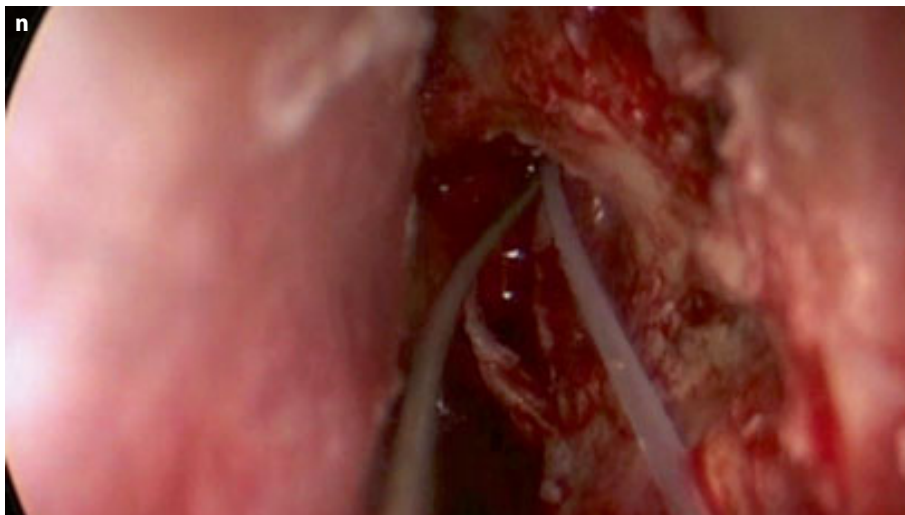
...(continued)



The superior mucoperiosteal flap is then repositioned under the drilled area. The use of stents is not routinely performed, but can be used in revision surgery or in fibrotic lacrimal sac.

**m.** BIKA stent positioning. The surgeon makes lacrimal canaliculi (inferior and superior) dilatation and puts the stent from the external to the internal part (endonasal) of the canaliculus, tying the two ends of the stent under endoscopic vision.

...(continued)



Postoperative follow-up is usually performed with endoscopic exam after 15 days and then after 2 months. In case of stent positioning, this is maintained into the nasal fossa for 2–4 months.

**n.** Bika positioning: endonasal view. Note the sac completely open, with two parts of the stent correctly positioned.

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Date of printing: Jan 2019

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