Nasal Endoscopic Evaluation

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Introduction

Dacryocystorhinostomy via an endoscopic approach is now widely favored and considered to result in comparable outcomes to similar surgery via an external approach. Such surgery is usually done jointly between Ophthalmologists and otolaryngologists. If endoscopic surgery is to be considered, patients should have a complete preoperative assessment to facilitate surgical planning. Clearly, patients with lacrimal obstruction require a comprehensive ophthalmologic assessment to confirm the diagnosis. However, in addition nasal examination should be considered obligatory in such patients, for evaluation of any concurrent intranasal pathology or anatomical variations, and therefore Ophthalmologists practicing lacrimal surgery should familiarize themselves with the use of the nasal endoscopes. Examination with a nasal speculum and headlight provides only a limited view of the anterior nasal passages, and therefore rigid nasal endoscopy should be performed as part of the standard preoperative assessment.

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Nasal Endoscopes

The advent of nasal endoscopes (Hopkins telescopes) has revolutionized clinical examination of the nose in providing a magnified, high-quality view of the nose and sinus passages. A variety of nasal endoscopes are available in different sizes and angulations. Standard nasal endoscopes are available in 2.7- and 4-mm caliber thickness (Fig. 8.1). Each size is also available with different viewing angles, including 0°, 30°, 45°, and 70°, to facilitate a complete view of the lateral nasal wall. The 2.7-mm endoscope is typically used for diagnostic nasal endoscopy in the outpatient clinic and also in children. For diagnostic

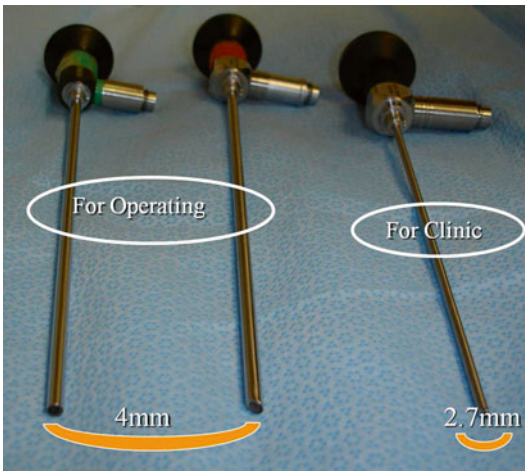

Fig. 8.1 Nasal endoscopes; from left to right 0° 4-mm, 30° 4-mm, and 30° 2.7-mm endoscopes

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nasal endoscopy, we prefer to use the 2.7-mm, 30° nasal endoscope, which provides adequate angulations to include a view the lateral nasal wall. Intraoperatively however, the wider 4-mm nasal endoscopes are preferred as they offer better illumination and view through the wider caliber telescope. Both the 4-mm, 0° and 30° endoscopes should be made available for optimum visualization of the surgical field. In addition to the selected endoscope, a high-quality light source and light cable are required as well as suction equipment to clear any secretions and provide the optimum view.

Technique

Prior to nasal endoscopy, the nose is inspected for any visible abnormalities, such as structural deviations, using a head light (Fig. 8.2). For nasal endoscopy, the patient's nose should be prepared by applying a topical local anesthetic with a decongestant to anesthetize the nasal cavity before the procedure. Our preference is to use two sprays of co-phenylcaine spray (5 % lignocaine with 0.5 % phenylephrine) into each nasal cavity (Fig. 8.3), which should be left for at least 5 min before attempting any instrumentation, to allow sufficient time for the anesthetic and vasoconstrictive effect. The patient can be examined in either a sitting position, facing the examiner or if preferred lying down, then the examiner would be on his/her right side. Diagnostic nasal endoscopy can then be performed with a 2.7-mm, 30° nasal endoscope, using a three pass technique. The endoscope should be held with the right hand and supported between the thumb and index finger of the left hand to avoid any sudden movements (Fig. 8.4). With each pass, the condition of the nasal mucosa and normal anatomical structures are examined, as well as carefully noting of any anatomical variations or intranasal pathology.

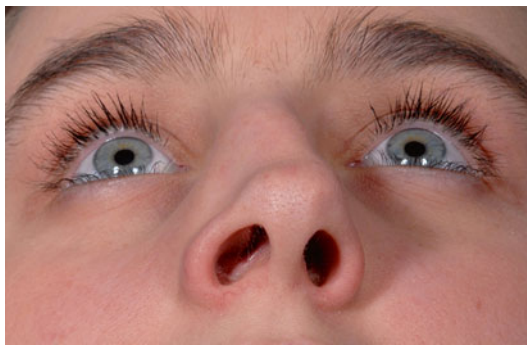

Fig. 8.2 Severe right side deviation of the nasal septum with deviation of the external nasal structure to the left side

During the first pass, the endoscope is introduced along the floor of the nasal cavity, between the inferior turbinate and the septum, toward the choana. This first pass allows examination of the inferior part of the nasal cavity including the inferior meatus where the nasolacrimal duct drains, and the nasal septum, as well as the nasopharynx and Eustachian tube openings. The endoscope is then withdrawn and gently reinserted for the second pass between the middle and inferior turbinate to examine the middle meatus. It is during the second pass that the lateral nasal wall is inspected including the maxillary line and attachment of the middle turbinate (Fig. 8.5). For the third pass, the endoscope should be gently maneuvered medial and poste-

Fig. 8.3 Co-phenylcaine (5 % lignocaine with 0.5 % phenylephrine)

Fig. 8.4 Nasal endoscopy in the sitting position. Note the support of the endoscope between the index finger and thumb

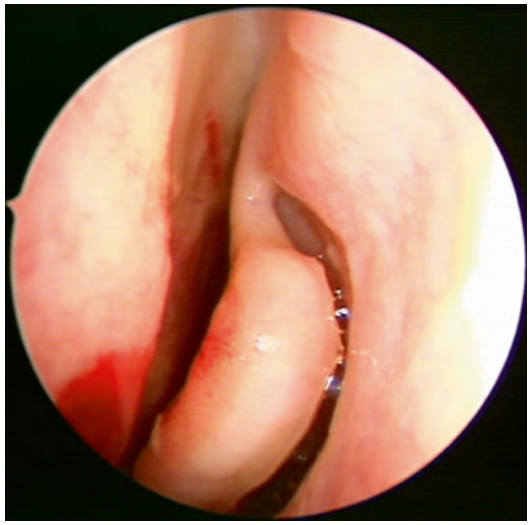

Fig. 8.5 An endoscopic view of the left middle meatus during second pass

rior to the middle turbinate to examine the sphenoethmoid recess where the posterior ethmoid and sphenoid sinus drain.

Clinical Findings

A wide spectrum of anatomical variations and pathologies may be noted while examining the nasal cavity with endoscopy. Careful assessment is essential to help plan any endoscopic lacrimal surgery, and in particular, anatomical variations that may impede access during such surgery need

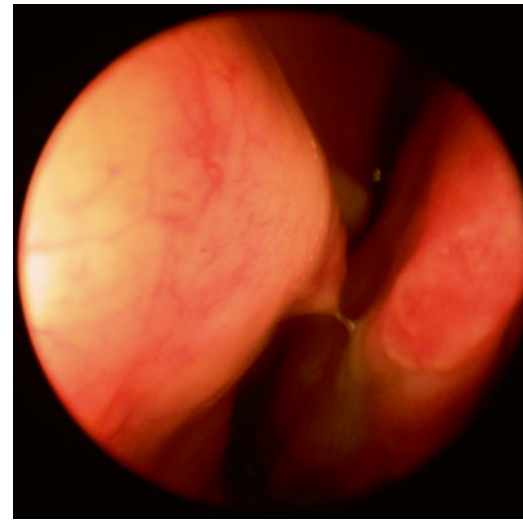

Fig. 8.6 Endoscopic view of the left nasal cavity showing a significant deviation of the nasal septum to the left resulting in a limited view of the middle turbinate

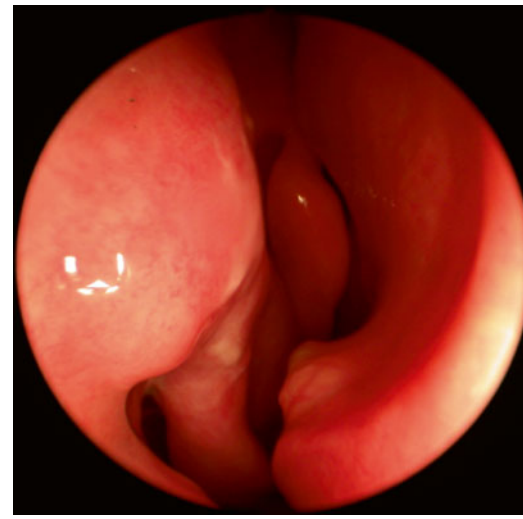

Fig. 8.7 Endoscopic view of the right nasal cavity showing a right inferior septal spur

specific consideration. Significant anterosuperior septal deviations (Fig. 8.6) or septal spurs (Fig. 8.7) may limit access of the endoscope or additional instruments for surgery, and in such cases, endoscopic septoplasty may need to be performed in order to create adequate space for safe instrumentation. Indeed, Tsirbas and Wormald quoted a 46 % rate of concomitant septoplasty, in their original landmark paper in lacrimal surgery

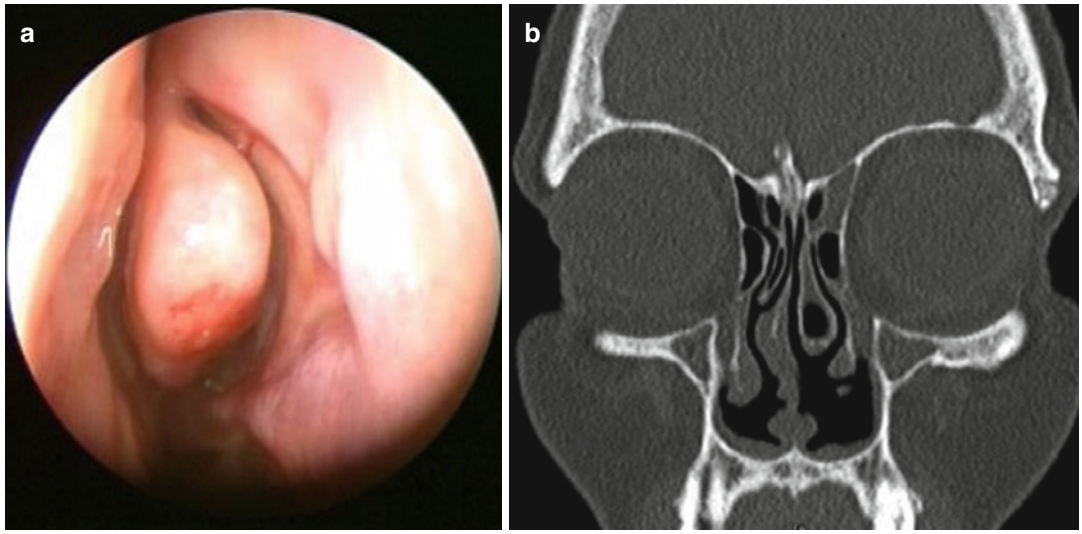

Fig. 8.8 (**a**) Endoscopic view of the left nasal cavity showing a concha bullosa of the left middle turbinate. (**b**) Corresponding CT scan of the sinuses in the coronal plane illustrating the left concha bullosa

describing endonasal dacryocystorhinostomy [1], thereby highlighting the need to carefully assess septal alignment during the preoperative nasal examination. In our experience, endoscopic septoplasty for such localized deviations is required in about 30 % of patients. For more severe septal deviations where the airway is significantly obstructed, a formal septoplasty may be required (Fig. 8.7). Another important anatomical variant is large concha bullosa of the middle turbinate (pneumatized middle turbinate) (Fig. 8.8a, b), which may also impede surgical access and therefore require adjuvant endoscopic reduction.

Alternatively, clinical examination may reveal intranasal pathologies that may require preoperative treatment. For example, significant rhinitis (Fig. 8.9) may result in marked inflammation in the nasal mucosa causing edema around the orifice of the nasolacrimal duct, resulting in epiphora. Any signs of rhinitis should be treated medically in the first instance, which may in itself reduce the symptoms of epiphora, and avoid the need for surgery [2, 3]. Other sinonasal pathologies, including chronic sinus infection [4], chronic sinusitis [5] (Fig. 8.10), or granulomatous disease [6, 7] (Fig. 8.11), should also be evaluated for and treated medically in the first instance. In one study, Kallman et al. identified an 87 % prevalence of one or more radiological

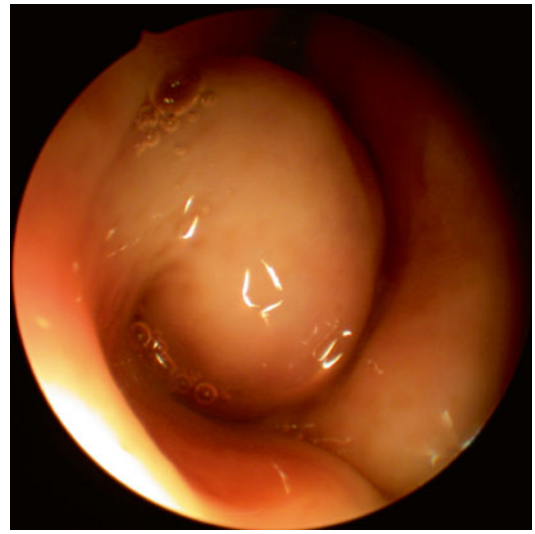

Fig. 8.9 Endoscopic view of the right nasal cavity showing an enlarged, hypertrophic inferior turbinate with marked rhinitis

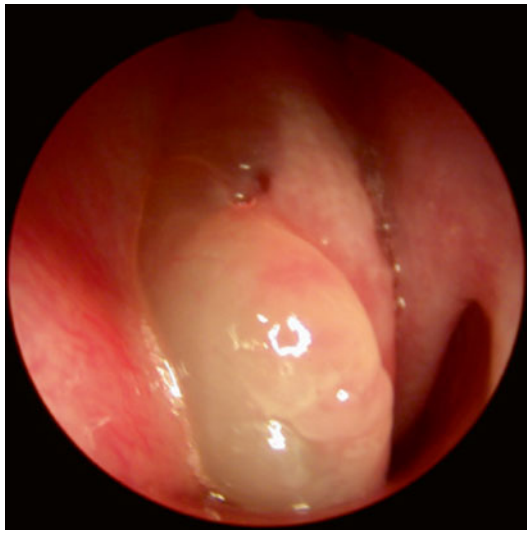

Fig. 8.10 Endoscopic view of the left nasal cavity showing obstructive nasal polyps

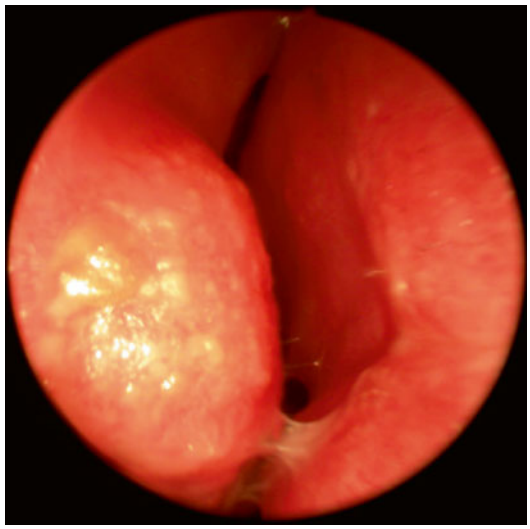

Fig. 8.11 An endoscopic view of the left nasal cavity in a patient with sarcoidosis. Note the inflammation, crusting, and severe edema

finding of sinus disease or rhinological abnormality in patients with acquired nasolacrimal duct obstruction [8], thereby highlighting the importance of nasal endoscopic evaluation for concomitant nasal and sinus disease in this group of patients.

Conclusion

Mastering nasal endoscopy is essential for any surgeon performing lacrimal surgery. Following the structure mentioned above, the surgeon will gradually attain experience and skill to recognize most encountered pathologies.

References

1. Tsirbas A, Wormald PJ. Mechanical endonasal dacryocystorhinostomy with mucosal flaps. Br J Ophthalmol. 2003;87(1):43–7.
2. Kubba H, Robson AK, Bearn MA. Epiphora: the role of rhinitis. Am J Rhinol. 1998;12(4):273–4.
3. McNeill EJ, Kubba H, Bearn MA, et al. The management of rhinitis in patients with functional epiphora: a randomized controlled crossover trial. Am J Rhinol. 2005;19(6):588–90.
4. Ergin NT, Akman A, Aktas A, et al. Evaluation of nasolacrimal duct function in chronic paranasal sinus infection with Tc^{99} dacroscintigraphy. Laryngorhinootologie. 1999;78(7):382–6.
5. Annamalai S, Kumar NA, Madkour MB, et al. An association between acquired epiphora and the signs and symptoms of chronic rhinosinusitis: a prospective case-controlled study. Am J Rhinol. 2003;17(2):111–4.
6. Kwan AS, Rose GE. Lacrimal drainage surgery in Wegener's granulomatosis. Br J Ophthalmol. 2000; 84(3):329–31.
7. Cannady SB, Batra PS, Koening C, et al. Sinonasal Wegener granulomatosis: a single institution experience with 120 cases. Laryngoscope. 2009;119(4):757–61.
8. Kallman JE, Foster JA, Wulc AE, et al. Computed tomography in lacrimal flow obstruction. Ophthalmology. 1997;104(4):676–82.