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Laser Dacryocystorhinostomy: Part 3. Laser-Assisted Endonasal Endoscopic Dacryocystorhinostomy with the Potassium Titanyl Phosphate Laser

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Preoperative Assessment

Patients are seen by both a consultant ophthalmologist and otolaryngologist in a joint epiphora clinic and undergo a full assessment including palpation of the lacrimal sac, probing and irrigation of the canaliculi and lacrimal sac, dye disappearance test, and nasal endoscopy. In cases where the site of obstruction is not obvious, a macrodacryocystogram is performed to confirm nasolacrimal duct obstruction. If there is a suspicion of lacrimal sac neoplasm or evidence of a severe posttraumatic bony deformity of the lacrimal sac, then an external surgical approach is selected.

Endonasal Potassium Titanyl Phosphate Laser Dacryocystorhinostomy Technique

The endonasal laser dacryocystorhinostomies are performed by both a consultant ophthalmologist and otorhinolaryngologist. Patients are placed under either a general anesthetic or under local anesthetic with intravenous sedation. In all cases, cophenylcaine nasal spray is applied to the nasal mucosa as a decongestant and local anesthetic. For cases under local anesthesia, topical anesthetic drops are instilled into the eye, and lidocaine 2% with epinephrine is infiltrated subcutaneously in the medial canthus. The canaliculi are dilated with a probe and then a vitreoretinal light probe is passed through the upper or lower canaliculus into the lacrimal sac, thereby transilluminating the lateral nasal wall. The position of the light is viewed endonasally and the illuminated area of the middle meatus is infiltrated using lidocaine 2% with epinephrine (1 : 100,000) submucosally, followed by packing of the area

with pads soaked in epinephrine (1:100,000). An Orion™ Laser System KTP/532 (Laserscope Ltd., Cwmbran, South Wales, UK) with 0.4-mm fiber is used.

Under the guidance of a 4-mm, 0° rigid nasal endoscope, the laser probe is directed at the area of transillumination along the lateral nasal wall. The nasal mucosa, bone, and lacrimal sac mucosa are ablated with a laser power setting of 5–10 W on super pulse mode. "Cold steel" techniques rather than laser ablation, particularly around the lacrimal sac, may avoid excessive scarring and improve rhinostomy patency rates. A rhinostomy of 0.5–1.0 cm in diameter is formed. Stenting is performed by inserting the ends of a silicone tube through the superior and inferior canaliculi. The ends are then retrieved from the nose with fine nasal forceps and tied.

Postoperatively, patients are instructed to use saline nasal spray. The stent is removed after 3 months. Patients are assessed at this time and then after a further 6 months with irrigation of the canaliculi and/or the fluorescein test.

Minor complications include epistaxis requiring packing, conjunctivitis, stent infection, surgical emphysema, and sinusitis.

Acknowledgment. The authors appreciate the work of Vickie Hase, who assisted in preparation of this chapter.