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The Griffiths Nasolacrimal Catheter

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Since the initial description of dacryocystorhinostomy (DCR) in 1904,[1] the modern day DCR has been modified many times. A common cause of failure of the DCR is closure of the nasal ostium as a result of cicatricial soft tissue obstruction. Attempts at keeping this nasal ostium patent have resulted in many modifications and they have included the use of various forms of packing, suturing of flaps, nonsuturing of flaps, and a variety of alloplastic stents and other devices. The device that will be described here has evolved after multiple previous attempts at improving the patency of the DCR fistulous tract. None of the previous modifications have been as successful as the use of this nasolacrimal catheter.

Methods

The Griffiths Nasolacrimal Catheter is an alloplastic material that is shaped like a collar button (Figure 27.1). This is a self-retaining device made from a soft silicone-like material and can be used in either the external approach[2] or the endonasal approach[3] DCR. Once standard canalicular intubation tubes have been placed, the nasolacrimal catheter can be inserted. By passing the canalicular probes through the lumen of the nasolacrimal catheter, the catheter can then be advanced along the path of the tubing and passed into the nostril with a small bayonet forceps (Figure 27.2). The proximal collar of the catheter is then pulled through the nasal ostium with a toothed forceps, if an external approach is used. This system is diagrammed in Figure 27.3. The proximal collar of the catheter is then placed into the lacrimal sac fossa under the orbicularis muscle (Figure 27.4). The nostril is then inspected with a nasal speculum or endoscope to see that the distal collar is overlying the nasal mucosa (Figure 27.5). This combination of canalicular tubes and nasolacrimal catheter is then left in place for 6 months.

Removal of these tubes and catheter is accomplished in the office. The canalicular tube is divided with scissors in the medial canthus.

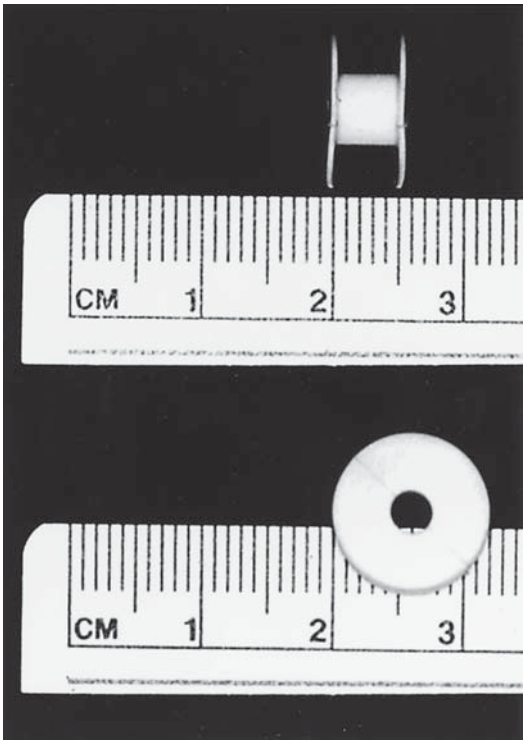

FIGURE 27.1. Collar button design of the Griffiths Nasolacrimal Catheter.

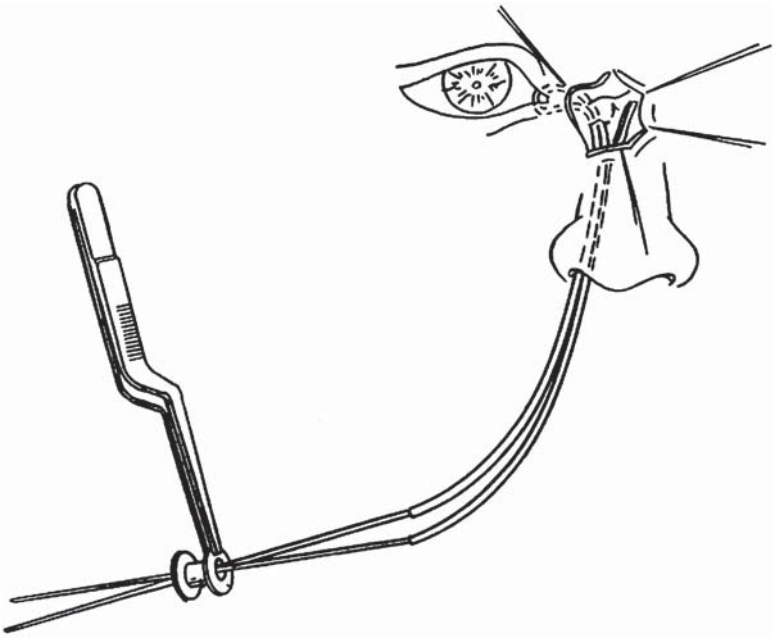

FIGURE 27.2. Diagram depicting placing the nasolacrimal catheter over the canalicular probe and tubes.

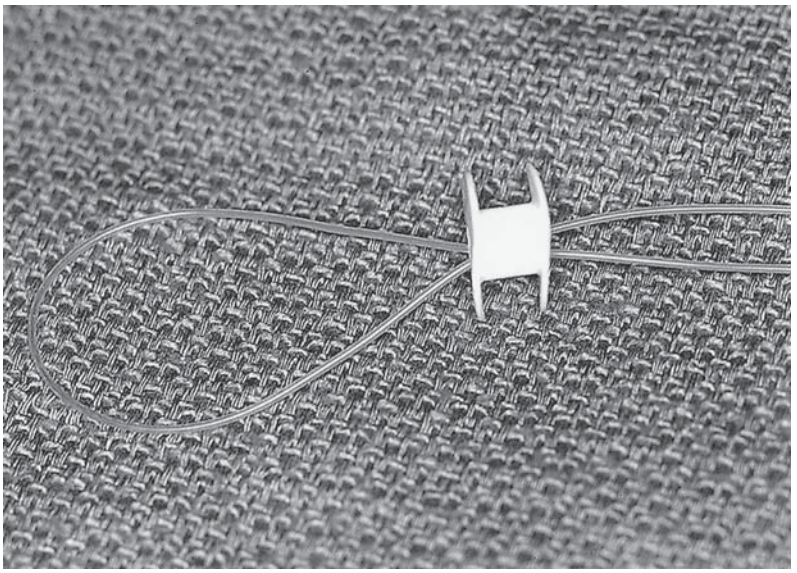

FIGURE 27.3. Demonstration of the position of the nasolacrimal catheter and the canalicular intubation system.

The distal collar of the catheter is then grasped in the nostril with a forceps or hemostat and both are pulled out through the nostril (Figure 27.6). Because the catheter material is soft and pliable, this causes little or no discomfort to the patient. Removal is performed

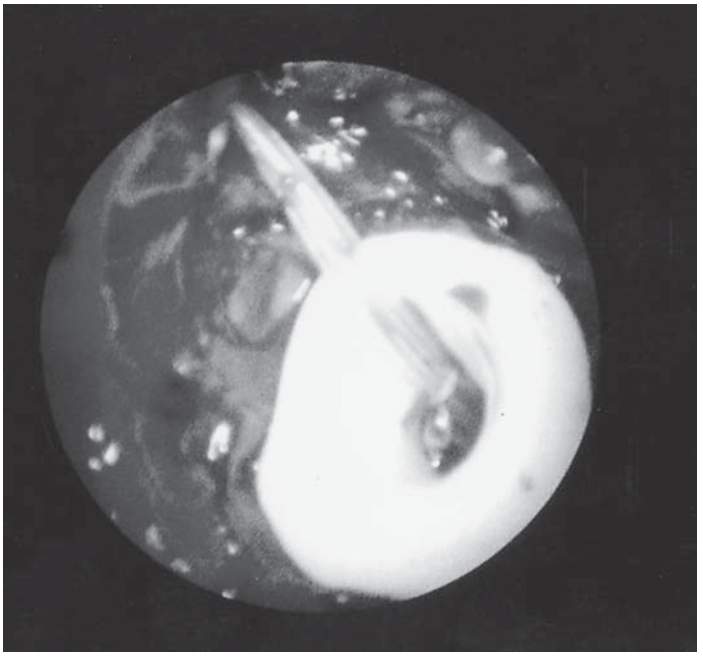

FIGURE 27.4. Surgical photograph demonstrating the proximal collar of the nasolacrimal catheter in the lacrimal sac fossa showing the canalicular tubes passing through the central lumen.

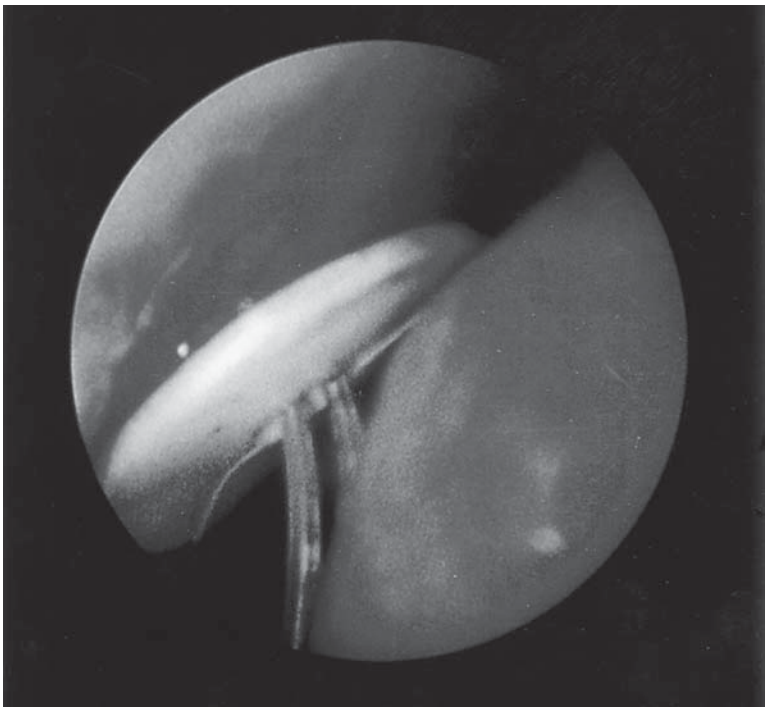

FIGURE 27.5. Endoscopic photo demonstrating the proper position of the proximal collar in the right nostril with the collar overlying the lateral nasal wall mucosa, the middle turbinate to the right of this collar, and the canalicular tubing being present in the lumen of the catheter.

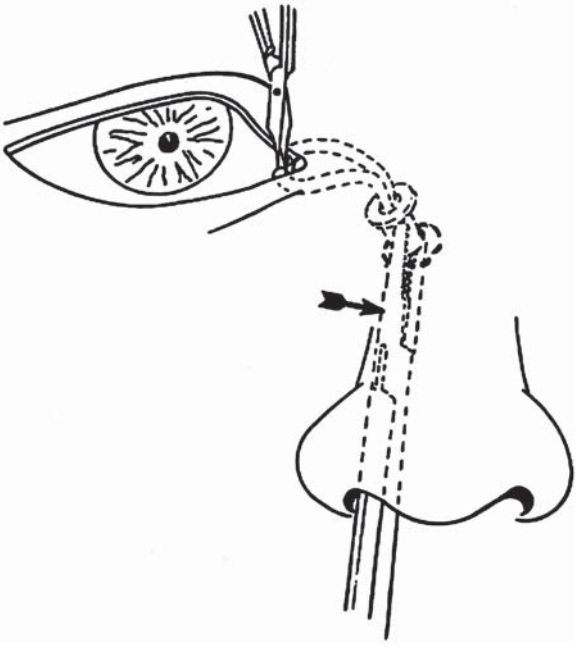

FIGURE 27.6. Diagrammatic representation of removal of the canalicular tubes by dividing them with scissors at the interpalpebral commissure and grasping the catheter and tubing with hemostat of foreign body forceps in the right nostril.

with topical anesthesia in adults. In the pediatric age group, sedation or a brief mask anesthesia may be required in the outpatient surgery setting.

Discussion

The material used in this nasolacrimal catheter is known as C-Flex (Consolidated Polymer Technologies, Inc., Clearwater, FL). It is a thermoplastic elastomer similar to silicone, but it has a higher degree of tensile strength, a greater degree of elasticity, and a coefficient of friction less than half that of silicone.[4] For this reason, it is highly biocompatible and well tolerated by the patient. No cases of pyogenic granuloma have been encountered with this material, as is sometimes seen with the standard silicone material. A few patients that have been lost to follow-up and then returned some 2–3 years later have shown no signs of inflammatory reaction from this C-Flex material.

Originally, this catheter was used only for previously failed DCRs in which there was no flap material to suture. Because this technique was so successful in these cases, this surgeon has used this device in virtually all DCR patients – in primary or in previously failed DCRs. The flap material then lines up along the shaft of the catheter and heals quite nicely without suturing. Once the technique of placing the nasolacrimal catheter is learned, it is easier, faster, and has a higher success rate than sewing flaps in this surgeon's hands.

The Griffiths Nasolacrimal Catheter is available in two sizes. The regular or standard size has a collar diameter of 12 mm and is the preferred size in the adult external approach. The small size has a collar diameter of 8 mm and is preferred in the infant pediatric patient and in the endonasal approach. This smaller size collar is easier to position through the smaller nasal ostium typical of those patients. The inside diameter of the lumen and the outside diameter of the catheter itself are the same in both collar sizes.

Conclusion

This nasolacrimal catheter has been extremely successful and is now the standard technique in the author's hands. It is simpler, faster, and more successful than other methods of maintaining nasal ostium patency in DCR surgery. It is well tolerated by the patient and is easily removed in the office setting.

The Griffiths Nasolacrimal Catheter is available from BD Visitec (Franklin Lakes, NJ) in the Standard size (12-mm collar) and the Pediatric/Endonasal size (8-mm collar). The author has no financial interest in this device.

References

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