A 2-year-old 38-kg (83.6-lb) sexually intact female Labrador Retriever was referred to the ophthalmology service for evaluation of a chronic mucopurulent discharge from the left eye of approximately 18 months’ duration. Prior treatment included flushing of the nasolacrimal system (twice) and placing a stent in the lacrimal duct after the nasolacrimal system was flushed a third time. A large quantity of caseous material was flushed from the nasolacrimal system each time. Attempts to place a nasolacrimal stent through the ocular and nasal puncta after the first 2 flushings were unsuccessful. Flecks of green granular material believed to be of plant origin were in the material flushed from the nasolacrimal system the first time. The mucopurulent discharge subsided during a period of oral administration of antimicrobials but returned after their discontinuation.

At referral, a mucopurulent hemorrhagic discharge was noticed at the medial canthus of the left eye. The remainder of results of ophthalmologic and physical examinations were unremarkable. The nasolacrimal duct could be flushed with mild pressure. Diagnostic procedures included bacteriologic culture and susceptibility testing of the discharge, radiography of the skull, dacryorhinocystography, and computed tomography scan. A gram-negative organism (*Citrobacter* sp) was cultured and was susceptible to enrofloxacin. Skull radiographs were unremarkable. Contrast dacryocystorhinography revealed a filling defect that was tentatively diagnosed as a foreign body in the nasolacrimal duct (Fig 1). The nasolacrimal sac was substantially dilated. Enrofloxacin (2.5 mg/kg [1.14 mg/lb] of body weight, PO, q 12 h) was given to control the infection until surgical exploration was performed.

The dog was referred to the surgery service in January 1999 for exploration of the nasolacrimal duct. Following induction of general anesthesia, the dog was positioned in right lateral recumbency with its head resting on a sandbag. The left side of the face from the nose to a point just caudal to the orbit was clipped and prepared for aseptic surgery. The infraorbital foramen was used as a landmark for locating the incision. An approximately 4-cm-long skin incision was made, beginning just rostral to the infraorbital foramen and extending caudally. The incision was made slightly dorsal to the infraorbital foramen and parallel to its course. The subcutaneous tissue and levator nasolabialis muscle were sharply incised and retracted with Gelpi retractors. Beginning at the level of the infraorbital foramen, an air drill with a round bur was used to remove the maxillary bone overlying the nasolacrimal duct (Fig 2 and 3). Sterile saline (0.9% NaCl) solution was flushed through the duct to confirm its identification. The nasolacrimal duct was incised with a No. 11 blade. Foreign material was visible within the duct. A sliver of plant material was initially removed, followed by a complete seed hull (Fig 3). The lacrimal system was flushed with sterile saline solution. The saline solution flowed freely, and additional purulent material or foreign bodies were not observed. Attempts were made to pass a 0.035-mm silicone stent normograde through the dorsal and ventral lacrimal puncta and retrograde through the incision. The stent would not pass through the dilated lacrimal sac. The stent was passed normograde from the incision out of the nostril and retrograde as far as possible. The stent was secured with a friction suture anchored to the skin at the caudal extent of the alar groove.

No attempt was made to suture the incision in the

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**Figure 1**—Lateral contrast dacryocystorhinographic view of the skull of a dog (inset). Notice the foreign body (arrowhead) in the nasolacrimal duct in the enlarged view of the region indicated by the white rectangle.
nasolacrimal duct. A sheet of lyophilized porcine intestinal submucosa was placed over the incision in the nasolacrimal duct. The levator nasolabialis muscle and subcutaneous tissue were sutured with 3-0 polyglecaprone in a simple continuous pattern. The skin was closed with an intradermal pattern, using 3-0 polyglecaprone.

The dog recovered from anesthesia and surgery without complications. An Elizabethan collar was applied when the dog was fully awake. The dog was discharged 2 days after surgery. Gentamicin drops were applied in the left eye every 4 hours for 2 weeks, and enrofloxacin tablets (2.5 mg/kg, q 12 h) were given for 2 weeks. At recheck 2 weeks later, there was no discharge from the eye or nasolacrimal duct, and the stent was removed. The dog has been free of clinical signs of disease since removal of the stent.

Reports of foreign bodies in the nasolacrimal sac have been published, but to the authors’ knowledge, reports of foreign bodies in the nasolacrimal duct have not. The proximal part of the nasolacrimal duct is encased in the maxillary bone. The duct courses just dorsal and nearly parallel to the infraorbital canal in this region. Caudally, the canal curves dorsally to the nasolacrimal sac. The authors recommend making the initial approach over the midportion of the canal and then extending the exposure rostrally or caudally as needed. The entire intraosseous segment of the nasolacrimal duct may be exposed by use of the described technique. Making the approach too far dorsally will result in penetration of the nasal cavity.

Although closure of the duct with sutures could have been attempted, we chose to allow the incision to heal by second intention. We anticipated that similar to other tubular structures (eg, ureter and urethra), the longitudinal incision in the duct would heal as well by second intention over the stent as by primary closure. Swine small intestinal submucosal tissue was placed over the incision in an attempt to promote healing of the duct incision with less risk of stricture formation. This product promotes generation of normal urethral tissues when used as an onlay graft for partially circumferential urethral defects in rabbits and inhibits wound contraction while promoting epithelialization of full-thickness skin defects in rats.

References