



Nasolacrimal Duct Obstruction Probing: Surgical Equipment Failure

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Introduction

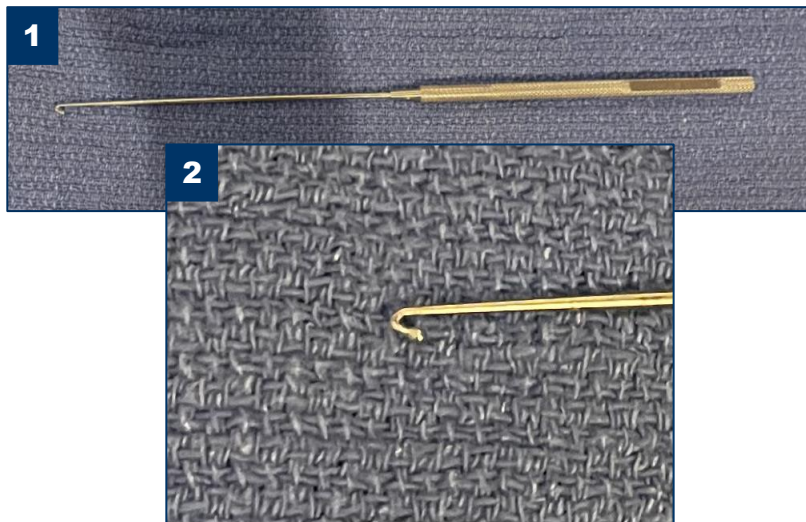
- Nasolacrimal duct obstruction (NLDO) is a blockage of the tear duct system. 5-10% of infants have symptoms of tear duct obstruction affecting one or both eyes.¹
- Blockage can occur anywhere along the drainage system. The most common cause of obstruction is due to a membrane at end of tear duct system (at the valve of Hasner). Other causes include the absence or narrowing of puncta, diffuse stenosis of tear duct system, abnormal nasal bone, or an infection.²
- Tear duct obstruction presents with epiphora, perioral crusting and discharge.¹
- Differential diagnoses include childhood glaucoma, conjunctivitis, allergies, and eye infection.
- Most (90%) of tear duct obstruction resolve spontaneously during the first year of life with observation.³
- Treatment may be recommended for persistent obstruction with one or more of the following:
 - Tear duct massage
 - Topical antibiotic eye drops or ointments for infections or discharge
 - Tear duct probing ±
 - Expansion of tear duct with balloon dilation
 - Tear duct intubation (stent placement).

Case Presentation

- 20-month-old male with trisomy 21, and hypothyroidism on levothyroxine, presented with persistent nasolacrimal duct obstruction of the right eye.
- Scheduled for probing and irrigation with possible silicone tube intubation.

Procedure Course

- General anesthesia with appropriate cardiopulmonary monitoring.
- Right eye inspected.
- Superior punctum was dilated and a single o Bowman Lacrimal Probe was passed down the nasolacrimal duct system and into the nose.
- Metal on metal contact was felt in the nose.
- The Bowman probe was removed.
- A Ritleng probe was passed down into the nasal cavity and through the superior punctum.
- The Prolene suture was then threaded down into the nose.



Figures 1 and 2. Intact Ritleng Hook



Figures 3 and 4. Broken Ritleng Hook

Surgical Complication (Cont.)

- The Ritleng hook was passed into the nose and with gentle manipulation it was pulled out.
- It was noted that the end of the Ritleng hook was not on the end of the hook.
- It was presumed to be loose in the nose.
- ENT surgeon was called in. Using direct visualization, broken end of Ritleng hook was identified and removed from the nose.
- Attempt to recover Prolene suture was unsuccessful.
- Postoperative antibiotic drops were prescribed for use TID for three days and the patient ultimately did well with no residual tearing.

Discussion

- The success rate of nasolacrimal duct probing with stent intubation as a primary treatment for NLDO is estimated to be between 79-96%⁴
- The break at the end of the Ritleng hook during a NLDO probing procedure resulted in a surgical complication.
- This is a rare case of surgical equipment failure of the Ritleng hook.
- The hook instrument was sent to the manufacturer for analysis and a new hook was provided. There was never any follow up provided from the manufacturer afterwards.

References

- Lueder, GT., 2015. *Nasolacrimal Duct Obstruction in Children*. [online] American Academy of Ophthalmology. Available at: <https://www.aao.org/disease-review/nasolacrimal-duct-obstruction-4> [Accessed 7 May 2022].
- Lueder GT, et al. Lacrimal Drainage System Abnormalities In: LB Cantor, CJ Rapuano, GA Cioffi Basic and Clinical Science Course (BCSC) Section 6: pediatric ophthalmology and strabismus. American Academy of Ophthalmology (AAO), San Francisco CA; 2016:29.
- Perez Y, Patel BC, Mendez MD. Nasolacrimal Duct Obstruction. [Updated 2021 Nov 2]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan -. Available from: https://www.ncbi.nlm.nih.gov/books/NBK532873/
- Pediatric Eye Disease Investigator Group. Primary treatment of nasolacrimal duct obstruction with nasolacrimal duct intubation in children younger than 4 years of age. J AAPOS. 2008;12:445-450.



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