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# Neurogenic Keratoconjunctivitis Sicca

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- Neurogenic keratoconjunctivitis sicca is a loss of efferent innervation to the lacrimal and nasal glands, resulting in an acute loss of tear production and nasal secretions and subsequent desiccation of the cornea and nostril.
- Differentials for the underlying cause include otitis media or externa, petrositis, endocrine disease, trauma, neoplasia or idiopathic disease.
- Potential concurrent neurologic abnormalities include facial nerve paralysis and vestibular disease.

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## **Typical Clinical and PE Findings**

- Blepharospasm
- Dry appearance to cornea's tear film
- Decreased Schirmer tear test: 0-5 mm/min
- Mucoid discharge from the eyes AND the nostrils
- Positive fluorescein stain uptake: superficial or deep corneal ulcer (can progress quickly)
- +/- neurologic disease: facial nerve paralysis or vestibular disease

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## **Recommended Initial Treatment**

**Prompt and appropriate treatment with all the products<sup>+</sup> listed is important to best treat the disease.**

### 1. Pilocarpine Ophthalmic Solution

*Use either topically or orally (not both):*

- Topical administration:
  - Available as a compounded\* 0.1% ophthalmic solution; use 1 drop onto affected eye twice daily
  - Topical irritation is possible; will induce miosis
- Oral administration:
  - Commercially available as a 1% or 2% ophthalmic solution (use goodrx.com)
  - Typical dosing is 1 drop/ 10 pounds applied to a piece of food and administered BY MOUTH twice daily. Use 1% for small dogs, 2% for large dogs.
  - Increase the number of drops every 3-5 days to a maximum dose that does not cause parasympathomimetic clinical signs (increased salivation, diarrhea, or vomiting)

### 2. Cyclosporine 0.2% (Optimmune) Ophthalmic Ointment

- Used to reduce corneal and conjunctival inflammation secondary to the dry eye
- Begin at ¼ inch strip to affected eye twice daily

### 3. Artificial Tear Gel or Ointment

- Dosed as frequently as allowed by owner's schedule (q2-4 hours ideally; q6 hours minimally)
- Do not use solution formulas (they evaporate too quickly to be effective)

+Other medications may be recommended on a case-by-case basis (such as a topical antibiotic in cases with corneal ulcerations). Further, do not forget to manage underlying conditions.

\*Recommended compounding pharmacies with shipping capabilities: Stokes or Wedgewood

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## **Recommended Initial Recheck Plan**

- Deep ulcer: ideally refer to an ophthalmologist for a conjunctival graft. If referral is not possible, a recheck in 1 week is recommended
- Superficial ulcer or no ulcer: recheck in two weeks
- If adverse events are noted from the pilocarpine, reduce to the last dose that did not cause clinical signs

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## **Typical Prognosis**

- Resolution of clinical signs and regained comfort with appropriate treatment is typically noted within a month of starting therapy
- Spontaneous resolution (including ability to discontinue pilocarpine) is possible