

Pilocarpine 2% Eye Drops for Neurogenic KCS

◆ Why it matters

Neurogenic keratoconjunctivitis sicca (NKCS) is rare but important to recognize. It is typically **unilateral** and often accompanied by an **ipsilateral dry nostril (xeromycteria)** due to loss of parasympathetic innervation. This differentiates it from immune-mediated KCS.

◆ Clinical associations

- May follow **otitis interna, trauma, or surgery** (e.g. TECA-LBO).
- Frequently linked to **neurological disease** (facial nerve paralysis, vestibular syndrome, Horner's) and endocrine disorders (diabetes, hypothyroidism).
- Importantly, NKCS can also present **without a dry nostril**, so consider it in refractory KCS cases

◆ Evidence

A multicenter retrospective study (34 cases, 2003–2018) found:

- 53% of affected dogs had other neurological deficits.
- **Oral pilocarpine 2%** (1 drop/10 kg BID, titrated) improved clinical signs in ~48% of cases, with a mean response time of 4.3 months
- Cases not receiving pilocarpine had poor response to treatment.

◆ How pilocarpine works

- **Muscarinic agonist** → directly stimulates lacrimal & nasal gland secretion.
- Restores tear film in NKCS where parasympathetic drive is lost.

◆ Practical recommendations

- **Oral use in food:** 1 drop/10 kg BID, increase slowly every 2–3 days until systemic side effects (hypersalivation, vomiting, diarrhea), then reduce to tolerated dose.
- **Adjunct therapy:** Tacrolimus or cyclosporine for keratitis; lubrication until Schirmer tear test normalizes.

◆ Clinical tip

- Strongly suspect NKCS when you see **unilateral KCS with ipsilateral dry nostril**.
- Always investigate for concurrent neurological or endocrine disease.



Reference:

- 1 Sandmeyer LS, Grahn BH, Langley-Hobbs SJ, et al. *Neurogenic keratoconjunctivitis sicca in dogs: A multicenter retrospective study of 34 cases (2003–2018)*. *Vet Ophthalmol.* 2022;25(2):140–152