**Keratoconjunctivitis Sicca: Causes & Treatments**

Keratoconjunctivitis sicca (KCS), a common progressive inflammatory condition of the cornea and conjunctiva, results from a lack of aqueous tear production. Underlying causes can include congenital alacrima; drug-induced, immune-mediated lacrimal adenitis; irradiation; iatrogenic, systemic disease; or neurologic dysfunction. Any lesion along the parasympathetic nervous system can result in neurogenic KCS, which may be accompanied by Horner syndrome, facial paralysis, or trigeminal nerve deficits, depending on lesion location.

Neurogenic KCS and ipsilateral dry nose were described in 11 dogs with no other neurologic deficits. Suspected causes were idiopathic ($n = 9$) and trauma ($n = 2$); most were middle-aged female dogs with no breed predilection. All were treated with oral pilocarpine 1%–2% eye drops (1 drop/10 kg body weight q12h) and topical cyclosporine 0.2% ointment was also used in 5 cases. Oral pilocarpine could be discontinued in 5 dogs (mean, 125 days). An underlying self-limiting process may explain KCS resolution in these cases. Cyclosporine alone may not help with neurogenic KCS. Oral pilocarpine is the choice treatment as a direct-acting parasympathomimetic drug, stimulating the lacrimal glands; this resulted in improved tear production and resolved signs in many cases in this study.

**Commentary**

KCS can occur as a quantifiable or qualitative abnormality of the precorneal tear film. Both types result in progressive inflammation, vascularization, fibrosis, and pigmentation of the cornea and conjunctiva if untreated. KCS with an ipsilateral dry nose is highly suggestive of neurogenic KCS with a lesion affecting the facial nerve and efferent parasympathetic innervation of the lacrimal glands. The majority of neurogenic KCS is idiopathic, but a complete neurologic examination and evaluation for hypothyroidism and diabetes mellitus is indicated. With a lack of parasympathetic innervation, there is an up-regulation of cholinergic muscarinic receptors in the lacrimal glands, resulting in derervation hypersensitivity. This can be used therapeutically by administering a systemic direct-acting parasympathomimetic agent (ie, pilocarpine) in addition to routine lacrimogenic KCS therapy. To avoid atrophy of lacrimal glands, early recognition and prompt initiation of pilocarpine therapy can minimize atrophy secondary to derervation.—**David A. Wilkie, DVM, MS, DACVO**

**Source**


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**Keep It Clean**

Cleaning and disinfecting are crucial for preventing or minimizing the spread of contagious and zoonotic diseases and nosocomial infections. Determining cleaning efficacy is commonly done with bacterial culture of surfaces but can be delayed and expensive. Adenosine triphosphate bioluminescence has been used but may be cost limiting. Environmental marking dyes (ie, environmental tagging) have been investigated, involving application of a fluorescent dye on a surface with subsequent evaluation after cleaning.

In this study, surfaces in a veterinary hospital and small animal referral hospital were contaminated with a fluorescent dye, and cleaning was assessed 24 hours later. Of the 563 sites, 70 could not be reevaluated (eg, equipment movement, lack of room access). Of the remaining, the dye was completely removed from 212 (43%) sites. Successful cleaning by specific locations included examination rooms (35%), wards (26%), treatment rooms (71%), operating rooms (73%), and intensive care units (64%). Site-specific successful cleaning included handles and door knobs (49%), computer keyboards and mouses (14%), medical equipment (14%), examination table tops (81%), counter tops (80%), sink taps (52%), cage handles (50%), handheld equipment (eg, bandage scissors) (18%), consumable item packages (eg, bandage materials) (16%), chair handles and backs (33%), hand sanitizer dispenser tops (20%), floors (75%), and gurneys (57%).

**Commentary**

Often demonstrating transmission of infectious agents, GloGerm Gel (goglomer.com) was used to tag surfaces of the veterinary hospital. A Wood’s lamp can show the contamination, and this can be particularly powerful with respect to cross-contamination via touching and clothing. One positive outcome of the study was easy recognition of contamination and teamwork in problem solving (eg, how to better clean and disinfect). For staff, the transmission of human viral infections is of specific concern. There are many types of germ-control keyboards available, as well as washable keyboards and mouses. Minimizing staff sick days can be enhanced by investing in newer equipment, but the staff still needs to regularly wash hands and equipment.—**Karen A. Moriello, DVM, DACVD**

**Source**