# Non-Healing Corneal Ulcers in Dogs: Diagnostic Approach and Clinical Management

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Non-healing corneal ulcers represent a common and clinically significant challenge in small animal ophthalmology. Accurate differentiation between uncomplicated superficial ulcers and spontaneous chronic corneal epithelial defects (SCCEDs), as well as identification of underlying causes of delayed healing, is essential for appropriate treatment selection and optimization of clinical outcomes.

Superficial corneal ulceration typically presents with ocular pain, epiphora, conjunctival hyperemia, and focal epithelial defects identified on fluorescein staining. Initial diagnostic evaluation should include tear production assessment, intraocular pressure measurement, cytology, and careful evaluation with magnification (slit lamp biomicroscopy if possible). Cytological examination assists in ruling out infectious keratitis, while clinical history and examination findings help identify contributing factors such as trauma or eyelid abnormalities.

SCCED is a diagnosis of exclusion characterized by persistent epithelial defects with loose or undermined epithelial margins in the absence of infection, chronic steroid exposure, or ongoing mechanical irritation. Recognition of this condition is critical, as standard medical therapy alone is frequently insufficient to achieve corneal healing. First-line medical management for uncomplicated ulcers includes topical broad-spectrum antibiotics, lubricants, systemic analgesia, and mydriatic therapy to control pain and prevent secondary uveitis.

When healing fails to occur, procedural intervention is indicated. Corneal epithelial debridement using a cotton swab under topical anesthesia is commonly performed to remove non-adherent epithelium and stimulate epithelial migration but is only effective in healing in 50% of cases. Adjunctive techniques such as grid or punctate keratotomy and diamond burr debridement further enhance epithelial adhesion by promoting basement membrane remodeling. In refractory cases, superficial lamellar keratectomy provides a definitive surgical option with reported high success rates.

Clinicians must also systematically evaluate other causes of delayed corneal healing, including infectious keratitis, corneal endothelial dystrophy, calcium keratopathy, foreign bodies, eyelid disorders such as distichiasis or entropion, and progressive stromal ulceration or corneal melting. Management of infected ulcers requires intensive antimicrobial therapy, anti-collagenase treatment, and careful monitoring to prevent perforation.

With appropriate diagnosis and timely intervention, prognosis for SCCED and most superficial non-healing ulcers is favorable, although recurrence and contralateral involvement may occur. A structured diagnostic plan combined with early procedural treatment and client education is therefore central to successful management of non-healing corneal ulcers in canine patients.

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