

## SHORT COMMUNICATION

Case report

# Aerosol keratopathy: a revised MacLean classification

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*CASE REPORT. Chemical keratopathy has been linked to many household aerosols. We present a dramatic case of aerosol keratopathy. The finding of an unexplained epithelial or superficial stromal keratopathy must alert the physician to inquire about the use of household aerosols near the patient's face. We also propose a revised classification system based on the work of MacLean. (Eur J Ophthalmol 2001; 11: 187-8)*

**KEY WORDS.** Keratopathy, Keratitis, Aerosols, Sprays

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## INTRODUCTION

Chemical keratopathy has been linked to many household aerosols (1-3). The finding of an unexplained epithelial or superficial stromal keratopathy must alert the physician to inquire about the use of household aerosols near the patient's face. We describe a dramatic case of aerosol keratopathy, and review the limited literature pertaining to this disorder, presenting a revised classification system for aerosol keratopathy.

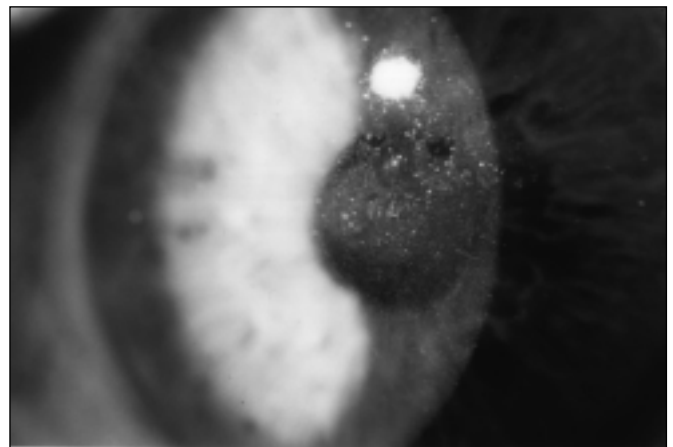
## Case Report

An 82-year-old white female with a history of age-related macular degeneration presented with a chief complaint of blurred vision of both eyes. The patient had begun to note gradually increasing blurring of her vision bilaterally over one week, with periodic intense glare and irritation, without any redness or tearing. A careful history revealed that she had begun using hair-spray daily one week before presentation. The hair-spray contained acrylates including a methacrylate copolymer as well as vinyl neodecanoate copolymer, in a compressed gas spray.

Her best-corrected visual acuity was 20/40 in the right eye and 20/30 in the left. Slit lamp biomicroscopy

disclosed white and quiet conjunctivae. Corneal epithelial deposits were scattered diffusely in each eye, more intensely in the inter-palpebral zone and in the left eye (Fig. 1). There was no fluorescein staining of the cornea, and the corneal stroma was clear. The anterior chamber was deep and quiet, and nuclear sclerosis was more prominent in the right eye.

The patient was diagnosed as having aerosol keratopathy and started on erythromycin ointment. She discontinued using the hairspray. After several days,



**Fig. 1** - The appearance of the left eye at initial presentation. Note the numerous particles embedded in the corneal epithelium.

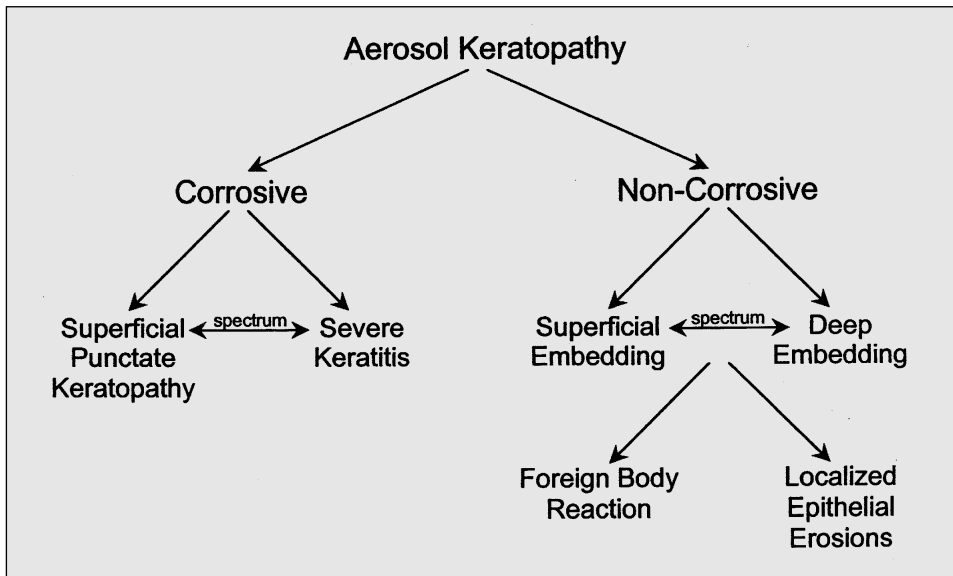


Fig. 2 - A revised classification of aerosol keratopathy based on the work of MacLean (1, 2).

her ocular glare and irritation had resolved and she stated that her vision had returned to baseline. Best-corrected visual acuity was 20/40 in the right eye and 20/25 in the left. Both corneas were clear.

## DISCUSSION

Aerosol keratopathy was first brought to the attention of ophthalmologists by Mitchner in 1943, who reported a case involving a lacquer sprayer (4). The topic was reviewed by Angus MacLean in 1967 (1, 2). The type of damage to the cornea is related to the chemical composition of the spray and to its projectile force. Based on MacLean's work, we suggest that keratopathy can be divided into two categories: corrosive and non-corrosive (Fig. 2). Corrosive agents, acids or alkalis, may cause superficial punctate keratopathy or more severe keratitis depending on quantity and strength. Non-corrosive agents solidify to small particles on spraying. These particles may become embedded superficially or deep within the corneal epithelium, depending on their size and force of impact. The corneal epithelium has been seen to heal over the particles in some cases. Alternatively, the embedded particles may cause local epithelial erosions or punctate keratopathy or may trigger desquamation of the epithelium. Many household sprays fall into the non-corrosive category. As with our patient, the keratopathy is often mild and transient (1, 2).

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