

## LETTER

## Cluster of chalazia in nurses using eye protection while caring for critically ill patients with COVID-19 in intensive care

The world is facing a frightening pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) with thousands of infections and fatalities. After 15 days of hard working in the intensive care unit managing patients with COVID-19, three nurses simultaneously complained about a red eye with painless eyelid swelling and tearing. Ophthalmological examination revealed similar single non-tender inflammatory nodules located in the middle of the lower eyelid, accompanied by conjunctival redness without altered visual acuity or corneal abrasion (figure 1). Chalazion was diagnosed. Combined topical antibiotic and anti-inflammatory (dexamethasone–oxytetracycline) eye ointment was prescribed with recommendations to apply a warm compress to the affected eye with lid massaging to facilitate healing.

First, we ruled out COVID-19 in each nurse, as ocular manifestations have been observed, although mostly during the middle phase of the disease and in patients with severe pneumonia.<sup>1</sup> Conjunctival hyperaemia, epiphora and chemosis have been described, while more severe features were only reported in animal models.<sup>2</sup> Interestingly, unilateral conjunctivitis has been reported in one case as the first manifestation of COVID-19.<sup>3</sup> Here, laboratory



**Figure 1** Chalazion of the lower eyelid in a nurse working with patients with COVID-19 wearing protective glasses disinfected with a solution of didecylidimethylammonium chloride and chlorhexidine digluconate.

SARS-CoV-2 reverse transcription–PCR tests performed on throat swabs were negative. The nurses were advised to continue working. One month later, their eyelids had almost completely healed. Interestingly, the ophthalmology department of our hospital has noticed about 10 additional cases consulting for chalazion during March 2020, mainly among nurses working in the hospital.

Chalazion usually occurs from inflammation and obstruction of the sebaceous glands of the eyelids, that is, a tarsal Meibomian gland (deep chalazion) or, less frequently, a Zeis gland (superficial chalazion).<sup>4</sup> Mask wearing could be one explanation for the chalazion because it may direct the breath towards the eyelid. However, our nurses wore hermetically sealed protective glasses disinfected for 15 min in a bath made of 0.5% didecylidimethylammonium chloride and chlorhexidine digluconate (Clean Excel D, Anios, France) diluted in water as recommended by the manufacturer. Eyelid irritation and dehydration is a likely explanation for the chalazion generation. Gland oil may have hardened due to the generated warmth and limited gland drainage caused by reduced reflex eyelid blinking and spontaneous hand rubbing on the face. Insufficient rinsing in water before the reuse of the glasses due to the small size of the available rinsing boxes at the bedside and to the rush while managing critically ill patients with COVID-19 care clearly contributed.

Exposure to quaternary ammonium (such as didecylidimethylammonium chloride) and biguanide (such as chlorhexidine digluconate) antiseptic agents in the workplace is usually due to inhalation or skin contact.<sup>5</sup> Toxicity results from irritation and corrosion of the skin and mucous membranes with eye and lung damage. Although not included in the list of occupational exposure risks, the cluster of chalazion may have emerged due to the particular conditions of the disinfection of the protective glasses and their wearing during the COVID-19 pandemic. Interestingly, a temporal association was reported in the USA between the increase in toxic exposures to cleaners and disinfectants in January–March 2020 (+20%) and their expanded use due to SARS-CoV-2 epidemic.<sup>6</sup> Exposures included chemical eye exposures in relation to the improper use of disinfectants, which could be prevented by wearing adequate eye protection.

In our hospital, recommendations to improve rinsing of the disinfected glasses

and the method of wearing them were provided to the nurses by the hygienist on the day following the notification of our three cases to occupational medicine. Since this intervention, no further cases have occurred.

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**Contributors** BM and RT wrote the letter and BM is the corresponding author.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent for publication** Obtained.

**Ethics approval** A written consent and permission were obtained from the patient to include her case details and image in the case report.

**Provenance and peer review** Not commissioned; internally peer reviewed.

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**To cite** Mégarbane B, Tadayoni R. *Occup Environ Med* 2020;**77**:584–585.

Received 8 May 2020

Revised 12 May 2020

Accepted 24 May 2020

Published Online First 28 May 2020

*Occup Environ Med* 2020;**77**:584–585.

doi:10.1136/oemed-2020-106677

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