

An unusual case of conjunctival irritation and epiphora following external dacryocystorhinostomy

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Abstract

Objective: The authors discuss a case of conjunctival irritation and epiphora in a patient who had undergone dacryocystorhinostomy three years earlier.

Method: Case report, and a review of the world literature concerning lacrimal canalicular air regurgitation after dacryocystorhinostomy.

Results: A 70-year-old woman, who used continuous positive airway pressure therapy during sleep, complained of epiphora and conjunctival irritation. She had undergone dacryocystorhinostomy three years earlier. Her right eye had an augmented tear meniscus, with a predominantly medial conjunctival irritation. Conjunctival irritation from lacrimal canalicular air regurgitation was diagnosed. White petrolatum and mineral oil ophthalmic ointment was prescribed, applied topically before sleeping. After one month of treatment, complete relief of symptoms was obtained.

Conclusion: There is little current information on managing such patients. It is imperative to discuss this potential complication when considering nasolacrimal surgery in patients using continuous positive airway pressure therapy.

Key words: Epiphora; Conjunctivitis; Dacryocystorhinostomy; Obstructive Sleep Apnea Syndrome; Continuous Positive Airway Pressure; Lacrimal Apparatus Diseases

Introduction

The authors discuss a case of conjunctival irritation and epiphora in a patient who had undergone dacryocystorhinostomy three years earlier, and who suffered from obstructive sleep apnoea syndrome.

Obstructive sleep apnoea is a serious and under-diagnosed condition.¹ In patients with this condition, breathing is repeatedly interrupted for 10 or more seconds at a time, because of respiratory obstruction caused by muscle relaxation of the upper airway.² Affected patients have increased morbidity and mortality due to cardiac complications.²

Case report

A 70-year-old woman complained of epiphora and conjunctival irritation, three years after undergoing dacryocystorhinostomy.

On examination, the patient's right eye had an augmented tear meniscus, with a predominantly medial conjunctival irritation.

Lacrimal syringing was performed in both eyes, and showed no obstruction. At this point, a partial occlusion was suspected.

Positive contrast dacryocystorhinography demonstrated normal post-dacryocystorhinostomy findings.

Diclofenac eye drops were prescribed, one drop in the affected eye four times daily for two weeks. The patient obtained partial relief of her symptoms.

However, after two weeks of this therapy her eye again developed conjunctival irritation and an augmented tear meniscus.

Upon detailed history-taking, the patient revealed that a diagnosis of obstructive sleep apnoea syndrome had been made six months earlier, and that, since then, she had been using continuous positive airway pressure (CPAP) therapy during sleep.

A diagnosis of conjunctival irritation due to lacrimal canalicular air regurgitation was made.

White petrolatum and mineral oil ophthalmic ointment was prescribed, to be applied topically before sleeping.

After one month of this therapy, complete relief of symptoms was obtained.

Discussion

Continuous positive airway pressure is used to treat moderate to severe cases of obstructive sleep apnoea.³ It creates positive intraluminal pressure within the upper airways, in order to maintain patency of the airways.

A great number of complications of CPAP therapy have previously been described, including skin breakdown, nasal dryness and congestion, and aerophagia.⁴

Ocular anterior segment complications were described in 2007 by Harrison *et al.*⁵ They reported increased dryness, vascularised limbal keratitis, recurrent microbial keratitis and microbial conjunctivitis. They hypothesised that the main cause of these problems was a dry ocular surface

caused by air leaking from the CPAP mask and blowing into the eye.

Recently, Cannon *et al.* reported four patients who had undergone dacryocystorhinostomy procedures, with or without Lester Jones tube insertion, and were receiving CPAP treatment for obstructive sleep apnoea.⁶ These authors reported that air regurgitation was well documented in patients receiving CPAP therapy who had a previous history of nasolacrimal surgery. It was postulated that the positive pressure in the upper airways created by CPAP treatment forced air up through the enlarged nasolacrimal ostium. Air regurgitation was regarded as a significant irritant in all patients.

Our patient experienced no difficulty sleeping, despite her air regurgitation; in fact, she did not link her CPAP treatment to her ocular discomfort. Topical treatment with white petrolatum and mineral oil ophthalmic ointment resulted in complete relief of symptoms, despite ongoing CPAP therapy.

In patients with a history of nasolacrimal surgery, air regurgitation during CPAP therapy has been confirmed to constitute a persistent irritant. In the presented case, topical protective therapy enabled symptomatic relief.

- **We report a case of conjunctival irritation and epiphora occurring three years after dacryocystorhinostomy, in a patient using continuous positive airway pressure (CPAP) treatment for obstructive sleep apnoea**
- **This potential complication should be discussed when considering nasolacrimal surgery in patients using CPAP**

In 2006, Chang and colleagues described a new clinical finding: nasolacrimal reflux.⁷ Of their eight patients with a history of acute and/or chronic conjunctivitis, six had air reflux; in contrast, only four of nine controls had air reflux ($p = 0.20$). Of the patients with reflux, one had spontaneous reflux occurring with gravity, while the other patients' reflux

required nose-blowing. This suggests that nasolacrimal reflux is a possible mechanism for the anterior segment complications occurring secondary to CPAP therapy, in addition to the CPAP mask air leakage postulated by Harrison *et al.*⁵

There is currently little information on the management of such patients. It is imperative to discuss the risk of developing conjunctival irritation and epiphora, when considering nasolacrimal surgery in patients using CPAP therapy.

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