

=====  
=====  
=====  
=====  
**Clinical  
Communications: Adults**



## ORBITAL COMPRESSED AIR AND PETROLEUM INJURY MIMICKING NECROTIZING FASCIITIS

Faye E. Mellington, FRCOPHTH,\* Annette S. Bacon, FRCOPHTH,† Mohammed A. J. Abu-Bakra, FRCOPHTH,†  
Pablo Martinez-Devesa, FRCS(ED), FRCS(ORL-HNS),‡ and Jonathan H. Norris, FRCOPHTH\*

\*Oxford Eye Hospital, Headington, Oxford, United Kingdom, †Royal Berkshire NHS Foundation Trust, Reading, United Kingdom, and ‡Ear,  
Nose and Throat Department, John Radcliffe Hospital, Headington, Oxford, United Kingdom

Reprint Address: Faye E. Mellington, FRCOPHTH, Oxford Eye Hospital, Headley Way, Headington, Oxford OX3 9DU, UK

**Abstract—Background:** Orbital injury secondary to petroleum-based products is rare. We report the first case, to our knowledge, of a combined compressed air and chemical orbital injury, which mimicked necrotizing fasciitis. **Case Report:** A 58-year-old man was repairing his motorcycle engine when a piston inadvertently fired, discharging compressed air and petroleum-based carburetor cleaner into his left eye. He developed surgical emphysema, skin necrosis, and a chemical cellulitis, causing an orbital compartment syndrome. He was treated initially with antibiotics and subsequently with intravenous steroid and orbital decompression surgery. There was almost complete recovery by 4 weeks postsurgery. **Why should an emergency physician be aware of this?:** Petroleum-based products can cause severe skin irritation and necrosis. Compressed air injury can cause surgical emphysema. When these two mechanisms of injury are combined, the resulting orbitopathy and skin necrosis can mimic necrotizing fasciitis and cause diagnostic confusion. A favorable outcome is achievable with aggressive timely management. © 2014 Elsevier Inc.

**Keywords—**compressed; air; petroleum; injury; orbit; chemical; cellulitis; necrotizing; fasciitis

### INTRODUCTION

There are few reports in the literature of orbital injury secondary to petroleum-based products. We report our recent experience of a combined compressed air and chemical

orbital injury mimicking necrotising fasciitis. It is the first case, to our knowledge, documenting this combined etiology.

### CASE REPORT

A 58-year-old man was repairing his motorcycle engine when a piston fired, shooting compressed air and petroleum-based carburetor cleaner (Forte Lubricants Ltd, Coventry, UK) into his left eye. After immediate self-irrigation with water from the garden hose, he presented 5 h later to his local Emergency Department, unable to open his left eye. He had no past ocular, medical, or drug history and no known allergies. On examination, he was apyrexial, nontachycardic (heart rate 80 beats/min, blood pressure 146/82 mm Hg), and had marked left periorbital edema and erythema, preventing ocular examination (Figure 1A). Left conjunctival pH was 7. Conjunctival swabs were taken (which later showed no growth). An internal medicine physician reviewed the patient and, in the absence of any symptoms or signs of respiratory distress (oxygen saturation of 97% on air, respiratory rate 16 breaths/min, and clear lungs on auscultation), excluded petrol inhalation injury. Computed tomography (CT) of the orbits revealed approximately 6 mm of left proptosis with surgical emphysema, indicating possible orbital cellulitis (Figure 1B).



**Figure 1.** (A) Photograph showing marked left periorbital edema (arrow) on presentation. (B) Axial computed tomography (CT) scan (soft tissue window) showing thickened periorbital tissues, left proptosis (dotted arrow), and hypodense subcutaneous and intraorbital spaces consistent with surgical emphysema (arrow). (C) Photograph taken on day 2, to show dusky ulcerated patch of skin on left upper lid measuring 1 cm by 1 cm (arrow). (D) Axial CT scan (bony window) showing increased left proptosis of approximately 9 mm (dotted arrow) and reduced surgical emphysema (arrow). (E) Sagittal CT scan (bony window) showing intraorbital inflammation extending to orbital apex (arrow). (F) Perioperative photograph to show extent of periorbital edema and conjunctival inflammation (arrow). Note lateral cantholysis (dotted arrow).

Due to previous self-irrigation, the risk of a contaminated conjunctival wound, and the surgical emphysema, a diagnosis of suspected necrotizing fasciitis was made. Intravenous meropenem, clindamycin, and flucloxacillin were started. A few hours later, he developed a small dusky ulcerated patch of skin on his left upper lid (Figure 1C). By day 5, the patient remained systemically well, but the skin lesion had enlarged and he could hardly open his left eye. Left unaided visual acuity (VA) was measured as hand movements only. He was transferred to our institution (a UK tertiary referral center for Ophthalmology and Plastic Surgery) for ongoing observation and consideration of surgical debridement.

Repeat CT of the orbits showed increased proptosis of almost 10 mm, intraorbital inflammation extending to the orbital apex, but reduced surgical emphysema. Notably, there was no fluid collection or bony fracture (Figure 1D, E). In view of the time course of events, systemic stability, and lack of significant progression and pain, necrotizing fasciitis was excluded. A diagnosis of acute orbital inflammation secondary to chemical injury and compressed air was made. A 3-day course of intravenous methylprednisolone 1 g was commenced (in addition to: omeprazole 20 mg once a day [o.d.], calcium carbonate [AdCal, ProStrakan, Galashiels, UK] 1.5 g orally o.d., and ascorbic acid 1 g 4 times a day [q.i.d.], topical g. dexamethasone 0.1% 6 times a day to the left eye, and chloramphenicol 0.5 % preservative-free q.i.d. to the left eye). In addition, due to our concerns regarding

his continued inability to open the eye, marked proptosis, and in particular, the viability of his left optic nerve, which was on constant stretch; an examination under anesthesia, left endonasal medial orbital wall decompression, and lateral canthotomy and cantholysis were performed that day (day 5 postinjury; Figure 1F). Immediately postoperatively, unaided left VA remained hand movements only.

On day 1 postoperation, unaided Snellen VA was 20/20 and 20/80 in the right and left eye, respectively. Left intraocular pressure was 18 mm Hg. By day 3 postoperatively, left VA remained 20/80 (unaided) and the left palpebral aperture was 4 mm, with marked restriction of left up gaze and abduction. A corneal abrasion and small area of stromal corneal haze was seen (Figure 2A). A tapering course of oral prednisolone 50 mg daily was started and the left lateral canthus was reconstructed.

By day 8 postoperatively, the left VA had improved to 20/30–2 (unaided). The patient could fully open the eye and a small-area corneal stromal haze remained (Figure 2B). At 4 weeks postsurgery, the left VA was 20/20 unaided. Optic nerve function was normal with full range of eye movement. In addition, the corneal opacity had significantly improved (Figure 2C, D).

## DISCUSSION

Orbital emphysema after injury with compressed air is extremely rare (1–5). High-pressure airflow can breach

Download English Version:

<https://daneshyari.com/en/article/3246223>

Download Persian Version:

<https://daneshyari.com/article/3246223>

[Daneshyari.com](https://daneshyari.com)