

patterns, and increased tear film debris.^{2,4,8,11,12} Tear film irregularities produce visual disturbance as a smooth optical surface is lost.¹

In our case, painless visual disturbance, map and dot changes, and corneal valance were present (Figures 1 and 2) and a diagnosis of EBMD was made. In patients where the signs of EBMD are subtle or those presenting with painless visual disturbance corneal valance (Shahinian's sign) may be a useful sign, as it can alert the examiner to the presence of EBMD.³

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Sir,

Compressed air injury of the orbit in the absence of external trauma

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Orbital emphysema is most commonly the result of traumatic fracture of the orbital bones. Air is then able to pass from the paranasal sinuses into the orbit. Orbital emphysema without evidence of significant trauma is rare, but cases have been reported as a result of compressed air injury from an external hose,¹ and from an exploding automobile tyre.² It has been reported following nose blowing,³ and can occur in the absence of external trauma when compressed air is employed intraorally as an air-abrasive.⁴

We report a case of orbital, subcutaneous and subconjunctival emphysema in the absence of any orbital fracture or conjunctival laceration, secondary to a blast of air from a compressor hose.

Case report

A 29-year-old male timberyard worker routinely cleaned the saws with a compressed air gun. The compressed air gun was thought to have had a faulty trigger, with the result that a high-pressure air stream at 75 lbs per square inch was directed towards his left eye from close range. He remembers seeing the blast 'shoot him in the eye'. He was immediately aware of swelling and closure of the eye. He reported more shock than pain and presented to the casualty department immediately.

The visual acuity was 6/4 RE, 6/6 LE. There was no relative afferent pupillary defect. There was marked emphysema of the lids and cheek on the left extending down to the lower jaw and laterally to the temporomandibular joint. The left eye had 360° of

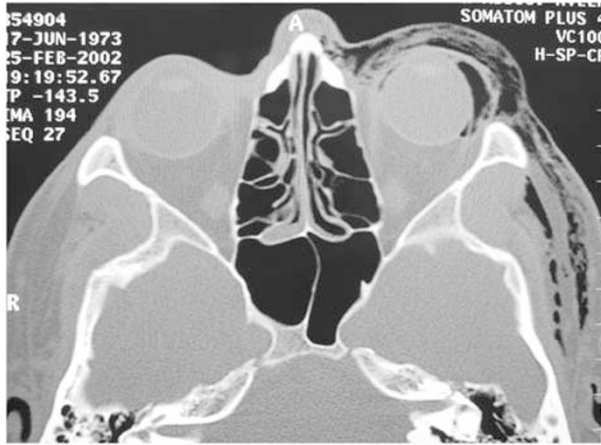


Figure 1 Subconjunctival, subcutaneous and retrobulbar radiolucencies consistent with emphysema.



Figure 2 Complete resolution at 4 weeks.

chemosis with subconjunctival air bubbles noted in all four quadrants. There was no evidence of conjunctival laceration or trauma. The corneas were clear and the anterior chamber quiet. There was no commotio retinae on dilated fundoscopy. The ocular movements were restricted in all directions of gaze.

Computed tomography scanning showed subconjunctival, subcutaneous and retrobulbar radiolucencies consistent with the emphysema (Figure 1). The paranasal sinuses were clear and no fractures were noted in any section.

The patient was given systemic and topical antibiotics. On re-examination after 2 weeks, the visual acuity had returned to normal and by 4 weeks the emphysema had resolved completely, with full resolution evident on repeat computed tomography (Figure 2).

Comment

Orbital emphysema from compressed air injuries has been reported in the presence and absence of conjunctival lacerations. While a good visual outcome is common, serious vision threatening sequelae have been reported. The force of the compressed air is significant. At 75 lbs per square inch, it is possible for air to pass intracranially (extradurally) through the superior orbital fissure.⁵

In the absence of obvious conjunctival lacerations, the question remains as to how the air entered the subconjunctival and orbital space. The most likely explanation is air entry through clinically undetectable microlacerations in the conjunctiva.

The risks of high-pressure injury to the orbit include direct contusion to the orbital contents, traumatic optic atrophy,⁶ the injection of foreign bodies through the conjunctiva with risk of infection and inflammation, displacement of the orbital contents with proptosis, transient corneal exposure, and blow-out fracture.

Owing to the risk of serious sequelae secondary to injury with compressed air hoses, appropriate education, warnings, and protective eyewear should be made available for all users of compressed hoses and compressed air guns.

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