

Case report

Orbital Emphysema in an 8-Year-Old Patient Caused by Air Injury

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Abstract

Orbital emphysema is a benign and uncommon condition usually caused by a trauma-induced orbital wall fracture but in rare cases might happen after compressed air injury without orbital fracture. Here we present an 8-year-old patient with right eye swelling and redness after being exposed to explosion of an air pump compressor tube and was diagnosed with orbital emphysema.

Keywords: Orbital; Emphysema; Case.

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Introduction

Orbital emphysema is a benign and uncommon condition and in most cases occurs after a trauma-induced orbital wall fracture¹. Interestingly, one of the rare but important etiologies of orbital emphysema is compressed air injury without orbital fracture². Although orbital emphysema most of the time resolves spontaneously without leading to critical complications, sometimes it could result in vision impairment^{1,3}.

There are limited reports of compressed air injury in children in the literatures^{4,5}.

Here we present the case of an 8-year-old patient who was admitted to our emergency department with right eye swelling and redness after being exposed to explosion of an air pump compressor tube and was diagnosed with orbital emphysema. The presentation of this case has been approved by the ethics committee of Shahid Beheshti University of Medical Sciences and written consent was obtained from patient's parents before reporting the case.

Case report

An 8-year-old boy was referred to the emergency department of Farabi Hospital (Tehran, Iran) with left eye swelling and redness after being exposed to the explosion of an air pump compressor tube during car tire repair. Initial examination revealed severe ptosis and a small laceration on the left conjunctiva. Significant crepitation was detected in the left eye around the eyelids by palpation. The best-corrected visual acuity of both eyes was 10/10. Extraocular muscle movements were relatively normal in all directions. Intraocular pressure was 16 and 18 mm Hg in the right and left eyes, respectively. The relative afferent pupillary defect was absent in left eye and

slit lamp examination was normal except for subconjunctival emphysema. The fundoscopy examination was not applicable due to the patient's condition. Orbital computed tomography revealed air in the retrobulbar space (intraconal and extraconal) as well as intracranial space without any evidence in favor of orbital fracture (Figure 1).

Systemic and topical antibiotics were started for the patient. On re-examination after 4 weeks the emphysema had resolved completely.

Discussion

In this manuscript we presented a patient with orbital and intracranial emphysema caused by the rare mechanism of compressed air injury without fracture, which resolved after 4 weeks. Similar to our case Bagheri et al.,⁴ presented a 5-year-old child with retro bulbar and intra cranial emphysema after a compressed air injury which resolved completely after 3 weeks. Also Mathew, et al.,⁶ have presented the

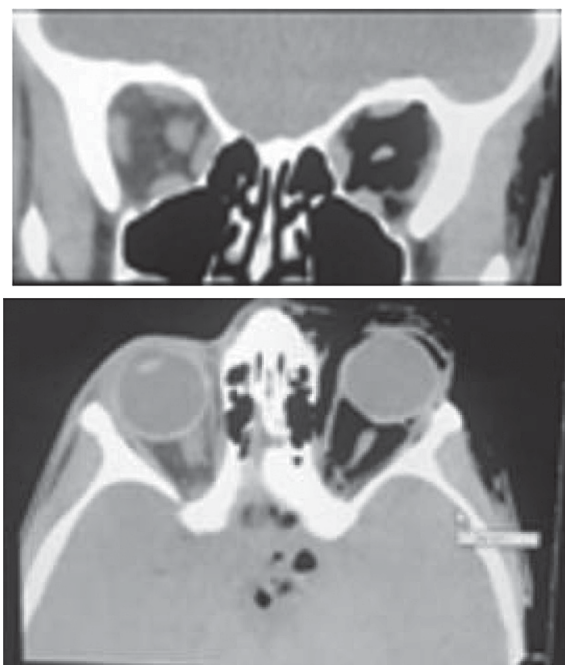


Figure 1: Orbital computed tomography revealed air in the retrobulbar space (both intraconal and extraconal)

case of a young man with orbital emphysema as a result of working with a compressed air gun without orbital fracture. After 2 days the patient's visual acuity improved. Similar to our case, all symptoms of the patient resolved during the 1 month.

However, sometimes this condition is not self-limited and should be considered as an emergency since increased pressure and tension in orbital space, as a result of air collection, could lead to ophthalmic ischemia, optic nerve compression and blindness ⁷.

For example Lin et al., ¹ presented a 68-year-old case with trauma-induced orbital emphysema which was complicated after sneezing and needle decompression was used as an emergency treatment of the condition.

Conclusion

Orbital emphysema without fracture can occur in patients without causing a visual impairment and most of the time resolves without any complication; however, close observation and follow-up is needed to avoid the rare but critical complications such as optic nerve compression and blindness.

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