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Subconjunctival ecchymosis after extraction of maxillary molar teeth: a case report

CASE REPORT

Raichoor Anil Kumar, Kishore Moturi

Department of OMFS, Vishnu Dental College and Hospital, Bhimavaram, Andhra Pradesh, India

Abstract – Extraction of teeth is usually performed by either intra-alveolar or trans alveolar methods. Subconjunctival ecchymosis occurring after intra-alveolar extraction of maxillary first and second molar teeth is a rare entity and finds no mention in the latest clinical literature. The etiology of subconjunctival ecchymosis includes traumatic and non-traumatic causes. We report a case and discuss the possible etiology and management of this complication.

Correspondence to: Raichoor Anil Kumar, Department of OMFS, Room No: 2, Vishnu Dental College and Hospital, Bhimavaram, West Godavari District, 534202 Andhra Pradesh, India
Tel.: +9908684674
Fax: +91 8816 225993
e-mail : drrakumar@yahoo.com

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Introduction

Extraction of teeth is usually performed by either intra-alveolar or trans alveolar methods. Both these methods have intra-operative and postop-erative complications, if the surgical principles are not followed. The etiology of subconjunctival ecchymosis is traumatic and non-traumatic in origin. The most common traumatic condition which it is a distinctive and frequent finding is facial trauma involving the fractures of the zygoma. Weisenbaugh noted this symptom in 70% of the cases (1). In addition, cosmetic surgery (2), barotrauma and vigorous coughing (3) can also cause subconjunctival ecchymosis. The non-traumatic causes include systemic hypertension (4), disseminated intra-vascular coagulation, and certain blood diathesis like von Willebrand disease (5) in which spontaneous hemorrhage is seen. The main aim of this article is to present a rare case of subconjunctival ecchymosis after extraction of maxillary first and second molar teeth, which has never been reported.

Case report

An 37-years-old female patient was referred to our department by a dentist 2 days after she underwent extraction of her maxillary left first and second molar teeth. The surgery was performed local anesthesia with 2% lidocaine and 1:1 00 000 adrenaline. No intra-operative complications were noted. On the second postoperative day, the patient observed redness of her left eye. Detailed history revealed that she noticed a small red spot in her left eye towards the lateral side on the day of the dental extraction which progressed to the present size (Fig. 1). Her vision was normal at the time of examination and she did not have any significant medical history. She gave a history of extractions by the same dentist few months back with out any complications. There was no significant personal and family history. On examination, the patient's vital signs were all with in normal limits. She was afebrile. Extra oral examination revealed that there was well-delineated subconjunctival ecchymosis on the lateral aspect of her left eye. Her vision and other movements of the globe were normal. Intra-oral examination revealed healing sockets of the left first and second molars (Fig. 2). She did not have any other neurological deficits. Never the less the patient was admitted to our hospital for observation and conservative management. Over the course of 2–3 days, she was referred to the ophthalmologist for a thorough examination of the left eye. The ophthalmologist opined that conservative management with ciprofloxacin HCl 0.3% w/v eye drops and benzalkonium chloride 0.01% w/v thrice daily till the symptoms subside should suffice. He further advised that the patient's vision should be monitored at hourly intervals so that if there are any visual disturbances or progressive vision loss she would be treated as an emergency. By day 5, after the patient was admitted there was significant reduction in the subconjunctival ecchymosis of her left eye and she did not report any visual disturbances during her stay. Before she was discharged from the hospital, she was again examined by the ophthalmologist who advised weekly follow up for approximately 2 weeks. The patient was seen the next week by which time the ecchymosis in her left eye completely resolved.

Fig. 1. Shows well delineated sub conjunctival ecchymosis on the lateral aspect of the patients left eye.

Fig. 2. Shows well healing sockets of the left first and second molars.

Discussion

Intra-alveolar and transalveolar are the two methods which are routinely employed for extraction of teeth. Both these methods have intra-operative as well as postoperative complications if the surgical principles are not strictly adhered to. The complications of intra-alveolar extraction of maxillary teeth that are documented include displacement of the teeth or roots into the maxillary sinus (6), fracture of the maxillary alveolus and fracture of the maxillary tuberosity (7), oro antral communication (8), and intra-orbital hematoma (9).

The etiology of subconjunctival ecchymosis is traumatic and non-traumatic. Some authors suggest that subconjunctival ecchymosis occurs if a conjunctival capillary is breached which is usually seen in facial trauma involving the fractures of the zygoma. Wiesenbaugh noted this distinctive and frequent finding in approximately 70% of the cases of facial trauma (1). Cosmetic surgeries involving cutaneous resurfacing and brow lift procedures may also cause subconjunctival ecchymosis if meticulous intra-operative hemostasis is not achieved (2). The pathogenesis of subconjunctival ecchymosis because vigorous coughing is not known, but in case of baro trauma by the use of unvented goggles, negative pressure is exerted on the eye ball and the orbital tissues as the gas volume in the goggles is reduced during descent into the water. Capillary rupture occurs usually painlessly and conjunctival hemorrhage will result (3). Fukuyama et al. (4) in 1990 examined 8726 patients prospectively in the out patient clinics and found that almost 2.9% of them had subconjunctival hemorrhage. No sexual or age predilection was found. The most common causes were local trauma, systemic hypertension, and acute conjunctivitis. Subconjunctival hemorrhage associated with systemic hypertension was noted most often in older patients. The non-traumatic causes include certain systemic diseases such as disseminated intra-vascular coagulation and systemic hypertension (4) and certain blood diathesis especially von Williebrand disease (5) in which spontaneous hemorrhage is seen, but the exact mechanism is still unclear. Regarding our case which is presented, there was only subconjunctival ecchymosis in the left eye with out any other associated major symptoms. Taking into consideration the signs and symptoms which the patient presented to us we opted a conservative approach. This conservative management resulted in complete resolution of the subconjunctival ecchymosis with out any ophthalmological complications or functional deficits. One fact remains unexplained as to how a subconjunctival ecchymosis could have occurred after extraction of an upper left first and second molar teeth. There are two possibilities that might have led to this condition, one is the anesthetic block injection and the other could be the surgical technique itself. Uckan et al. (10) in 2006 pointed out that even when clinicians use the utmost care by aspirating before the injection and noting anatomical land marks, intra-arterial injections can occur during regional nerve blocks. They also highlighted the fact that individual anatomic variation of the neurovascular structures may allow the anesthetic solution to be delivered to an ectopic site, causing unusual signs and symptoms such as blanching and ocular complications.

According to Warburton & Brahim (9) who reported a case of intra-orbital hematoma after removal of upper third molar in 2006, they postulated that the hemorrhage must have occurred from one of the tributary vessels of the pterygoid plexus such as the deep facial vein, the posterior superior alveolar vessels, or even from the plexus itself. This could have resulted in bleeding into the pterygomaxillary and infratemporal spaces which communicate with the intra-orbital compartment via the inferior orbital fissure. This provides a pathway through which the hematoma in the infratemporal fossa might have extended into the orbit. We also opine that the similar mechanism could have resulted in the subconjunctival hemorrhage in our case; however, unlike their patient who had restriction of the inferior rectus and diplopia in the upward gaze as well as compartment syndrome, fortunately our patient did not have any functional deficits and the condition resolved with conservative management. Though subconjunctival ecchymosis cannot be avoided in all patients, it could

be prevented by use of utmost care during the anesthetic block injection (aspirating before injection and noting anatomical landmarks) and atraumatic surgical technique.

Conclusion

A rare case of subconjunctival hemorrhage after extraction of maxillary molar teeth is presented; the consequence of which should be addressed to immediately. The possible etiology, management, and how it could be prevented are discussed for this rare complication.

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