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Case Report
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Massive Facial Bleeding with an Implanted Orbital Penetrating Foreign Body in an Elderly Patient on a Novel Oral Anticoagulant

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Abstract

Facial trauma from blunt injury is a common presentation that usually does not require specific emergency intervention. On the other hand, penetrating facial injuries can be quite challenging, as they may compromise airway integrity or, in rare cases, lead to life threatening massive bleeding if not controlled.

To our knowledge there are no guidelines or recommendations on how to approach such challenging situations.

In this case we present a patient with an initially stable deep facial injury that suddenly deteriorated requiring massive transfusion resuscitation and operative intervention. The situation was complicated by the presence of a Foreign Body (FB), which limited the amount of pressure that could be applied.

Given the above, we reviewed the available literature on massive traumatic facial bleeding for possible alternative approaches to such a situation. Our findings can be summarized in a stepwise approach as follows: pressure, nasal packing, surgical ligation, and selective embolization of the external carotid artery or its branches.

Keywords: Penetrating facial trauma; Bleeding facial laceration; Massive bleeding; Novel oral anticoagulant

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Introduction

The incidence of life threatening facial haemorrhage, according to most studies, is reported to be approximately 1%. It is defined in the ATLS as a facial hemorrhage with a heart rate >100 bpm or systolic blood pressure <100 mmHg requiring resuscitation and blood transfusion.

Given the rich vascular supply of the face, it is usually challenging to identify the source of haemorrhage with exploration. The approach in most emergency situations is to protect the airway if its integrity is threatened, followed by direct pressure and hemostatic control sutures of bleeding vessels if identified. Depending on the site of injury, nasal packing may contribute to the initial management.

Given the absence of clear guidelines or recommendations, it was essential to review the literature and treatment options for such situations in order to effectively mobilize resources as early as possible.

Case Presentation

At 10 pm on October 6th 2015, a 73 year old man was transferred from another hospital to our trauma center due to a mechanical fall from his own height onto a broken plate 3 h earlier, resulting in a complex facial laceration. Initially, and on presentation to our institution the laceration was not actively bleeding, and the patient was hemodynamically stable. The patient had a past medical history of atrial fibrillation, treated on Rivaroxaban and Aspirin, as well as multiple other comorbidities. On examination, there was an isolated laceration of approximately 9 cm in length overlying the medial orbital wall and extending into the lacrimal duct system. His CT head was negative but his CT face revealed a 1.9 cm × 0.9 cm radiopaque Foreign Body (FB) on the medial aspect of the left ocular globe, 3.3 cm deep from the skin, as well as a fracture of the left medial orbital wall. The left ocular globe appeared intact both clinically and radiologically. The patient was kept in the

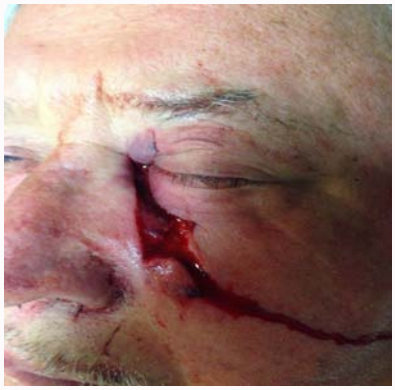

Figure 1: Left Facial Laceration.

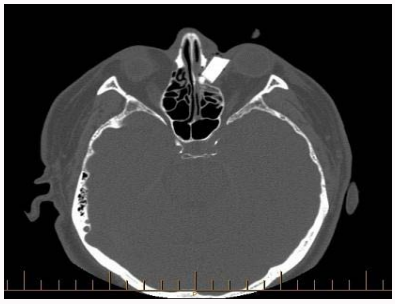

Figure 2: Left sided foreign body identified on CT scan.

monitored care area of the emergency department for evaluation by oral and maxillofacial surgery and ophthalmology.

Approximately 3 h after presentation, the laceration began bleeding profusely, causing a drop in his systolic blood pressure from 138 mmHg to 60 mmHg. The patient was transferred to the resuscitation room and the massive transfusion protocol was initiated. He received a total of 2 units of PRBC, 5 units of platelets and 4 units of fresh frozen plasma, as well as intravenous tranexamic acid. Bilateral Foley catheters were placed as posterior nasal packing, followed by anterior nasal packing and the patient was taken to the Operating Room (OR). In the OR, awake intubation was performed with a GlideScope. The patient received an additional 3 units of PRBC and 2 units of fresh frozen plasma.

The FB was removed by the oral and maxillofacial team and under the observation of the ophthalmology team. Hemostasis was then achieved with bipolar cautery and vessel clips, and the laceration was repaired in 2 layers. Exploration of the canalicular system was deferred to a later time. The patient was then taken to the ICU where he spent 5 uneventful days; he remained intubated for the first few days and then was discharged to the surgical ward and was back to his baseline status. He remained on the ward for a total of 17 days where he had a recovery complicated by gastrointestinal bleed, pneumonia and gout flare-up. He was then discharged home without patient follow-ups.

Discussion

This was a case of an isolated complex facial laceration that was initially not actively bleeding but deteriorated suddenly (Figure 1). Given the sharp FB, that was discovered on imaging, it made the initial step of hemorrhage control by direct pressure somewhat contraindicated, especially since, the FB was relatively large and located proximal and medial to the ocular globe (Figure 2). Bulk compression dressing was mentioned as an effective method for stabilization in complex gunshot facial wounds after securing the airway [1], but given the FB location in our case, it was not a viable option.

A multicenter prospective review on maxillofacial hemorrhage concluded that the best management approach for penetrating facial injuries is to use a surgical approach in the OR both for airway control and hemostasis, while blunt injuries could benefit more by transarterial embolization [2].

As with other major trauma cases requiring massive transfusions for resuscitation, the use of Thromboelastometry (TEM) for resuscitation guidance has also been reported useful in cases of massive facial bleeding [3], but this technology is still unavailable in most centers.

A literature review on life threatening facial hemorrhage was conducted and although the evidence was based mainly on case reports, it concluded that a stepwise approach was important, starting with the basic conservative measures (pressure, nasal packing), followed by local surgical ligation and if unsuccessful Transarterial Embolization (TAE) [4].

Why should an emergency physician be aware of this?

The awareness of all possible options for controlling life threatening complex facial hemorrhage should result in early resource mobilization, especially that with the advances of technology, angiography and embolization can be done in the OR in many centers.

Conclusion

A stepwise approach is followed when confronted with a complex massive facial hemorrhage, starting with the ABC's of trauma evaluation and resuscitation, followed by applying direct pressure, nasal packing (anterior and posterior), and surgical intervention with possible TEA. Finally, organizing an early transfer of the patient to a trauma center with mobilization of the above services is strongly recommended.

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