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CASE REPORT

Damage control of maxillofacial haemorrhage

M.R. Vriens, L.P.H. Leenen *

Department of Surgery, University Medical Center (UMC) Utrecht, Heidelberglaan 100, 3584 CX Utrecht, The Netherlands

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Introduction

The airway complications of maxillofacial fractures are well known but relatively little is written about the exsanguinating haemorrhage which is occasionally encountered. Bleeding can be responsible for aspiration and further airway compromise.[4] Examining physicians may fail to recognise the severity of these problems, underestimate the consequences and, above all, fail to initiate immediate therapy. In this patient with maxillofacial fractures resulting in life-threatening exsanguination, we present a method of damage control using Foley catheters to control maxillofacial haemorrhage.

Case

A 30-year-old man riding a motorcycle hit a car at high speed. He had sustained multiple facial fractures and a forearm fracture on the right side. His initial Glasgow Coma Scale score was 15. He was admitted to our Level 1 trauma centre within 30 min of the injury. At initial resuscitation he had blood clots in his mouth, an unstable maxilla, a blood pressure of 80/50 mmHg and a regular pulse of 100 beats per minute. After rapid sequence intubation for a falling GCS and adequate resuscitation with crystalloid he remained haemodynamically unstable, with a haemoglobulin of 5.7 g/dl. Further physical examination revealed an unstable pelvis which was temporarily, stabilised. The patient remained unstable; sotwo Foley catheters were placed transnasally positioned towards the epipharynx. After inflating the balloons, compression was given and the facial bleeding stopped (Figs. 1—4). The patient remained haemodynamically stable. Trauma screening revealed a maxillary fracture, a nasal fracture, a zygomatic fracture, a frontal bone fracture, a bilateral lung contusions, a bilateral sacral fracture, bilateral acetabular fracture and a forearm fracture on the right side. He went to the ICU for further stabilisation. Because he remained marginally stable and a scrotal haematoma developed, an angiographic examination was performed. This revealed the pudendal artery as a focus of ongoing haemorrhage. This was coiled successfully resulting in a haemodynami-

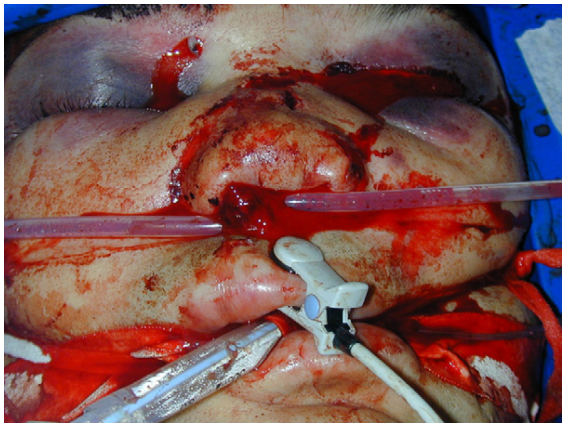

Figure 1 Close-up image in the crash room, intubated, with two transnasal Foley catheters and a pulseoxy meter on his upper lip.

* Corresponding author. Tel.: +31 30 2509882.
E-mail address: l.p.h.leenen@umcutrecht.nl (L.P.H. Leenen).

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Figure 2 Overall image of our patient, intubated, in head blocks at the ICU department, with two transnasal Foley catheters, placed under traction to provide maxillofacial compression.

cally stable patient. After five days his pelvis was stabilised operatively with two plates (Synthes-DCP) and sacral screws. The intracranial fractures were treated conservatively. After one month he was transferred to the regular ward. One month later he was discharged to a rehabilitation center.

Discussion

In this article we present a haemodynamically unstable trauma patient as a result of facial and pelvic haemorrhage. In the acute phase two Foley catheters were inserted transnasally into the epipharynx. After inflating the balloons, compression was given and this controlled the facial bleeding. Awareness of the possibility and recognition of the existence of life-threatening haemorrhage associated with facial fractures is vital for rapid assessment and resuscitation of patients with multiple trauma. Injuries are considered life-threatening when they are severe enough to warrant invasive procedures for rescue during a patient's stay in the emergency room.[5] Simple clinical symptoms, such as seizures, vomiting/nausea, history of a closed head injury or cranial vault fractures are strong predictors of facial haemorrhage in maxillofacial fracture patients.[2] Life-threatening haemorrhage due to facial trauma is considered rare. In a 1025 case series of patients with facial fractures by Tung et al.,[5] 19 patients had a life-threatening haemorrhage (1.9%). Patients with maxillofacial fractures often have respiratory distress due to airway obstruction, associated head injury, haemorrhagic shock, pulmonary contusion, or a combination of these factors. The spectrum of facial fractures includes both simple lacerations and

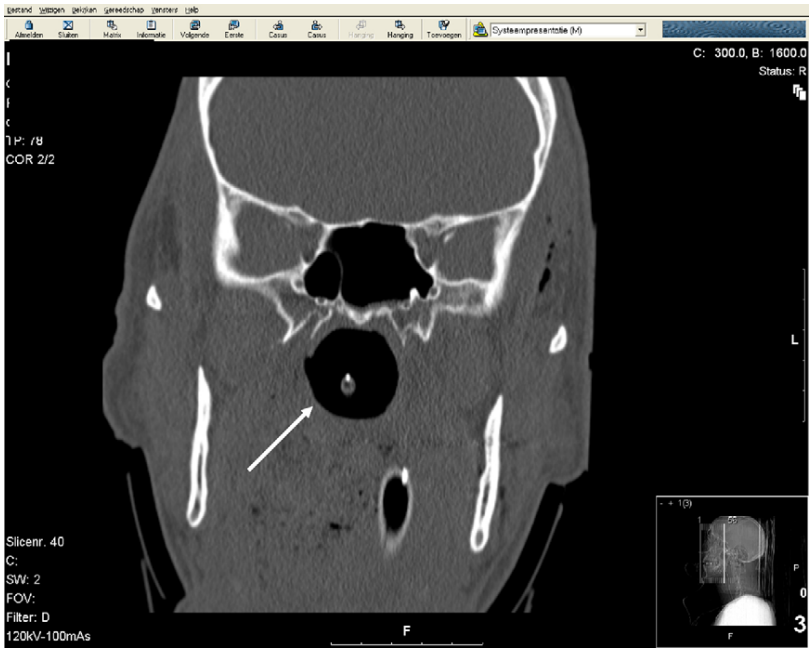

Figure 3 Coronal CT image showing the inflated balloon (arrow) of the Foley catheter which compresses the maxillofacial fractures.

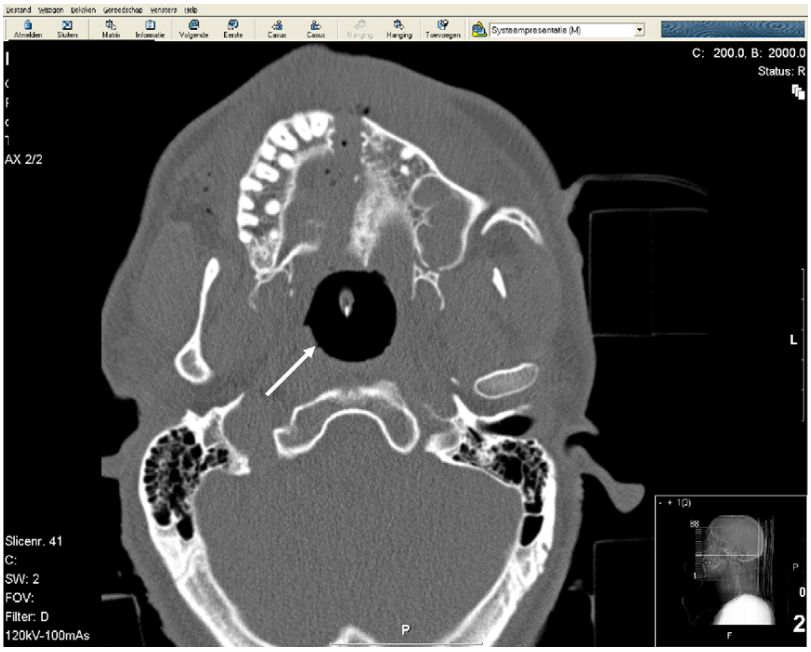

Figure 4 Axial CT image showing his maxillary fracture and the inflated balloon of the Foley catheter (arrow).

complex multiple fractures with accompanying multisystem involvement warranting a multidisciplinary approach. The technique of the inserting Foley catheters allows temporary control rather than pursuing definitive repair during the first operation as described by Firoozmand and Velmahos.[1] In the algorithm for controlling exsanguinating haemorrhage in patients with maxillofacial trauma described by Shimoyama et al., Foley catheter positioning was the first step in controlling bleeding.[3]

Conclusion

In haemodynamically unstable trauma patients with facial haemorrhage, insertion of two Foley catheters transnasally is a simple and practical technique and can be lifesaving.

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