

An Interesting Case of Penetrating Injury Neck and Face

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Abstract- Penetrating neck trauma is an important area of trauma care that has undergone evolution in the recent past. A remarkable number of changes have occurred in the treatment paradigm as new technologies have developed and as surgeons have explored the outcomes from different treatment protocols. Therapy has evolved from no treatment (before effective anesthesia and instrumentation), to non operative management, to routine exploration, to selective exploration and adjunctive invasive or noninvasive assessment. Penetrating neck injuries remain challenging, as there are a number of important structures in a small area and injury to any of these structures may not be readily apparent.

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Introduction

Two recent reports demonstrate the importance of the setting in which penetrating neck injuries occur, particularly treatment protocols in combat zones. Sarkar *et al.* presented 2 cases from Western Baghdad (1), and Ramasamy *et al.* performed a retrospective medical record review of British military casualties from Iraq and Afghanistan who sustained penetrating neck injuries to determine the need for pre hospital cervical immobilization, given current advanced trauma life support (ATLS) protocols requiring spinal precautions when a significant mechanism of injury may damage the cervical spine (2).

In the study by Ramasamy *et al.*, of 90 patients with a penetrating neck injury, 66 (73%) were from explosions and 24 (27%) were from gunshot wounds. In 20 (22%) patients, cervical spine injuries were present; only 6 (7%) survived to reach the hospital, and 4 of these 6 died within 72 hours of their injuries (2). Of 56 survivors that reached a surgical facility, only 1 (1.8%) had an unstable cervical spine injury requiring surgical stabilization, and this patient subsequently died due to a concomitant head injury. Penetrating neck trauma represents approximately 5-10% of all trauma cases that present to the emergency department. About 30% of these cases are accompanied by injury outside of the neck zones as well. The current mortality rate in civilians with penetrating neck injuries ranges from 3-6%. During World War II, the mortality rate was 7%,

and, in World War I, it was 11%. Higher mortality rates occur with injuries to large vessels, such as the carotid or subclavian arteries and veins(3,4). The evaluation of a patient with penetrating neck trauma always should start with ATLS, a paradigm that begins with a directed primary survey emphasizing airway, breathing, and circulation. After patients are stabilized, they undergo a secondary survey that includes a complete history and a thorough physical examination. These steps, together with the studies discussed in workup, are used to identify the likely injury complex and to direct further treatment or diagnostic testing. There is evidence to suggest that the hard signs of airway injury are more reliable and result in less negative operative explorations compared with hard signs of vascular injury(5). The rate of negative exploration for patients with hard signs of vascular injury varies widely, but it may be estimated at 10% (6).

Case Report

A 55 year old man came with history of fall of coconut leaf stem over left side of face and sustained penetrating injury starting from pre auricular region extending to posterior aspect of neck (zone II). On presentation the patient was having pain over the injury site with foreign body in situ, his vitals was stable (pulse rate: 80/min, blood pressure: 130/90 mmHg). Thorough examination of the site of injury and facial nerve examination, there was no evidence of facial nerve injury.



Figure 1. Foreign body noted in situ



Figure 2. Extracted foreign body

Patient was planned for computed tomography (CT) scan (3,6) of neck and face to rule out injury to internal jugular vein, external jugular vein and extent of injury to neck muscles in relation to foreign body.

CT scan revealed that the foreign body was superficial to deep cervical fascia and all the major vessels were intact. The foreign body was situated in the plane superficial to parotid fascia extending into neck. Patient underwent exploration of neck and face under general anesthesia, foreign body was extracted and thorough wash was given to achieve proper hemostasis. Patient withstood the procedure and there was no bleeding after the surgery.

Patient was kept under intensive care unit (ICU) for monitoring vital signs and looking for hematoma. He had minimal hematoma at the site of injury on the first post operative day, for which we planned conservative treatment.

On the second post operative day, hematoma reduced and patient was evaluated for any injury to facial nerve and parotid duct. Patient was discharged on 7th post operative day.

On follow up after 2 weeks wound has healed well and had minimal collection around pre auricular region, which resolved after 2 days. In conclusion, this was rare presentation of penetrating injury without injuring major neck vessels and facial nerve.

Discussion

Penetrating neck injury can present in any form, which needs emergency intervention. In our case patient was

evaluated with CT scan, revealed foreign body was superficial to deep cervical fascia and all major vessels intact (5). Meticulous exploration need to be done. In conclusion, this was rare presentation of penetrating injury without injuring major neck vessels and facial nerve (6).

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