ORBITAL PENETRATING WOUND BY A BULL HORN

HERIDA PENETRANTE ORBITARIA POR ASTA DE TORO

CAMPOS-MOLLO E1, PÉREZ-SANTONJA JJ2, SAMPER-GIMÉNEZ J1

ABSTRACT

Introduction: Bull horn injuries are severe lesions with a high risk of bacterial contamination, and are common in countries where people are fond of bullfighting and related spectacles.

Case report: A 19-year-old man was referred with a penetrating wound in the superior left eyelid produced by a bull horn and resulting in a fracture of the orbital roof and a fat hernia. Prophylactic antibiotics and tetanus toxoid were administered and surgical reconstruction of the wound performed. Orbital cellulitis did develop, but this responded to systemic antibiotic therapy within a few days.

Discussion: Successful treatment of this type of lesion requires early diagnosis, meticulous surgical exploration and appropriate use of prophylactic antibiotics and tetanus toxoid (Arch Soc Esp Oftalmol 2007; 82: 645-648).

Key words: Orbital wound, bull horn, orbit injury, penetrating injury, orbit.

INTRODUCTION

Bull horn injuries are defined as lesions resulting from collision with bull horns.

They are classified based on the bullfighting terminology (1-3): a) Lance: contusion resulting from the horn’s transversal collision; b) Puntazo (a light horn puncture wound or scratch): structural continuity of skin and subcutaneous cellular tissue caused by the tip of the horn and not involving the muscles; c) Cornada (goring): small entry, lacerated contused wound involving the muscles or body...
cavities; d) *Cornada despistante* (misleading goring): entry wound is far away from the most significant trauma area; e) *Cornada envainada* (penetrating goring): deep injury with severe internal lesions without structural continuity in the skin.

Most of these injuries (63%) involve the lower extremities, whereas those involving face and neck amount to barely 2-3 percent (1-2,4).

The total number of articles related to this type of injury is very small, and no references to orbit injuries by bull horn have been found in scientific literature.

**CASE REPORT**

A 19-year-old male wounded by a cow released during the festivity, was referred to our unit by another healthcare center suffering from left orbit trauma by bull horn ten hours before.

Initial examination revealed a lacerated wound along the upper orbital margin (puntazo) sutured in the hospital and one penetrating wound (goring) with anfractuous margins on the left upper eyelid with orbital fat hernia. The largest diameter for the entry wound was 1.7 cm and approximately 1.5 cm deep counting from the orbital margin.

The injury was carefully examined, checking for the integrity of the eye globe by means of tonometry and ophthalmoscopy, both normal. The wound was thoroughly washed with povidone-iodine diluted in saline solution in a ratio of 1:2. Debridement of the herniated fatty tissue and primary closure of the wound were performed.

The computed tomography (CT) revealed fracture of the left orbital roof (fig. 1). A booster shot of diphtheria-tetanus toxoid and intravenous antibiotic therapy of broad spectrum were prescribed, including 400 mg ciprofloxacin every 12 hours and 600 mg clindamycin every 8 hours. Four days after trauma, the patient exhibited palpebral swelling with wound exudate, limited supraduction and lower displacement of the eye globe (figs. 2 and 3).

Regardless of its infectious or inflammatory origin, samples were taken to perform a culture of the exudates found along the wound margins, adding 1 gram vancomycin IV every 12 hours in order to cover the methycillin-resistant *Staphylococcus aureus* and clindamycin was replaced with 1 gram of intravenous metronidazole every 8 hours, since the latter fares better when traversing the hemato-encephalic barrier and thus accounts for the potential risk of the infection’s intracranial expansion through the fracture of the orbital roof. Furthermore, systemic corticoids were administered in a decreasing pattern.

![Fig. 1: Once a bone filter was applied, the axial cut of the computed tomography revealed fracture lines along the left orbital roof. The sagittal cut (built with axial cuts) reveals the lifting of a bone fragment.](image1)

![Fig. 2: The patient developed orbital cellulites. A lacerated wound or puntazo underneath the orbital margin (sutured at the issuing hospital) and one palpebral wound with anfractuous margins corresponding to the goring entry wound were observed.](image2)
In the culture performed, Staphylococcus epidermidis colonies grew that were sensitive to almost every antibiotic applied during the antibiogram, and possibly acting as contaminating agents of the sample.

The CT revealed a thickening of the superior rectus muscle and soft tissues related to the inflammatory process and eye globe displacement (fig. 4).

The patient evolved favorably, presenting two months later visual acuity without unit correction, normal extrinsic ocular and palpebral motility and 12 mm Hg ocular pressure (fig. 5).

**DISCUSSION**

Regardless of its size, the cow exerts great power through the so-called «charge», which is transmitted to the horns by means of a set of levers originating in the animal’s posterior third of with an upward trajectory (2,4). Furthermore, the horned animal tries to fight its rival by rotating the neck, thus involving several tissues (2).

Severe injuries may seem scarcely evident due to their external appearance. Thus, those suffering from bull horn injuries need to be addressed as polytraumatized patients and must undergo imaging tests (X-rays, ultrasound, CAT, NMR).

The wound needs to be washed with an aseptic solution, subsequently undergoing debridement and subjected to thorough examination (2). Once surgery has been completed, the surgeon should be the one to determine whether to leave the wound open or else perform a primary closure with the appropriate margin adjustment and interrupted suture, while placing a drainage is a must (1) when dealing with deep anatomical wounds, as long as its stability can be ensured.

Bull horn injuries are highly polluted due to the presence of germs along the horns and natural environment, and consequently it is crucial to complete tetanus prophylaxis and to use broad spectrum antibiotics at therapeutic doses (1-2,4).

Finally, success when treating this type of injury is based on early diagnosis, appropriate surgical handling as soon as possible from the time of the bull trauma and antibiotic and tetanus prophylaxis.
REFERENCES


