Traumatic Brain Injury Due to Bull Assault in a Girl: a Case Report

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ABSTRACT

Traumatic brain injury is a common condition in the emergency services, affecting the pediatric and adult population significantly. Patterns of head injury as well as management principles in children are important differences compared to adults. Traumatic brain injury by bull rush is usually seen in adults but has not been described in children - report a pediatric cranial trauma present bull rush, which to our knowledge is the first report in the literature of this nature.

Keywords: traumatic brain injury, bull rush, skull fracture, neurosurgery

INTRODUCTION

Traumatic brain injury (TBI) is defined as any assault that has the skull and its contents due to inertial or contact forces affecting the intracranial economy and near tissues. The Traumatic Brain Injury (TBI) can be considered as a silent epidemic. It is a major cause of disability and mortality worldwide, along with polytraumatism, is one of the most frequent causes of consultation in the emergency department (1–4).

For being an important cause of disability, TBI generates high costs to health care systems (5–7). The causes of head injuries are road traffic accidents, falls, violence and very rarely are caused by animal attacks. In relation to the injuries caused by large animals (bulls, buffalo), the incidence in Western countries varies from 375 to 740/100000 people per year (8,9).

We present the case of a female child with TBI by bull assault, which to our knowledge is the first report in the literature of this nature.

CASE REPORT

A 10 years old female patient suffered an unprovoked attack by a bull in a rural Colombian area. She is brought to the emergency room of a local hospital three hours after the attack, presenting vomiting and severe headache after head trauma with loss of consciousness secondary to the bull rush. She is assessed on admission by a pediatrician. She has not personal or family history of importance, at physical examination, vital signs were stable, presents neurological deterioration associated with episodes of hematemesis, drowsiness, poor response to verbal stimuli, isochoric pupils, and normal otoscopy. It is evidenced a
sinking and swelling area in right parieto-occipital region. Cardiopulmonary: rhythmic heart sounds, no murmurs. In the abdominal palpation there is not tenderness, no masses or organ enlargements. Simple Brain CT scan is performed, showing a depressed fracture in the right parieto-occipital region without intra-parenchymal hematomas (Figure 1A and B).

It is performed esquirlectomy and elevation of the depressed fracture, trans-operative unremarkable. She is moved to the pediatric intensive care unit under conventional TBI management (hypertonic saline, analgesia, gastric protection), where she remains three days. Posteriorly she is moved to the intermediate care ward due to good response to treatment and discharged after 7 days. In outpatient controls, the patient has no neurological deficit.

**FIGURE 1A, B.** Simple brain CT scan showing a depressed fracture in right parieto-temporal region, without intra-parenchymal hematomas.

**DISCUSSIONS**

Threat of animal attacks on people is an important social and medical problem (10-13).

Whereas in urban locations, animal-related injuries are often from pets or semi-domesticated animals or a result of traffic collisions rather than direct attacks (14,15), in rural locations, the animal-related injuries can be result from of large farm or bush wild animals (16), thus they are a common cause of morbidity and even mortality especially in that setting (17), because growing human population is into closer contact with that kind of animals. In a study by Scott et al. was found that from 145 patients with injuries caused by large animals, 32% were caused by bulls (18). Studies in urban centers are only related to the equestrian trauma due to its frequency and its association with serious injuries (19,20), it is most often found facial injuries in children practicing equitation (21,22).

Human injury resulting from encounters with non-domesticated animals is an increasing situation throughout the world (16). The range reported of animal-related injuries is 0.2% (23)-8.3% (17) of all trauma admissions.

Regarding our case, bulls (*Bos taurus*) rush, should be mentioned that overall beef cattle may weigh over 400 kg, and can cause serious injury to humans (24); but bulls can weigh over 800 kg, making notorious their strength and unpredictable behavior, they can be very aggressive. The injuries resulting from large animals attack can range from minor bruises to more extensive blunt force injuries like punctured wounds, avulsions, amputations and separation of a pedunculated flap due to the amount of force involved, and as such these are classified as high energy injuries (25). Currently is recognized head injuries are very common, especially amongst younger patients, who suffered large animal attack (26).

In our country, livestock breeding is a common practice, so the workers and their families are surrounded by these animals, making them to be at high risk of lethal injuries involving especially the head and torso (15). Near to 80% of farming injuries are treated by the general practitioner, livestock-related trauma is frequently seen in more complex hospitals and may be associated with serious injuries (27). Principles of managing these attacks include using a systematic survey to rule out major traumatic
injury; once done, then should be assessed soft tissue and prevention of local and/or systemic infection (16).

In our review of the literature no cases were found involving bulls as cause of traumatic head injury in children.

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REFERENCES


