Camel related head injury in United Arab Emirates

Ashraf F Hefny [1], Mohamed A Fathi [2], Mohamed A Al-Ali [3], Hussam M Mousa [1]

[1]Department of Surgery, College of Medicine and Health Sciences, UAE University and Al Ain Hospital, UAE
[2]Department of Surgery, Faculty of Medicine, Ain Shams University, Cairo, Egypt
[3]Department of Otolaryngology, College of Medicine and Health Sciences, UAE University, UAE

Introduction

Injury caused by large animals vary according to the regional distribution of the animals, their behaviour, and relationship to humans (1). Camels are usually friendly to humans, however, occasionally they become very hostile especially in rutting season and can cause serious and sometimes fatal injuries. Camels causes 83.3% of animal related injuries at UAE (2). Trauma patients with head injury have a higher mortality rate compared with those without head injury (3). Very few studies in the literature have discussed camel related head injuries. We aimed to study the incidence, mechanisms, types, and outcome of camel related head injury in Al-Ain city, UAE in order to give recommendations on preventive measures.

Patients and methods

We retrospectively collected data of all patients who were admitted to Al Ain Hospital with camel related head injury from January 2015 through January 2021.

Data collected included demography, vital signs, and Glasgow Coma Score (GCS) on admission, mechanism of injury, anatomical location and severity of the injury, associated injuries, and management. The patients were followed up during their hospital stay to record the length of hospital stay (LOS), complications, and outcome. Overall injury severity was determined using the Injury Severity Score (ISS). Ethical approval for this study was obtained from AAH Research Ethics Governance Committee

Results

During the study period, 98 patients were admitted to the hospital with camel related injury. 39 (39.8%) of the admitted patients with camel related injury sustained head injury. The median (range) age of patients was 27 (4-51) years. 34 (87.2%) patients were camel caregivers. 33 patients (84.6%) were injured in farms. The most common primary mechanism of injury was fall while riding the camel in 24 (61.5 %) patients. All patients were admitted at the same day of injury and none of them were wearing helmet.

21 (53.8%) patients had isolated head injury and 18 (46.2%) patients had associated other body regions injuries, most commonly, chest and lower limbs.

34 (87.2%) patients had mild traumatic brain injury (GCS 13-15). Brain concussion was the most common head injury in 22 (56.4%) patients (**Table 1**). Seven patients suffered intracranial haemorrhage.

GCS was significantly correlated to the severity of head injury measured by AIS of the head (p=0.006, Spearman Correlation); However, it was not statistically significant in relation to the injury severity of patients calculated with ISS (p=0. 620, Spearman Correlation). Five patients (12.8%) patients were intubated and admitted to the Intensive Care Unit (ICU) with a median (range) ICU stay of 5 days (3-12). 17 (43.6%) of our patients were discharged within 48 hours. The median (range) hospital stay was 3 (1-13) days. Four (10.3%) patients had residual disability following the head injury. One patient died during the study period after having decompressive craniectomy for subdural haemorrhage (**Fig. 1).** The patient died on the 13th post-operative day. Overall mortality was 2.6%.

Table 1: Types of head injury of hospitalized camel related head-injured patients, Al-Ain, UAE, 2015-2021 (n=39).

Type of head injury	n	%*
Concussion	22	56.4
Scalp lacerations and contusions	19	48.7
Fracture Skull	13	33.3
Facial fractures	11	28.2
Intracranial hemorrhage	7	17.9

* Patients may have more than one type of injury; therefore, the total percentage adds up to more than 100%

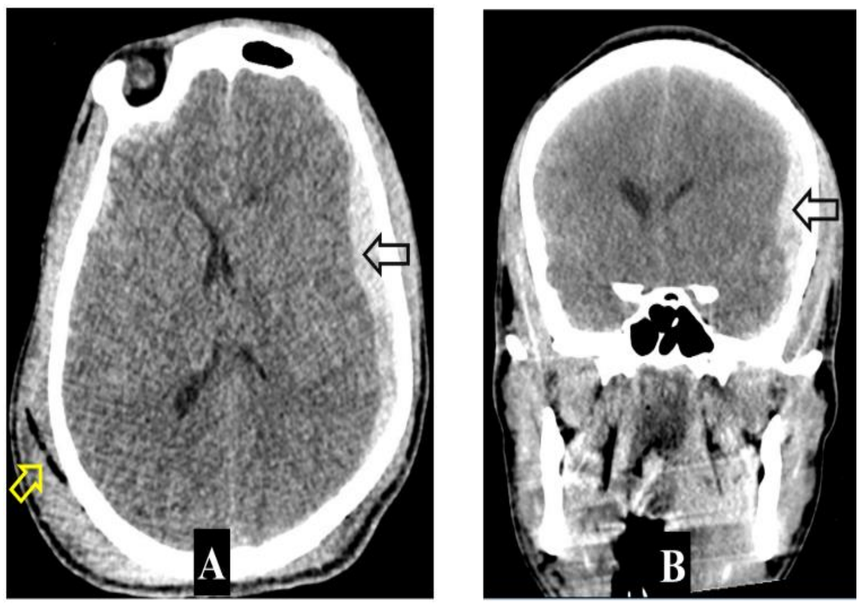

Fig 1: CT scan brain without iv contrast: **A)** axial and **B)** coronal cuts showing Left parietal subdural haemorrhage measuring 9 mm in width (black arrow) causing a mass effect with a 4 mm midline shift to the right, subgaleal hematoma with gas foci noted in the right occipito-parietal region of the head (yellow arrow).

Conclusions

Camel-related head injury is preventable. Legislation for compulsory helmet usage by camel caregivers at farms should be adopted. Other safety measures including educational programs about the camels' behaviour and handling can decrease the incidence of injuries.

References

1. Norwood S, McAuley C, Vallina VL, Fernandez LG, McLarty JW, Goodfried G. Mechanisms and patterns of injuries related to large animals. J Trauma 2000; 48:740-744.

2. Eid HO, Hefny AF, Abu-Zidan FM. Epidemiology of animal-related injuries in a high-income developing country. Ulus Travma Acil Cerrahi Derg 2015; 21:134-138.

3. Patel HC, Bouamra O, Woodford M, King AT, Yates DW, Lecky FE; Trauma Audit and Research Network. Trends in head injury outcome from 1989 to 2003 and the effect of neurosurgical care: an observational study. Lancet 2005; 366:1538-1544.