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Facial Trauma Caused By Captive Ostrich Attack Surgically Managed With Iliac Bone Graft– Case Report

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Abstract Human injuries caused by ostriches are rare and there are few cases on the literature. This species of animal may show aggressive behaviour related to territoriality and may even attack potential predators. The main purpose of this paper is to report a case of a patient who suffered an attack by a domestic ostrich causing severe facial injuries, treated with surgery. The patient is in follow up and no permanent damage is reported.

Keywords: *ostrich, trauma, face, fracture, animal attack*

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1. Introduction

Human injuries caused by animals are common and it is possible to find many reports on the literature, especially of attacks by dogs, cats, cows, horses and camels causing injuries in different places such as trunk, limbs and face. On the other hand, reports of injuries caused by ostrich attacks seem to be rare because of the few cases found on the literature [1]. People in general might think that birds are less dangerous because of its instinct to fly away when frightened by something or someone. This is true for many species of bird, but the ostrich, a flightless bird, is an exception and may show aggressive behaviour related to territoriality and may even attack potential predators [2]. Therefore, the main purpose of this paper is to report a case of a patient who suffered an attack by an ostrich and who had severe facial injuries, treated with surgery.

2. Case Report

Female patient, 64 years old, living in a rural area and owner of two ostriches, domestic variant African Black, attended the Hospital and Maternity of São José dos Pinhais/PR – Brazil, relating an ostrich attack directed to her face. Facial and oral examination revealed laceration in the right infraorbital region and ptosis of the lower right eyelid. CT scan showed a blowout fracture and fracture of the anterior maxillary wall (Figure 1). The treatment option was an immediate wound debridement followed by primary wound closure (Figure 2). The patient received intravenous broad range antibiotics and tetanus prophylaxis. As soon as the swelling was solved, the fractures were surgically reduced and immobilized by wire internal fixation. A bone fragment originating from iliac crest graft was also positioned in the infraorbital region (Figure 3). It was also necessary to reposition the lower right eyelid. The patient is in follow up and no permanent damage is reported seven years after the accident, including to the eye (Figure 4). The patient has no complain of paresthesia and remains working on the farm with the animal that caused the accident.

3. Discussion

Ostriches in the wild usually run away from humans, since they assume they are potential predators. However, because of its strong territoriality, especially when cornered, they may become aggressive in order to defend itself and their territory. Farmers have raised these animals as a source of food [3] and, although domesticated, they still show the same natural instincts and may respond aggressively to stress. When this happens, the attack usually consists of a kick with their powerful feet, armed with long claws, which are capable of disemboweling or killing a person with a single blow [4]. These huge birds sometimes reach a height of 2.8 m and body weight of 150 kg and can run at a speed of 70 km/h [5].

These animals usually cause one of two types of injury: the first and more serious one happens when the bird kicks with its foot, causing a laceration usually on the lower abdomen or limbs; the second and most common type occurs when the ostrich uses its breast to knock the person to the ground and jump upon the person, causing contusions and fractures [6]. In the case reported in this paper, the injury was caused by the first type described above and the injury was a severe laceration on the face caused by the claw of the ostrich's foot.

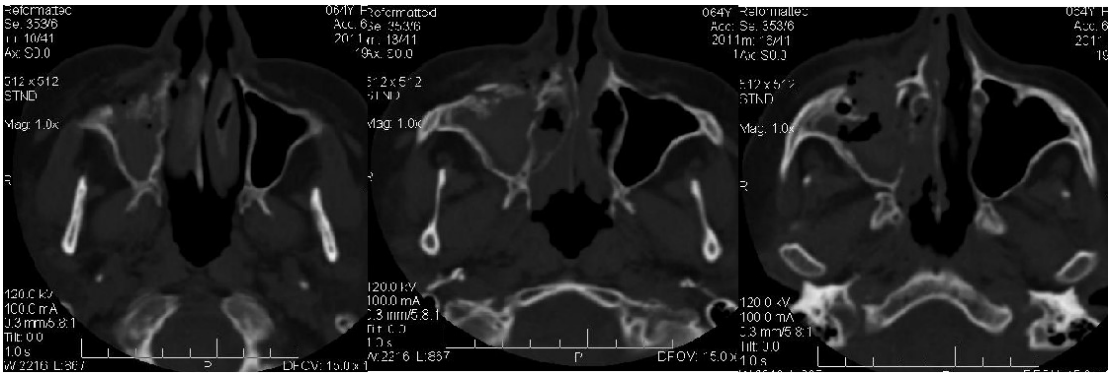

Figure 1. CT scan in axial view showing the extension of the damage to the orbital floor and anterior maxillary wall

Figure 2. Facial aspect after suture of the infraorbital laceration, showing ptosis of right eyelid and large edema

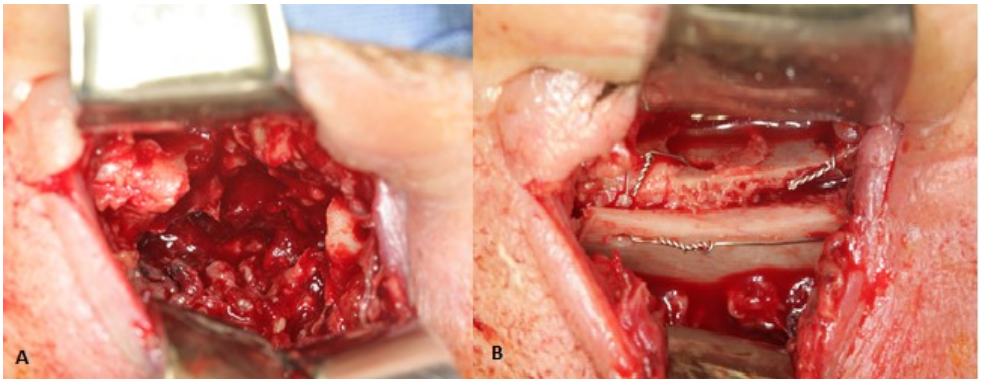

Figure 3. Intraoperative view showing the large destruction of the orbital floor. 3b Intraoperative view showing the bone graft from iliac crest in position

Figure 4. Facial aspect 7 years after the accident, showing the success of the treatment

The best management of facial injuries related to animal incidents remains unclear, especially on the timing for wound debridement, type of repair and use of prophylactic antibiotics [7]. Stucker *et al* (1990) believes that this wide range of opinions may be due to variations in the site, extent, and nature of the injury. Other factors that should be considered, according to the same authors, are the time until initial treatment, mechanism and circumstances of the injury and type of animal involved. The personal experience of these authors reveals that satisfactory results were achieved after immediate debridement, irrigation and primary closure, even on the cases when it took longer for the patient to seek medical care. Facial fractures were reduced and immobilised soon and, when accompanied by extensive tissue loss, secondary reconstruction was undertaken later. Antibiotics and tetanus prophylaxis were recommended for all patients whenever they presented, according to Gasser *et al* (1993), who recommended routine prophylactic antibiotics considering the difficulty in predicting risk of infection from the extent of the wound [8]. The case presented in this paper was managed according to what is described in the literature and the patient was treated with broad range antibiotics and received tetanus prophylaxis. Also, the wound was debrided immediately and the fractures were reduced as soon as the swelling was solved.

Although orbital fractures may lead to functional and aesthetic impairment, the criteria for surgical repair of the orbital wall fracture are patient-specific and the choice of a surgical treatment must be based on symptons and clinical findings, i.e. a defect larger than 50% of the orbital floor [9]. When surgery is chosen, there are several options of material to repair the defect: autogenous bone graft being the gold standard for orbital floor reconstruction. The harvest sites available for this purpose are iliac bone, rib bone and calvarial bone [10]. On the case presented in this paper it was necessary to repair the defect since more than 50% of the orbital floor were affected, thus bone graft from iliac bone was chosen. A study published in 2015 by Kronig et al with only pure orbital blow out fracture and the use of only autogenous bone graft concluded that good functional and aesthetic results can be obtained at one year postoperative [11]. This conclusion matches with the outcome of the treatment described in this paper, since after one year follow up the patient remains without aesthetic and functional impairments.

Therefore, one may conclude that for one's own safety, that it is necessary for those living in or visiting rural areas with ostrich breeding to be cautious of the territorial behaviour of ostriches and possible the risk of an attack.

Conflicts of Interest

The authors have none to declare.

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