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Facial dog bite injuries in children: A case report

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ABSTRACT

INTRODUCTION: Dog bites are common and can affect victims of different ages, from children to the elderly. Injuries are usually located in different body regions, including head and face. The treatment of choice for injuries is the suture of the lesion, accompanied by antibiotic therapy and tetanus and anti-rabies vaccination.

PRESENTATION OF CASE: An 11-year-old male black patient was admitted to the Surgery and Maxillo-Facial Traumatology Service, on an urgent basis, victim of domestic animal aggression (dog biting). The child had multiple and extensive lesions on the face, trauma with laceration with loss of substance, involving the left genic region, lower and upper lip, and lower gingival-labial sulcus.

DISCUSSION: Smaller children are especially vulnerable to injuries in the craniofacial region due their low stature, propensity to crawl/play on the ground and exploratory behavior. The primary treatment of bites is by means of direct suture, grafting or local flaps, depending on the type of wound and the surgeon's decision, regardless of time elapsed from the attack.

CONCLUSION: This case shows a case of a child patient victim of animal bite, with lesions limited to the region of the face. The patient was followed up for a month and showed good wound healing without any complications.

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1. Introduction

Injuries are a major cause of morbidity worldwide, especially in childhood, in which attacks by animals stand out, since they not only transmit diseases, but also show high treatment costs [1]. Bite wounds are frequently located on the face; injuries inflicted by dogs are most common [2], especially in children [3] and most dogs are familiar with their victims [4].

The most affected body region varies according to the age group of the victim, so that while adult victims are most affected in the body, children are most affected in the head region [3,5,6]. Other authors point out that the regions most affected by dog bites are hands, followed by lower extremities, upper extremities, face and buttocks [7].

A complete clinical examination is essential, associated with a detailed examination of the injury under general anesthesia, as appropriate [8]. The treatment of lesions caused by dog bites is done by cleaning, debridement and primary closure of the injury, anti-

rabies and tetanus control and antibiotic prophylaxis [9,10]. In this context, the aim of this work was to describe an interesting case in which a eleven-year-old child presented with multiple soft-tissue lacerations to the face, all sustained from a dog-bite attack. The presented case has been reported in line with the SCARE criteria [11].

2. Clinical case

An 11-year-old male black patient was admitted to the Surgery and Maxillo-Facial Traumatology Service of our institute, on an urgent basis, victim of domestic animal aggression (dog biting). The child had multiple and extensive lesions on the face, trauma with laceration with loss of substance, involving the left genic region, lower and upper lip, and lower gingival-labial sulcus (Fig. 1). A signed informed consent was obtained from the parents before the treatment.

The surgical procedure was performed under general anesthesia with tracheal intubation and local infiltration of 2% cytotocaine with adrenaline, cleaning of the surgical area and irrigation with 0.9% saline solution, stabilization of wound edges and cauterization of the surgical area with electric scalpel. Then, face reconstruction was carried out by suturing wounds in layers with vicrylR 4-0 wire, and

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Fig. 1. The extent of the soft-tissue injuries sustained from the dog-bite attack.



Fig. 3. Thirty days follow up at lateral left and frontal views.



Fig. 2. Primary closure of the wounds at the cheek region and the lower labial region.

then skin suturing with 5-0 nylon wire in separate points, followed by pressure dressing (Fig. 2). Close control visits were programmed.

In the immediate postoperative period, the patient was calm and able to feed. He was medicated with anti-rabies, antibiotic and analgesic serum. On the second postoperative day, the patient was discharged from the hospital, and his mother was guided on the use of the medication and care on hygiene and antisepsis of the wounds. At the final examination, 30 days after the event, the child

did not show additional unusual bleeding episodes or any other oral/systemic complications (Fig. 3).

3. Discussion

Bites by animals, especially dogs, are considered a public health problem. Such trauma can cause infectious, functional, aesthetic implications and may even lead to death, especially when victims are affected in the head and neck region [2].

It is difficult to explain why so many children are injured by dogs. This age group is one where the awareness of danger is very low or absent. The sites of injuries suggest, to some extent, that children may get very close to dogs, and put themselves in very vulnerable positions [12].

Injuries that can be caused by dog bite range from lesions that are restricted to superficial tissues [10], with or without loss of substance, to facial and cranial bone fractures [3,6,9,13]. In some cases, these injuries may lead to amputations, including severe vascular and nerve or bony destruction [10].

Some authors have shown that a human bending over a dog, putting the face close to the dog's face, or gazing between human and dog, closely preceded a dog bite to the face and more than three quarters of all bites to the face were preceded by the victim bending over the dog [4]. As described by Reisner et al. [14], knowing the dog and being indoors are closely related to being bitten on the face. However, although being indoors and having familiarity with the animal play important roles in the potential risk of a facial bite, these factors are not essential for the occurrence of this type of accident.

According to literature [5], about 90% of these lesions affect the body of the adult victim and only 10% affect the head and neck; however, when it comes to pediatric victims, this relationship is reversed, so that up to 76% of cases involve the facial region, mainly affecting cheeks, lips and nose. Injuries to soft tissues are divided into three categories: lacerations, punctures, and avulsions (tissue loss) [10].

With respect to pediatric patients, the craniofacial region is the most affected [3,8,15–17], and the frontal region and cheeks are the most affected areas, followed by lips and nose [6]. Smaller children are especially vulnerable to injuries in the craniofacial region due their low stature, propensity to crawl/play on the ground and exploratory behavior [3]. As children grow taller, they became more able to protect themselves, and participated in different activities, and bites occur more peripherally to the upper and lower extremities [3]. At the time of clinical care, patients and parents/guardians should be properly instructed that all wounds may leave scars, may be infected, and may have undetectable foreign bodies at the time of initial evaluation [18].

The administration of antibiotics is often associated with local treatment of lesions caused by dog bites, and this choice is based on the probability of possible infections caused by microorganisms present in the oral cavity of these animals [6]. The antibiotics of choice after bites on the face and scalp are amoxicillin with clavulanic acid or cephalexin (1st generation cephalosporin). In minor infected wounds, oral amoxicillin with clavulanate ensures excellent coverage for infected bites by dogs, cats or humans. In cases of allergy to penicillin, clindamycin may be used [8]. Additionally, the administration of anti-rabies vaccination remains the gold standard of treatment for animal bite wounds.

It is important to highlight that some factors, such as the number of injuries produced and their location, influence the therapeutic behavior to be adopted. The primary treatment of bites was by means of direct suture, grafting or local flaps, depending on the type of wound and the surgeon's decision, regardless of time elapsed from the attack [8]. Postoperatively, attention to patient counseling, dressings, ointment, cleaning, and scar revision help assure an optimal outcome for the traumatized tissue [10].

Accidents are of substantial importance in public health, given their magnitude and impact on people's lives [19]. Strategies for dog bite prevention include close supervision of child-dog interactions, public education about responsible dog ownership and dog bite prevention, stronger animal control laws, better resources for enforcement of these laws, and better reporting of bite cases [3,10].

4. Conclusion

Dog bites are quite common injuries that preferably affect children, and the face is the most affected region. Trauma can leave aesthetic and psychological sequelae to victims, so the treatment must involve a multidisciplinary team in order to minimize the damages caused. Immediate surgical intervention provides a better aesthetic result and antibiotic prophylaxis reduces or prevents the risk of infection.

Conflicts of interest

None.

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Ethical approval

Not applicable. No research study involved.

Consent

The patient received a thorough explanation of this report gave him oral and written informed consent to be included in this report as well as for publication of these case, anonymous data, and pictures. A copy of the written consent is available for review on request.

Author contribution

Alessandro Leite Cavalcanti, Edgleys Porto and Alidianne Fábica Cabral Cavalcanti: study concept and design; drafting the paper. Bruno Ferreira dos Santos and Christiane Leite Cavalcanti: data collection, analysis and discussion of data. All authors: final approval of the version to be published.

Registration of research studies

Not applicable.

Guarantor

The corresponding author is the guarantor of submission.

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