



DOG BITES- A RISING PROBLEM IN INDIA AMONGST CHILDREN; A CASE REPORT

Surgery

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ABSTRACT

Bites by animals are worldwide problems which are at a rise in India. Sometimes fatal, these bite injuries in the oro-facial region can result in severe aesthetic and functional deformity. We report a case of a 2-year old male patient with severe tissue avulsion on the right side of the face involving half of upper lip till the naso-labial fold following a stray dog (rabid?) bite. Patient was started on anti-rabies vaccine. The avulsed tissue was attached to the face with only a sling of mucosal tissue. After examining the vitals and ruling out any other associated injuries, immediate surgical repair was undertaken with antibiotic prophylaxis under general anesthesia. Usually bite lesions are treated with juxtaposition of the torn edges, without suturing, to create natural drainage. We instead applied immediate suturing, after thorough debridement and removal of clearly devitalized parts, hence no infection occurred. The tissues were oriented and approximated followed by 2-layer suturing. The torn edges were infiltrated with anti-rabies immunoglobulin and he was prescribed antibiotics, analgesics and topical application of Fusidic ointment. Patient has been on regular follow-ups and healing has been satisfactory without any adverse effects.

KEYWORDS

Dog bite, animal bite, tissue avulsion, canine bite

INTRODUCTION

Animal bites are a worldwide growing problem which is at a rise in India due to the large number of unsterile stray dogs. Sometimes fatal, animal bite injuries to the maxillofacial region can result in inevitable physical, functional and psychological consequences along with grotesque facial deformity. (1) Trauma caused due to animal bites amount up to a total of 2 million cases per year. 60-80% of these are afflicted by man's best friend- "canines" (1,2). Around 22% of the bites affect the region we deal with, that is the head and neck region. The face itself might be affected in 10% to 15% cases. (3) According to the Center for Disease Control, dog bites of the facial region are most common in children (4). These injuries commonly involve the lips, nose or cheek, and also pose a greater risk of infection due to the possibility of an occult communication with the oral cavity due to dog bites on the cheek. (5). These wounds may be puncture type deep wounds, injected by the bite force or may range from minor scratches to major trauma to face involving skin and deep tissue injuries or sometimes even, fracture of facial bones. (1) Lackmann et al classified facial animal bite wounds based on the extent of injury [Table 1]. (6)

The puncture wounds are at higher risk of infection because microorganisms get inoculated at a depth of wound which has a narrow entry point. This environment is ideal for the growth of anaerobic bacteria. Typically, these infections are poly-microbial in origin, comprising mixed aerobic and anaerobic species. Aerobic bacterial flora isolated from infected dog bites include α and β haemolytic *Streptococcus* (24-46%), *Staphylococcus* (10-25%), *Pasteurella* (0-50%), *Pseudomonas*, *Escherichia coli* and *Moraxella* species. Anaerobic flora includes *Bacteroides*, *Prevotella* and *Fusobacterium* species (13-76%). In more than 50% cases, anaerobic organisms cause infection. (1,7)

Another problem that could occur from animal bite trauma is transmission of human rabies. Annually, more than 55,000 cases of human rabies passed on through dogs take place throughout the world. (8)

Table 1: Classification of facial bite injuries (6)'

Type	Clinical findings
I	Superficial injury without muscle involvement
IIA	Deep injury with muscle involvement
IIB	Full thickness injury of the cheek or lip with oral mucosal involvement (through-and-through wound)
IIIA	Deep injury with tissue defect (complete avulsion)
IIIB	Deep avulsive injury exposing nasal or auricular cartilage
IVA	Deep injury with severed facial nerve and/or parotid duct
IVB	Deep injury with concomitant bone fracture

The injury besides being physical, also has a major psychological impact on the victim due to the gross facial scars resulting from the mauling (3). Management of lacerations resulting from a dog-bite remains a controversial topic amongst those who treat them. The factors to be looked into when planning treatment for such cases include - the nature of the injury, the expertise of the surgeon, the amount of time between injury and repair, and the location of the injury. (5,6) There is a mixed opinion in literature regarding the approach for treatment of these wounds- allowing the injury to heal by secondary intention, or primary closure of the lacerations. If the animal is not likely to be infected with rabies, receipt of laboratory tests which takes two days should be awaited. If the animal was not vaccinated then it should be kept in quarantine for 10 days and if the disease appears, the victim should be treated with serum and vaccine. (2) We, as oral and maxillofacial surgeons do come across such injuries, which pose a challenge from the point of aesthetics, infection and function. Hence it is imperative that we are well equipped with the knowledge of the treatment modality regarding the same. The goal of maxillofacial rehabilitation should be restoring the aesthetic and functional defects of the patient. Here, we present our experience with a case of dog bite injuries and their management, in III B category.

CASE REPORT

A 2-year-old male, presented to the department of Oral and Maxillofacial surgery, Yenepoya Dental College, Mangalore, Karnataka with the chief complaint of extensive tissue avulsion following a dog bite. The kid was brushing his teeth when a stray (rabid?) dog attacked him. He was immediately brought to our emergency department for needful. On extra oral examination, complete avulsion of mucosa and skin was seen on the right side of the face attached with only a mucosal sling to the rest of the face (Fig 1,2). His weight was 10 kgs and since he was a pediatric patient, the pediatrician took care of the adjustment of the medicine dosage. All vitals were stable and any other associated injuries were ruled out. Regular serological tests were done which were all within normal limits. He was started on anti-rabies vaccine and prophylactic antibiotics and he was then taken up for aesthetic and functional reconstruction under general anesthesia.

MEDICAL MANAGEMENT

INJ TAXIM 330MG IV TID
INJ AMIKACIN 75MG IV BD
INJ RANTAC 20MG IV BD
ANTI-RABIES VACCINE PROTOCOL FOLLOWED: 2.1.1'7,
5.1.17, 9.1.17, 16.1.17, 31.1.17 and 2.4.17

SURGICAL MANAGEMENT

Patient was painted and draped under all aseptic precautions. The wounds were debrided thoroughly with betadine and saline. Devitalized tissue was discarded. The avulsed tissue was oriented in a

way that the muscle was aligned along with the exposed nasal cartilage and white roll continuity was maintained .Suturing was done using 3-0 Vicryl for the mucosa and muscle layer whereas 5-0 ethilon was used to suture the skin and lip(Fig 3). After the completion of suturing, 1 ml of Human Rabies Immunoglobulin E.P (150 I.U/ml) was infiltrated along the sutured tissue and another 1 ml was injected (I.M) in the antero-lateral aspect of thigh(Fig 4). Patient was prescribed antibiotics and analgesics and topical application of antibiotic ointment (Fusidic A). Sutures were removed after 10 days and patient has been on regular follow-ups ever since.(Fig 5,6)



Fig 1: Avulsed tissue of Right side of upper lip extending till the naso-labial fold region



Fig 2: Avulsed tissue attached with a mucosal sling to the face



Fig 3: Post- suturing



Fig 4: Human Rabies Immunoglobulin infiltration



Fig 5: After 2 days of approximation

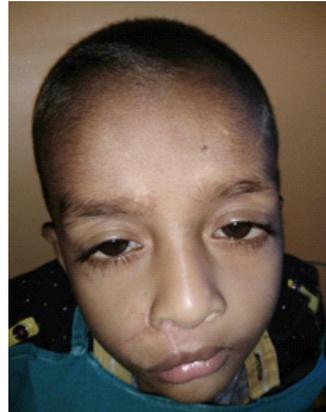


Fig 6: After 5 months of follow-up

DISCUSSION

In children, dog bites represent a serious problem, because they can be life-threatening and imply aesthetic problems, as they mostly involve the head and neck.(1)The majority of dog bites involve small children and the culprit more often than not is a familiar dog. Amongst children, about 77.2% cases the head and neck area is involved.(2)In our case , delay in treatment could have lead to loss of a massive amount of facial tissue and associated functional and aesthetic deformities. Usually bite lesions are treated with juxtaposition of the torn edges, without suturing, to create natural drainage. We instead applied immediate suturing, after thorough debridement and removal of clearly devitalized parts, hence no infection occurred. As it was a stray dog, immunization of the patient was very important along with the management, hence the paediatrician took care of the anti-rabies vaccine & dosages which were equally important in this case.

The contamination of bite wounds is an important issue. Because of the presence of bacteria in the oral cavity, animal bite wounds are generally contaminated.(5) The predominant pathogens in these wounds are the normal oral flora of the biting animal, along with human skin organisms and occasional secondary invaders (Staphylococcus aureus and Streptococcus pyogenes). Moreover, Pasteurella species are isolated from 50% of dog bite wounds, and among anaerobes, Bacteroides species, fusobacteria, Porphyromonas species, Prevotella-heparinolytica, propionibacteria, and peptostreptococci are common anaerobes isolated from dog bite wounds.(8)Although infections occur infrequently in bitten children and adults, antibiotic therapies indicated for all dog bites to the head and neck in neonates and children. Children can be treated with amoxicillin-clavulanate, ampicillin-sulbactam, and meropenem. In our case we prescribed ampicillin-sulbactam as a prophylactic dose before surgery till 1 week after surgery along with topical application of fusidic ointment. The recovery took its due course satisfactorily without any adverse effects.

CONCLUSION

Sometimes fatal, when post-exposure prophylaxis is not given and the dog is rabid. These bite injuries in the oro-facial region can result in severe aesthetic and functional deformity. The approach was immediate debridement and suturing due to the extensive avulsion of tissue which could have lead to severe facial and aesthetic deformity. The young age and good vascularity of facial tissue in children enabled

good healing with minimal scarring without any adverse effects. The patient has been on regular follow-ups for 6 months now. It is always better to treat these kind of injuries from the animal bites by vaccinating with anti-rabies vaccine immediately, then under the supervision of a paediatrician and a maxillofacial surgeon and to have regular follow-ups.

REFERENCES

1. Khandelwal P, Hajira N, Dubey S. (2015) "Management of Maxillofacial Injuries in Humans due to Animal Bites and Mauling: A Report of Three Cases" *NPMJ*; 22(4):241-244
2. Chhabra S, Chhabra N, Gaba S (2015). "Maxillofacial injuries due to animal bites." *J Maxillofac Oral Surg*; 14(2):142-153
3. Poveda G et al "DOG BITE WOUNDS TO THE MOUTH IN PRIMARY CARE: FROM SUCCESS TO FAILURE - A REVIEW"; *IJMRPS* December 2014; 1(7)
4. Dhupar V, Akkara F, Roy I, Louis A. (2014). "Management of Animal Bites in Maxillofacial Surgery"; 5(4):243-246
5. Foster MD (2015) "Contemporary Update on the Treatment of Dog Bite: Injuries to the Oral and Maxillofacial Region"; *J Oral Maxillofac Surg*; 73(5): 935-942
6. Morgan JP III, Haug RH, Murphy MT (1995) Management of facial dog bite injuries. *J Oral Maxillofac Surg* 53: 435-441.
7. Morgan M (2005) Hospital management of animal and human bites. *J Hosp Infect* 61: 1-10.
8. Abuabara A (2006) A review of facial injuries due to dog bites. *Med Oral Patol Oral Cir Bucal* 11: E348-E350.