

Management Of Orofacial Wound By Fox Bite -A Case Report

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Abstract

Injuries due to dog or cat is very common in India but the incidence of fox bite is very rare. Alogorithm of its management is also very controversial due to limited data available in literature. As per available literature the wound characterized by tears, abrasion, puncture, avulsion or crush injury types. So it is very challenging to a surgeon to manage this type of wounds as there will be chance of rabies and associated other bacterial infection. Here we are going to present a case of 68 years male having category 3 wound due to fox bite at a village at Murshidabad, West Bengal.

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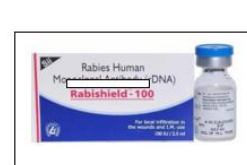
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I. Introduction

¹³Facial injuries cause by animal attack make complex challenges to a surgeon due to the impact on function and appearance of patient as well as there is chances of polymicrobial and associated viral infection. Bites may also carry the chance of transmitting zoonotic infection like rabies and tetanus. Apart from this patient may also endure psychological and social distress due to mental trauma and fear of anatomical disfigurement. Here comes the challenge of maxillofacial surgeon to treat one such patient. Fox bite injuries to maxillofacial skeleton are rare and fox bite as a single entity lacks detailed evidence in the literature. Any bite from wild animal will be consider as category III exposure.

II. Case Report

A 68 year old patient brought to our dental OPD who was reffered from Emergency Department at Murshidabad Medical College Berhampore having multiple bite and traumatic injury in his body specially at face and right upper extremities. On examination we noticed some deep abrasive wound at right elbow and there was multiple cut and bite wound at facial region below eyes and cheek along with lacerated cut injury to lower lip. After examination of the wound properly we cleanse the wound with 1000 ml of 0.9% Normal Saline for more than 15 minutes and rinsing the wound with 5% Betadine Solution and 1% cetrimide solution intermittently at each wound for More than 10 minutes. Some surgical debridement was done when necessary specially at lip wound. Two 50 IU Human Rabies Immunoglobulin diluted with 20 ml 0.9% NS was infused depth and around all wound and 5 ml has given intraorally and instruct patient to use as a mouthwash for 2 minutes. All the wounds was kept open for 24 hours as per protocol of National guidelines of rabies prophylaxis 2019. Patient was given 500 U of tetanus Immunoglobulin as well as 0.5 ml tetanus toxoid I.M. Patient was given Amoxycilline 500 mg + Clavulanic acid 125 mg capsule along with Metronidazole 400 mg tablet and Paracetamol 1000 mg tablet for next 7 days. Next Day Debridement of wound and minor primary closure of intraoral and lip wound done under local anaesthesia along with dressing of extra oral wound with Soframycin cream and Rabies vaccination was started as per protocol of 0,3,7,14,21 days. Review of patient done on 3rd day, 7th day, 14th day and 21 days. Now patient is physically and functionally stable.



III. Discussion

²Bites from animals are relatively common specially from dogs and cats. ¹³While over 95% of human deaths are attributed to the rabid dog exposure, cases of rabies resulting from bite injuries caused by wild animals, such as jackals, wolves and foxes are reported occasionally. According to the National Guidelines for Rabies Prophylaxis 2019, Category III exposure includes injuries caused by wild animals and all bite injuries in forest areas is treated accordingly.

¹¹A considerable proportion of skeletal and soft-tissue injuries of the face results from animal bite injuries, mostly due to dog bites. It can lead to disfigurement, functional disability and infectious complications. Though facial injury from wild fox bite is very rear. Furthermore, wounds can require a debridement or repair in the operating room, which range from primary closure to microsurgical replantation, skin grafts, flaps or even facial transplantation.

²The infectious complications, which usually result from uncommon pathogens, are frequent and represent a special responsibility and medical challenge in oral and maxillofacial surgery. Normally, bite wounds are polymicrobial with a mixed flora of aerobic and anaerobic bacteria which can be difficult to control in medical treatment. Furthermore, bites can trigger life-threatening diseases such as zoonotic infections—particularly rabies and tetanus ⁶*Pasteurella* species (spp.) is the most common organism isolated from both cat and dog bites.

⁷Soft-tissue infections after dog bites occur in around 10%, with *Pasteurella canis* being the most commonly (50%) isolated organism. Other bacteria such as *Fusobacterium*, *Bacteroides*, *Prevotella*, and *Pseudomonas* may also be present.¹² *Capnocytophaga canimorus* is an uncommon but fearsome slowly growing organism with a prolonged incubation period of 1 to 7 days that causes septic shock and purpura fulminans in susceptible patients, with 25% mortality.¹³ Short courses of pre-emptive antimicrobials are recommended for moderate-to-severe bite injuries over the face and upper limbs. Longer courses are preferred for severe injuries with bony fractures and joint penetration.

Common aerobic and anaerobic bacterial genera isolated from 50 infected dog bite wounds (American Society of Microbiology 2011) is as follows.

Aerobic organisms

Bacterial genus Frequency (%)

Pasteurella.....	50
Streptococcus	46
Staphylococcus.....	46
Neisseria.....	32
Corynebacterium.....	12
Moraxella	10
Enterococcus.....	10
Bacillus.....	8

Anaerobic organisms

Fusobacterium	32
Porphyromonas.....	28
Prevotella.....	28
Propionibacterium	20
Bacteroides	18
Peptostreptococcus.....	16

⁶Amoxicillin-clavulanate is the antibiotic of choice for prophylaxis and empirical therapy for children who are not allergic to penicillin.

Types of contact, exposure and Post exposure Prophylaxis (National Guidelines for Rabies Prophylaxis 2019)

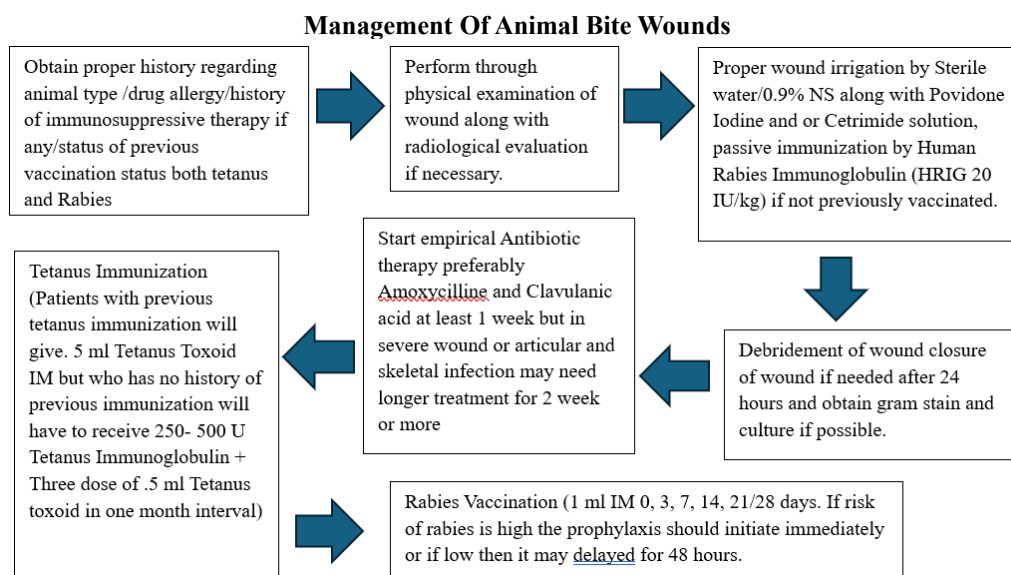
Category of exposure	Type of exposure	Recommended post exposure prophylaxis
I	- Touching /feeding animals - Licks on intact skin - Contact of intact skin to secretion/excretion of rabid animal or human case	- None (If reliable case history is available) - Wash exposed areas with soap and running water for 15 minutes and apply antiseptic
II	- Nibbling of uncovered skin - Minor abrasions or scratches without bleeding	- Wound management if required - Wash exposed areas with soap and running water for 15 minutes and apply antiseptic - Rabies vaccine
III	- Single/Multiple transdermal bite/scratches - Licks on broken skin - Contamination of mucous membrane with saliva from licks	- Wound management - Rabies immunoglobulin - Rabies vaccine

Callaham suggested that wounds with a high risk of infection must be thoroughly irrigated with antiseptic agents and left open to drain. For uncomplicated bite wounds presenting beyond the golden 24-hour period, the decision for closure during the initial visit is debated. Sometimes delayed closure may also done after 4-5 days. During this time, the wound remains open, typically covered with moist gauze dressings for drainage, allowing the edema to subside. To reduce swelling some anti-inflammatory medicines like NSAI and Dexamethasone may added along with Antibiotic.

⁶Basic medical management of bite wounds includes thorough cleansing and debridement. Irrigation, closure, and need to obtain culture depend on the type of bite wound, the appearance of the wound, the and timing of medical evaluation after the initial injury. ¹³Bite injuries carry a risk of tetanus infection, necessitating proper immunization if the patient has not received three tetanus toxoid doses or if more than five years have elapsed since the last dose. In case of bites from dogs or wildlife animals, immediate post- exposure prophylaxis for rabies should be initiated.

IV. Conclusion

Animal bite poses a significant healthcare concern worldwide and becomes challenging to a maxillofacial surgeon owing to polymicrobial and zoonotic infection and associated morbidity. Hence this type of management needs a proper standardized protocol.



Reference

- [1]. Management Of Bite Wounds And Infection In Primary Care By Ann T Kelleher,DO, Steven M Gordon MD
- [2]. Microbiological Characteristics And Surgical Management Of Animal-Bite-Related Oral & Maxillofacial Injuries: A Single Center's Experience By Johannes Spille, Juliane Schulz, Dorothee Cacilla Spille, Hendrik Naujokat, Henning Wiekler, Jorg Wiltfang, Aydin Gulses.
- [3]. Training Module For Medial Officers National Rabies Control Programme, Ministry Of Health And Family Welfare, Government Of India.
- [4]. Dog Bite In Juries: Primary And Secondary Emergency Department Presentations- A Retrospective Cohort Study. By Carmen A Pfortmueller, Anastacios Efeoglou, Hansjakob Furrer,And Aristomenis K. Exadaktylos
- [5]. Maxillofacial Injuries Due To Animal Bites Shruti Chhabra, Naveen Chhabra, Shivani Gaba
- [6]. Human And Animal Bites Fernando J. Bula-Rudas, MD; Jessica L. Olcott, MD.
- [7]. Burden Of Bites By Dogs And Other Animals In Los Angeles County, California, 2009-2011 Public Health Reports 2016, By Caleb Lyu, Mirna Ponce Jewell, Jennifer Piron, Karen Ehnert, Emily Beeler, Alexandra Swanson, Lisa V. Smith, And Tony Kuo,
- [8]. Life-Threatening Panfacial Wild Dog Bites In A Child By Srinjoy Saha, MBBS, MS, MRCS, Mch (Plast)
- [9]. Clinical Guidelines For The Antibiotic Treatment For Community-Acquired Skin And Soft Tissue Infection By Yee Gyung Kwak1,Seong-Ho Choi, Tark Kim1, Seong Yeon Park, Soo-Hong Seo,Min Bom Kim, Sang-Ho Choi.
- [10]. Microbiology Of Animal Bite Wound Infections Fredrick M. Abrahamian1,And Ellie J. C. Goldstein1, David Geffen School Of Medicine At UCLA, Los Angeles, California; Department Of Emergency Medicine,
- [11]. Animal Bite Injuries In Children: Review Of Literature And Case Series Aviral Agrawal, Pradeep Kumar, Ruchi Singhal, Virendra Singh, Amrish Bhagol
- [12]. Animal Bite Injuries To The Head: 132 Cases Marco Rainer Kesting ¹, Frank Hölzle, Christian Pox, Petra Thurmüller, Klaus-Dietrich Wolff
- [13]. Protocol For Management Of Maxillofacial Injuries Caused By Fox Attack: A Case Report. By Vidya M S, Anu Jose, Sachin Aslam A, Sooraj Soman
- [14]. National Guidelines For Rabies Prophylaxis 2019- A Rabies Control Programme Department Of Health And Family Welfare Government Of India.