

Toddler Bite Leading to Mother's Death

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Abstract

Necrotizing fasciitis is a serious and potentially life-threatening condition. Although bite wounds are common, they are not frequently reported as a cause of necrotizing fasciitis. In the present article, a 28 year old lactating mother (P1G1L1) of a 2.5 years old toddler was presented to ER in septic shock leading to necrotizing fasciitis. With a better understanding of the anatomy, microbiology, mechanism of injury, and clinical presentation, early diagnosis and the institution of appropriate therapy may minimize the morbidity commonly associated with human bite infections of the hand.

Keywords: Toddler Bite; Mother's Death; Emergency Room (ER)

Introduction

Mammalian bites account for almost 1% of emergency room (ER) visits annually in the United States, the annual medical costs of managing these injuries being over \$100 million. Of these, human bites are particularly notorious for their propensity in causing infections at the site of the bite injury as well as posing a potential risk for transmission of systemic diseases. Hence, there is a need to pay special attention to the diagnosis and management of human bites, some of which can lead to disabling consequences.

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| Grade 1 |
| Superficial skin lesion |
| Torn skin |
| Scratched skin |
| Crushing injury |
| Grade 2 |
| Wound extending from the skin to the fascia muscle or cartilage |
| Grade 3 |
| Wound with tissue necrosis or tissue loss |

Table 1: A classification of severity of bite wounds from Rueff, et al.

Human saliva is known to contain as many as 50 species of bacteria with almost 108 microbes/ml. This is one of the reasons why human bites are believed to have higher rates of infection than other injuries. Other factors associated with higher rates of infection are delayed presentation to the ER.

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|-------------|----------|
| Cat Bites | 30 - 50% |
| Human Bites | 15 - 25% |
| Dog Bites | 5 - 25% |
| Overall | 10 - 20% |

Table 2: Average infection rates from mammals bites.

Streptococci are the most commonly isolated organisms, contributing to approximately 80% of cases. In addition, *Staphylococci* and *Eikenella corrodens* are also considered important aerobic organisms in this setting. Anaerobic organisms also frequently contribute to infectious risk following bite wounds. These organisms include *Fusobacterium* spp, *Peptostreptococcus* spp and *Prevotella* spp. Anaerobic organisms are typically isolated as part of mixed cultures and are present in as many as 60% of cases. Human bite wounds have also been associated with transmission of HIV, Hepatitis B virus, Hepatitis C virus and Herpes virus [1-10]. Therefore, post-exposure prophylaxis should be considered in this setting.

Case Presentation

A 28 year old female was referred to emergency department of max smart hospital from spring meadows hospital in view of severe hypotension and symptoms of multiple organ failure after I and D right breast abscess. other complaints were shortness of breath, severe dehydration with deteriorating general condition.

Vitals on arrival to emergency

- Febrile
- Blood Pressure - 90/60 Mm Hg on dopamine and noradrenaline support.

In emergency ABG was done which showed metabolic acidosis and high lactate level.

Patient was started on broad spectrum antibiotics and fluids with inotropic support for severe hypotension and shifted to ICU.

Day 1 - Patient was put on ventilator in view of deteriorating GCS.

Day 2 - Total mastectomy right breast was done. Patient's condition continued deteriorating. Dialysis was also done in view of kidney failure.

Day 3 - Patient had sudden cardiac arrest and was declared dead despite all resuscitative efforts.

History of present disease

11 days back, patient was well, when her baby took a bite at her right breast while feeding. The next day she developed fever, pain in right breast and rashes over neck, shoulder and chest region.

She took tab. cefixime 200 Mg Bd for 3 days and the symptoms subsided. 4 days later she again developed fever and visited a local gynaecologist, where she was prescribed tab. cardiforce (antifungal). Same day at night she had 30 episodes of loose stools and 5 episodes of vomiting, following which she was admitted to spring meadows hospital and then to ER of Max Smart Hospital.

Discussion

This case is very clear example of delayed diagnoses of necrotizing fasciitis followed by delayed usage of required antibiotics, leading to toxic shock syndrome with multiple organ failure causing death of the patient.

Conclusion

Human bites are potentially dangerous wounds and constitute a significant cause of morbidity. Emergency physicians should be well acquainted with the evaluation and proper management of human bites to avoid complications. Early treatment, appropriate prophylaxis and surgical evaluation are key to achieving desired treatment outcomes. Due to the polymicrobial nature of these wounds and prevalence of antibiotic resistance, emergency physicians should be aware of the common organisms involved and their susceptibility to commonly used antibiotics.

There is consensus that tetanus immunisation should be given routinely as part of wound care of mammalian bites, but we found no studies assessing the benefit of this strategy.

Immunisation does not need to be performed if there is a record of tetanus immunisation having been given in the previous 5 years.

Antibiotics may prevent infection in high-risk bites to the hand, but we don't know if it is worth giving prophylactic antibiotics after other types of mammalian bites.

High-risk bites are those with deep puncture or crushing, with much devitalised tissue, or those that are dirty.

Bites that occurred less than 24 hours previously, or those with only simple epidermal stripping, scratches, and abrasions, are unlikely to benefit from antibiotic treatment.

There is consensus that wound debridement, irrigation, decontamination, and primary wound closure are beneficial in reducing infection, but we don't know this for sure.

There is consensus that antibiotics help cure infected bite wounds, although we found few studies.

Selection of appropriate antibiotics depends on the likely mouth flora of the biting animal and the skin flora of the recipient and can be based on samples of infected material examined by microscopy and culture.

Antibiotics with activity against *Pasteurella multocida* should be selected for empirical treatment of infected bite wounds.

There is consensus that rabies prophylaxis should be given after all animal bites in areas where rabies is known to exist and after bat bites in all areas of the world.

Learning Point

Human bites are notorious for causing severe infections due to pro microbial nature of human saliva. These infections pose difficulty to treat due to lack of history of bite in most of the cases. These bites can be risk factor of various infection including toxic shock syndrome. Thus, human bites can cause huge morbidity if neglected, emergency physician should be well aware of such complications and must ensure proper medical management.

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