

Uncommon Encounter: Tiger Bite-Associated Abscess in a Residential Area – A Case Report

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Abstract

In the last few decades, an increasing range and amount of exotic animals have become popular as pets,^[1] with animal bite wounds also increasing in prevalence.^[2] *Pasturella multocida* is the most common organism isolated following both cat and dog bites,^[3] however; infection from the bite of large cats (i.e. lions, tigers, leopards, panthers) has rarely been reported.^[4] We are reporting a case *P. multocida* isolated from a tiger bite wound complicated by abscess formation in a 22-year-old female in Lahore, Pakistan. A 22-year-old female presented to the emergency department of a private hospital in DHA Lahore with complaints of fever, redness, and swelling of her right upper thigh after having been bit by an exotic pet tiger at her employer's home one week ago. Clinical examination revealed a tender, hardened area around the bite and relevant laboratory investigations confirmed the presence of *Pasturella multocida* in the abscess. The patient underwent incision and drainage under local anesthesia, with subsequent wound care and antibiotic therapy. Upon follow-up, significant improvement was seen at the procedure site. Wound closure was achieved within a few weeks. This case report serves to emphasize the significance of immediate management of animal bites, which includes the administration of appropriate antibiotic therapy following a series of relevant investigations to prevent the occurrence of complications. Additionally, surgical intervention should be carried out if indicated clinically.

Keywords: Tiger Bite, Abscess, *Pasturella Multocida*.

INTRODUCTION

Approximately 1% of all emergency room visits in the US are from animal bites. *Pasteurella multocida*, a gram-negative, facultative anaerobic non-spore-forming coccobacilli that can be seen in pairs or short chains is the most common organism isolated following both cat and dog bites.^[3] It grows well on blood and chocolate agar, but not on selective media like MacConkey agar. It is a zoonotic agent in numerous animals, such as sheep, mice, cattle, birds, dogs, and cats. In both domestic and wild animals, *Pasteurella multocida* is a component of the microbiota and causes opportunistic illnesses in humans. It has been discovered to colonize pet owners' bronchi and trachea. *P. multocida* is considered the principal source of infection due to the contamination

of wounds with animal saliva or aerosolized secretions.^[5] Numerous studies indicate a rise in *P. multocida* infections worldwide. Skin and soft tissue infections, if left untreated, can lead to more severe conditions like bacteremia meningitis or endocarditis. *P. multocida* respiratory infections are uncommon and nearly always occur in immunocompromised individuals with long-term respiratory conditions.^[6] Additionally, *Pasteurella multocida* infections from the bite of large cats (i.e. lions, tigers, leopards, panthers) are even more rarely reported.^[4] In this study, we would like to report a unique incident

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of a tiger bite, leading up to a soft tissue infection and cellulitis in the Lahore Defence Housing area.

Case Report

A 22-year-old female presented to the emergency dept. of a private Hospital in Lahore on 29th December, 2023. She presented with complaints of fever for the last 2 days, and redness and swelling on the medial aspect of her right upper thigh. The patient gave a history of a pet tiger bite one week back. The patient explained that she was a live-in employee hired by a household to be a caretaker for their pet tiger. She also admitted to self-medication with Amoxicillin - Clavulanic acid at a dose of 625 mg twice a day for the last week.

3 days ago, she developed redness and swelling on and around the bite area. Upon examination of the wound, an area which felt firm and tender upon touch was identified which measured to be 8 x 8 x 6 cm. Her vitals at the time of presentation were as follows: Pulse 112/min, Blood Pressure 110/70, Sp O₂ 97% at room air and Temperature was 100°F.

Upon investigation, the patient's CBC showed an increased white blood cell count. A coagulation profile was done to evaluate anaesthesia safety. She was prepared for surgery, and given appropriate IV fluids and a preoperative antibiotic shot of ceftriaxone, 2gm IV. The patient underwent incision and drainage of the abscess under local anesthesia, with copious irrigation and debridement of necrotic tissue done on the same day she presented to the emergency department. Thick pus was also aspirated during this procedure and sent for culture sensitivity immediately. In the Microbiology laboratory, the Gram stain of the pus confirmed the presence of gram-negative diplococci. (see figure 1 and 2) The culture report identified the growth obtained on media as *Pasteurella multocida*. Identification was confirmed on biochemical tests and the automation from VITEK 2.



Figure 1: Growth of *Pasteurella Multocida*.

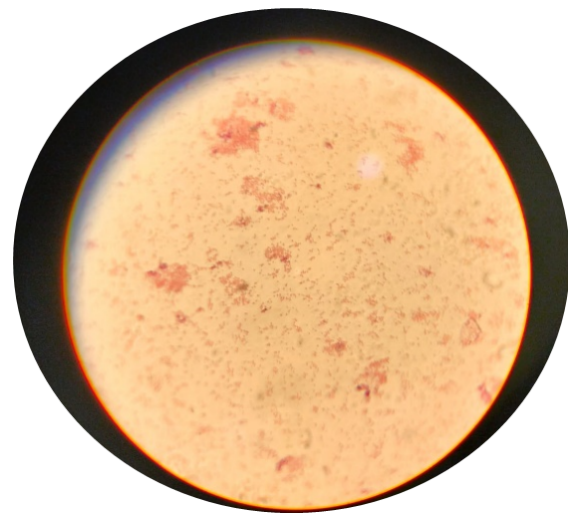


Figure 2: Gram Stain of Colony Showing Gram Negative Diplococci.

A biopsy from the wall of the abscess was also sent for histopathological examination. Histopathology reported a 5cm-by-5cm focal mass which has central necrosis, and inflammatory neutrophilic infiltration. The impression was of a benign mass, findings typical of an abscess.

In post-surgical follow-up, she was managed with wound wash and daily dressings for one week and then alternate day dressing for another two weeks. The patient had been placed on broad-spectrum empirical antibiotics to cover for polymicrobial infection. Following the availability of culture and sensitivity reports, the patient was placed on Moxifloxacin. With appropriate medical management and wound care the patient demonstrated significant improvement, with resolution of symptoms and signs of healing observed upon follow-up visits. After 6 weeks, the wound was closed and approximated with minimal scarring.

DISCUSSION

Pasteurella multocida, a common commensal found in tigers' mouths, is one of the most common offending organisms in bite infections, according to multiple studies.^[4,7] In one of these experiments, *Pasteurella multocida* was proven to be present in the mouths of all animals after the oral flora of seven tigers was sampled and analyzed.^[7] Even though *Pasteurella multocida* is frequently implicated, bite infections are typically caused by many microbes. According to a different study, infected tiger bite wounds typically yield a mean of five different bacterial species when cultured.^[8] In our case, there was only one pure growth of *Pasteurella multocida*. In terms of sensitivity, research indicates that treating tiger bite wounds with first-generation cephalosporins is not always successful.^[9] As seen in this instance, the introduction of pathogenic bacteria from the tiger's oral cavity into human tissue can lead to abscess formation. To stop the development of more catastrophic consequences like sepsis or necrotizing fasciitis, prompt diagnosis and treatment are essential.

CONCLUSION

Reducing the frequency of abscesses linked to tiger bites requires preventive interventions such as prophylactic antibiotic medication and appropriate wound care. Animal safety guidelines should also be made known to all exotic and domestic pet owners, including proper vaccination protocol. Additionally, lowering the likelihood of such interactions depends on taking initiatives to reduce human-tiger conflicts through habitat protection, community outreach programs, and policing the illegal smuggling of exotic animals.

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