



## Beware of Dog and cat bites! Beware of *Pasturella pneumotropica* - A Rare Case Report

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### Introduction

*Pasturella pneumotropica* are small, gram-negative, oxidase positive bacilli that colonize the mucous membranes of domestic and wild animals but these are not present usually in the normal flora in human beings<sup>[1][2]</sup>. Infection in humans is mainly caused by the bites, saliva and scratches of animals<sup>[3][4][5]</sup>. Lymphangitis and cellulitis are the common clinical presentation resulting from the direct exposure and that can be complicated by tenosynovitis, osteomyelitis, bone abscess and septic arthritis<sup>[7]</sup>. *Pasturella* species can rarely cause localized infections like conjunctivitis and Otitis media<sup>[6]</sup>. Respiratory tract infections can occur due to the inhalation of bacteria<sup>[8]</sup>. Many systemic infections like brain abscess, bacteremia, meningitis and peritonitis and endocarditis can be caused by *Pasturella* species<sup>[9][10]</sup>. Meningitis in infants occur due to the animal contact. *Pasturella multocida* is the commonest pathogen that is frequently isolated from wounds by animal bites<sup>[11]</sup>. Other *Pasturella* species are *Pasturella pneumotropica*, *Pasturella haemolytica* and *Pasturella ureae* that can be differentiated on the

basis of different biochemical tests and are rare in humans. Here we report a case of *Pasturella pneumotropica* from a patient with osteomyelitis with a history of dog or cat bites. *P. pneumotropica* was described by Jawetz in 1950 in among rats and mice where it causes various infections<sup>[12]</sup>.

**Keywords:** Meningitis, Debridement, Bacteremia, Cellulitis.

### Case Report

A 44 year old male presented to the orthopedic OPD of SBMCH with the chief complaint of pain and swelling of the right limb. The patient complains about pain in the right lower limb that persisted for the past 2 weeks. In the orthopedic clinic patient gives the history of cat scratches with bites to the right lower extremity and the closure of the lacerated wound on the lateral side of right limb was done in the emergency. The patient was continuously observed for any persistent cellulitis. Due to persistent pain patient referred to the orthopedic department and after extensive clinical examination, a puncture wound with point tenderness at a metatarso-phalangeal joint with

increased pain on any attempted motion was noted. The wound was erythematous with localized swelling. The patient was hospitalized with the diagnosis of a displaced articular fracture of the third metatarsal and possible osteomyelitis. Debridement, Arthrotomy of the affected joint with open reduction and internal fixation was done. Cultures were taken from the third metatarsal joint, bone fragments and puncture wound. From the microbiological culture, a gram-negative bacilli. *Pasturella pneumotropica* was isolated after inoculation on Nutrient agar, MacConkey agar, Blood agar and chocolate Agar incubated aerobically at 37°C for 18-24 hours [figure 1].



**Fig1:** *Pasturella pneumotropica* on blood agar plate

With the use of conventional laboratory tests, that is gram staining, culture and biochemical test a final identification was made as *P. pneumotropica*. Oxidase test positive (+), indole test positive (+), Simmons citrate test negative (-), Urease test negative (-), Triple sugar iron test acid/acid, nitrate reduction test positive (+), Ornithine decarboxylase test positive (+), Lysine decarboxylase test positive (+), Acid from glucose, maltose and sucrose. But mannitol was not fermented. With the help of these tests *Pasturella pneumotropica* was differentiated from other *Pasturella* species like *Pasturella multocida* and

also from *Actinobacillus* species and *Pseudomonas alcaligenes*. And the identification was further confirmed by VITEK. *Pasturella pneumotropica* is rarely an etiological agent of wound infections. After the antibiotic susceptibility pattern it was found to be susceptible to aminoglycosides, first generation, second generation and third generation, cephalosporins, piperacillin, gentamicin, tetracycline, trimethoprim/sulfamethoxazole and the amikacin, and tobramycin.

### Conclusion

Since bone, and joint infections caused by *Pasturella pneumotropica* are very rare in humans. So, the wounds inflicted by dog or cat bites should be sent for culture sensitivity to microbiology before starting the prophylactic therapy for the same. And if there is cellulitis after 24hrs of bite exposure than pasturellosis should be confirmed by culture methods unless proved otherwise. That will help in identification and isolation of the pathogenic microorganism and decrease the morbidity and mortality.

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