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Pasteurella Dagmatis and *Multocida* Cellulitis Acquired from a Cat Bite : A Case Report

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Case Report
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Abstract

Pasteurellosis is reported after animal biting, particularly cats bites with *Pasteurella multocida* being the predominant isolate. Among others, Pasteurella dagmatis is rarely reported, causing cellulitis but is also associated with other more severe systemic infections, particularly in immunocompromised hosts. We described here the case of a cellulitis caused by *Pasteurella dagmatis* and *multocida.*

Keywords: Pasteurellosis; Cellulitis; Chemotherapy

Case report

A 48-years-old woman known for opiate dependency under methadone substitution, type 2 diabetes and an epidermoid carcinoma of the larynx (cT3N3bM0) treated by chemotherapy (Cisplatine-Docetaxel) and radiotherapy in 2019 with remission, presented to our emergency department for right foot pain and fever at 38.9 °Celsius. She reported chronic cat scratching and biting on both legs at home but did not notice recent trauma on the right foot. She was admitted for cellulitis.

At admission, we noticed a lot of atrophic scar on the right leg and an erythematous tumefaction and induration of the right foot (Figure 1) with spontaneous purulent discharge at the center (Figure 2). She did not have lymphangitis or inguinal adenopathy palpable. The clinic was very suggestive of a Pasteurella's infection. Laboratory exams revealed an inflammatory syndrome (PCR 165 mg/l with no leukocytosis). Bacterial smear was positive for *Pasteurella dagmatis* and *Pasteurella multocida*. Blood culture were negative. An ultrasound excluded subcutaneous abscess. We drained the wound daily the first 96 hours with pus attesting of superficial subcutaneous abscess collecting over time, and introduced a systemic antibiotherapy with co-amoxicillin 1.2 g every 8 hours. Clinical and biological evolution was good after 10 days.

Figure 1: Erythematous induration of the right foot and atrophic scars on the leg.

Figure 2: Spontaneous purulent discharge occurring at the center of the erythematous induration.

Discussion

Animal bites are common and can lead to severe injuries, accounting each year for 4.7 million visits in the emergency units in the United States with costs estimated to 50 dollars per year, with cat bites responsible for 10% for all animal bite wounds [1].

Dogs and cats bites infections are often polymicrobial with anaerobic and aerobic bacteria [1]. Species belonging to the Pasteurellaceae family, a Gram negative aerobic bacterial, are known to be pathogens on the mucosal surfaces of upper respiratory tracts of vertebrates, and are described among dogs, cats but also other animals such as birds, horse, pigs, guinea pig and iguana [2,3]. These species may be responsible of zoonotic infections in humans [4].

Pasteurella multocida is the predominant isolate found among cat bites following by *P.dagmatis*, *P.stomatis* and *P.canis* [2]. Infection occurs rapidly during the firsts 24 hours following the injury, often manifesting as cellulitis but clinician should be aware of potential complications such as abscesses or sepsis [1]. Other clinical manifestations induced by *P.dagmatis* are rarely reported in the medical literature including bacteremia [3,5] and septicemia [4,6], prosthetic [7,8] and native [9] valve endocarditis, pneumonia [10], chronic bronchiectasis [11], peritonitis [12,13], vertebral osteomyelitis [14], spondylodiscitis [15]. Serious systemic infections due to Pasteurella species are unusual in individuals without predisposing illnesses such as diabetes or immunosuppression [4].

Concerning the treatment, due to high risk infections, cat bite wounds are never closed by primary intention and systemic antibiotics should be used for patients with higher-risk bites or bites on the hand using Penicillin in first line therapy (such as amoxicillin-clavulanate), a good choice in cases of animal bite prophylaxis [1,4]. *Pasteurella dagmatis* is highly susceptible to many antibiotics, particularly, the beta-lactams [3] but it is to note that clindamycin does not cover the Pasteurella sp and should not be used alone [1].

In conclusion, *Pasteurella dagmatis* is responsible for skin and soft tissue infections and can be seen in association with *Pasteurella multocida*. Clinicians should be able to recognize and treat it fast as it can be responsible for severe disease, particularly in immunocompromised hosts.

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