Sir,

The Pasteurella genus consists of Gram-negative cocco-bacilli that form part of the commensal flora of dogs and cats, mainly. It is the cause of infection in many animal species, although it can also produce infections in humans, principally infections of the skin and soft tissues after bites, scratches or contact with animal saliva. Actinomyces canis is a previously isolated Gram-positive facultative anaerobe bacillus of dogs, but it had not been reported as a cause of infections in humans until now [1].

Patient of 12 years of age who suffered a dog bite in the left lower limb, being tended in his outpatient clinic by disinfection of the wound and oral antibiotic treatment with trimethoprim/sulfamethoxazole and clindamycin (160 mg/800 mg/12 h y 600 mg/8 h, respectively). He did not have a medical history of interest except for suspicion of allergy to amoxicillin after a pruriginous skin reaction several years before. He stopped taking clindamycin due to oral intolerance, being examined by his doctor three days afterwards with evident erythema, as well as purulent secretion. In addition, the perilesional area evidenced redness, of deep muscle levels (figure 1B). Two samples were obtained inoculated in chocolate and TSA with a value of 2.24. In the following 24 hours, growth was identified through MALDI-TOF mass spectrometry (Bruker, Massachusetts, USA) as Pasteurella stomatis with a value of 2,24. In the following 24 hours, growth was observed in Brucella-blood agar (BD®) being again identified through MALDI-TOF MS as A. canis with a value of 2.23. The antibiotic susceptibility was performed through gradient strips or E-test® in Mueller-Hinton fastidious agar (BD®) for P. stomatis and E-test® in Brucella-blood (BD®) for A. canis. P. stomatis was susceptible to penicillin (MIC = 0.38 mg/L), amoxicillin/clavulanic acid (MIC = 0.38 mg/L), cefotaxime (MIC= 0.02 mg/L), doxycycline (MIC = 0.5 mg/L), ciprofloxacin (MIC = 0.06 mg/L) and trimethoprim/sulfamethoxazole (MIC = 0.125 mg/L). In turn, A. canis was susceptible to penicillin (MIC < 0.016 mg/L), amoxicillin/clavulanic acid (MIC < 0.016 mg/L) and clindamycin (MIC = 0.25 mg/L), and resistant to metronidazole (MIC > 32 mg/L).

It was later confirmed that the patient was not allergic to amoxicillin, receiving four more days of IV treatment with amoxicillin/clavulanic acid (1.2 g/8 h), being released with oral suspension of amoxicillin/clavulanic acid (9ml/8 h at 100 mg /12.5 mg/ml) with good evolution after follow-up by his physician.

Infections from animal bites in humans are usually polymicrobial, with a mixture of aerobic and anaerobic microorganisms that reflect the oral flora of the animal that produces the lesion [2,3]. Besides bites and scratches, contact with colonised or infected animal saliva is also a possible transmission.
Cellulitis due to Pasteurella stomatis and Actinomyces canis following dog bite

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Rev Esp Quimioter 2022;35(6): 584-586

route, finding, for example, that multiple infections by Pasteurella spp. were not preceded by bites or scratches [4,5]. The most frequent infections produced by Pasteurella spp. are those of the skin and soft tissues, with the respiratory and invasive infections being rare, and with Pasteurella multocida being the most frequently isolated species [4-6]. The invasive infections such as sepsis, meningitis or peritonitis are usually produced more frequently in immunocompromised patients, with comorbidities or in patients in extreme age groups [3,6,7]. There are few reported cases up to now of human infections due to P. stomatis, while A. canis only seemed to produce infections in animals [5,8-10].

As for the handling of animal bites, the first is to clean the area with soap and water. The post-exposure antibiotic prophylaxis for the majority of the bites continues being controversial. The bites on the hand are the only location that seems to benefit from antibiotic prophylaxis and its use in these patients significantly decreases the infection rates [2,11]. In case of extreme pain, exposure of the muscle or underlying bone or signs of infection, if the state of vaccination against rabies of the dog is unknown or when the patient was vaccinated for the last time against tetanus, it is important to go to the healthcare centre or nearest hospital as soon as possible for its evaluation and treatment [12]. Amoxicillin/clavulanic acid and doxycycline or the combination of quinolones with clindamycin could be used as antibiotic prophylaxis. In case of abscess or other signs of complication of the wounded skin and soft issue infections, as well as in the case of invasive infections, cultures would be required to be able to establish an appropriate antibiotic treatment [11].

Figure 1

1A: four symmetrical wounds of around 1.5 cm with torn skin, regular borders, bloody and purulent secretion. In addition, the perilesional area presented redness, heat and swelling, which encompassed up to 7x5 cm.

1B: the thickening of the subcutaneous region associated with four skin wounds with subcutaneous trajectory in relation to the entrances of the bite. Mild laminar oedema in the deep subcutaneous region. There is no involvement of the muscle plane and no collections are observed.

Figure 2

Growth of white colonies on TSA with 5% of sheep blood agar after 24 h of incubation under aerobic conditions with 7.5% of CO₂. The growth of A. canis on culture plates could not be shown since the image was not obtained during the episode and after trying to recover it from the bacterial library it was no longer viable for culture.
In conclusion, the cleaning and debridement of the wounds, as well as the identification of the patients who need antibiotic prophylaxis, against tetanus or rabies are keys for handling and to avoid serious complications. In those cases in which there is a suspicion or signs of infectious complication of the wounds, the patient should be examined again, microbiological samples obtained and an empirical antibiotic should be recommended until knowing the results. The virulence of the specie that inhabit the oral flora of the animals must continue to be researched to know which could provoke serious infections in humans.

FUNDING

The translation was financed by the research commission of the OSI Bilbao-Basurto.

CONFLICTS OF INTERESTS

Authors declare no conflicts of interest.

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