It's Finger Licking Bad

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Introduction :

Pasteurella multocida (PM) is a common pathogen in animals. Human infections are usually associated with cat and dog bites.

Infection with PM can cause symptoms in almost any body tissue, but can be divided into three categories: 1. Skin and soft tissue infections, septic arthritis, and osteomyelitis; 2. Invasive infection; or 3. Oral and respiratory infections, usually associated with chronic pulmonary disease.

Immunocompromised patients are most commonly affected. (1,2,3)

We present a case of bacteremia and glossitis secondary to *PM* caused by hand-licking by a pet dog.

Case Description:

A 66-year-old female with a history of scleroderma with associated interstitial lung disease, hypertension, hyperlipidemia, diabetes, and anxiety presented with confusion, difficulty breathing, and mild tongue swelling.

On physical examination the patient was found to have necrotic fingertips on her hands, which were known to be associated with scleroderma. Initial labs and vital signs were significant for leukocytosis, tachypnea, and tachypnea. Blood cultures were sent and she was started on IV meropenem and doxycycline.

Chest x-ray showed increased interstitial markings that prompted a CT scan of the chest. The CT showed findings suggestive of nonspecific interstitial lung disease (NSIP). Preliminary report from blood culture identified gram negative rods, but a nucleic acid test was negative for the more common gram-negative organisms.

Learning Objective:

Pasteurella multocida (PM) should be included in the differential as a cause of bacteremia when a patient discloses close contact with animals, including pets in the home. These patients should undergo a very thorough exam and should be questioned about the particular ways that they interact with their pets.

On the second day of her hospital stay the patient's mental status improved, further history was obtained which revealed that the patient took sildenafil and botulinum toxinA injections as part of the treatment for her necrotic fingertips. She disclosed that she had a dog who often licked her fingers.

Blood cultures from admission subsequently grew *Pasteurella multocida* with sensitivity to most antibiotics. She was started on high dose IV ampicillin at the dose of 2g every 4 hours and the patient was discharged on PO ampicillin at the dose of 500 mg every 4 hours. Total antibiotic duration was 14 days..

The patient followed up with infectious disease and pulmonology physicians upon discharge. Her infection was resolved after the completion of the antibiotics course without any further acute care visits.

Discussion:

Animal-derived trauma, such as bites and scratches, are the most common causes of transmission of *Pasteurella* species from animals to humans. Other direct modes that have been identified are related to transmission through wounds (e.g. animal licking, contact with contaminated secretions). Indirect transmission through infected blood transfusion, trans-placental or close contact with a colonized person have also been reported in the literature.

Raffi et al. reported 13 cases of PM bacteremia during a 12-year period (4). All had an underlying disease, but animal-derived trauma was identified in only five. Localized sites of infection are not always identified.

PM bacteremia is a rare phenomena, usually observed in immunocompromised patients and typically after cat or dog bite or scratch. The overall mortality is 30%. Ampicillin is the appropriate therapy for PM bacteremia. Glossitis due to PM infection is not well described in the literature, the first case to our knowledge was reported in 2016 by Niknam (3).

We present a case of *PM* glossitis with associated bacteremia after dog licking. Our patient had a healthy dog which licked her hands, where bacteria found a port of entrance to infect the host: fingertips ulcerations.

PM as an infecting pathogen should be considered in patients with pet exposure including bites, licks, and scratches. Pet owners must protect open wounds. A thorough clinical interview should include inquiries about pets at home and other animal contact in the appropriate clinical scenarios.

References:

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