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Introduction

Pasteurella multocida (*P. multocida*) is part of the normal gastrointestinal and upper respiratory flora of domestic and wild animals such as dogs, cats, rabbits, boars, tigers, lions and horses (1,2). Transmission of *P. multocida* is usually through scratches and bites leading to infections of the soft tissue and skin (3,4). *P. multocida* bacteremia is rare, but occurs in individuals with major risk factors including chronic pulmonary disease, diabetes mellitus, end state renal disease (ESRD), and an immunocompromised state (3,4). Non traumatic infections of *P. multocida* in immunocompromised individuals, are more likely to require care in the intensive care unit (ICU), likely to occur in patients with severe comorbidities, and are likely to end in mortality (4).

Case Report

A 70-year-old Caucasian male initially presented to the emergency department (ED) of our hospital with fever and chills, which began one hour prior to presentation. He reported nausea and a productive cough with greenish sputum.

PMH:
ESRD on HD
Failed kidney transplant
CAD
Type 2 DM
Recurrent pneumonia
Hypertension

Vital signs:
Temperature 39.4°C
Blood pressure: 87/55 mm Hg, P 100 beats per minute (bpm)
Oxygen saturation 88% on room air and
RR 18 breaths per minute

PE: coarse breath sounds bilaterally on auscultation, left upper arm fistula as well as multiple superficial abrasions bilaterally on his lower extremities.

Laboratory findings: WBC 15.12 K/ μ L, platelets 104 K/ μ L, Na 134 mmol/L, BUN 39 mg/dl, Cr 4.5 mg/dl, lactic acid 2.77 mmol/L and procalcitonin 25.24 ng/ml. UA was not performed because the patient was anuric. His chest x-ray showed evidence of small effusions and bibasilar airspace disease which were indicative of atelectasis or infection. An electrocardiogram showed normal sinus rhythm, a rate of 99 bpm, normal axis and no significant ST abnormalities. However, paroxysmal ventricular contractions (PVCs) were present. Blood cultures were drawn, and the patient received ceftriaxone and piperacillin/tazobactam empiric antibiotics and intravenous (IV) fluids. Gram stain of the blood specimen showed gram-negative rods.

He was initially admitted to the progressive care unit (PCU) with cardiac telemetry.

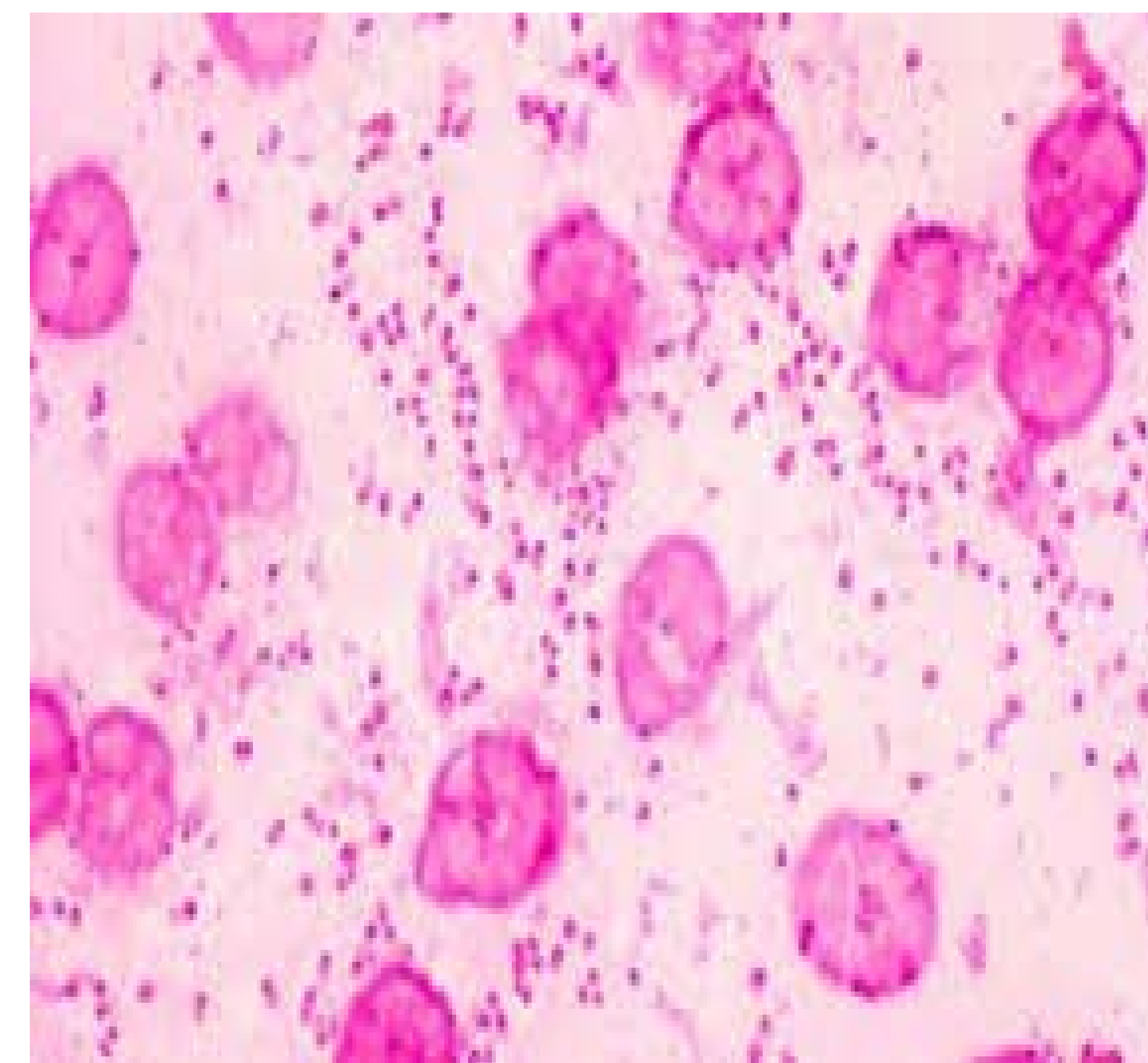
His heart monitor revealed a second-degree atria-ventricular (AV) block and the patient was subsequently transferred to the intensive care unit (ICU) for closer management.

On the second day of admission, blood cultures grew *Pasteurella multocida*. The organism was sensitive to beta-lactams including ampicillin, amoxicillin, amoxicillin/clavulanic acid and ampicillin/sulbactam.

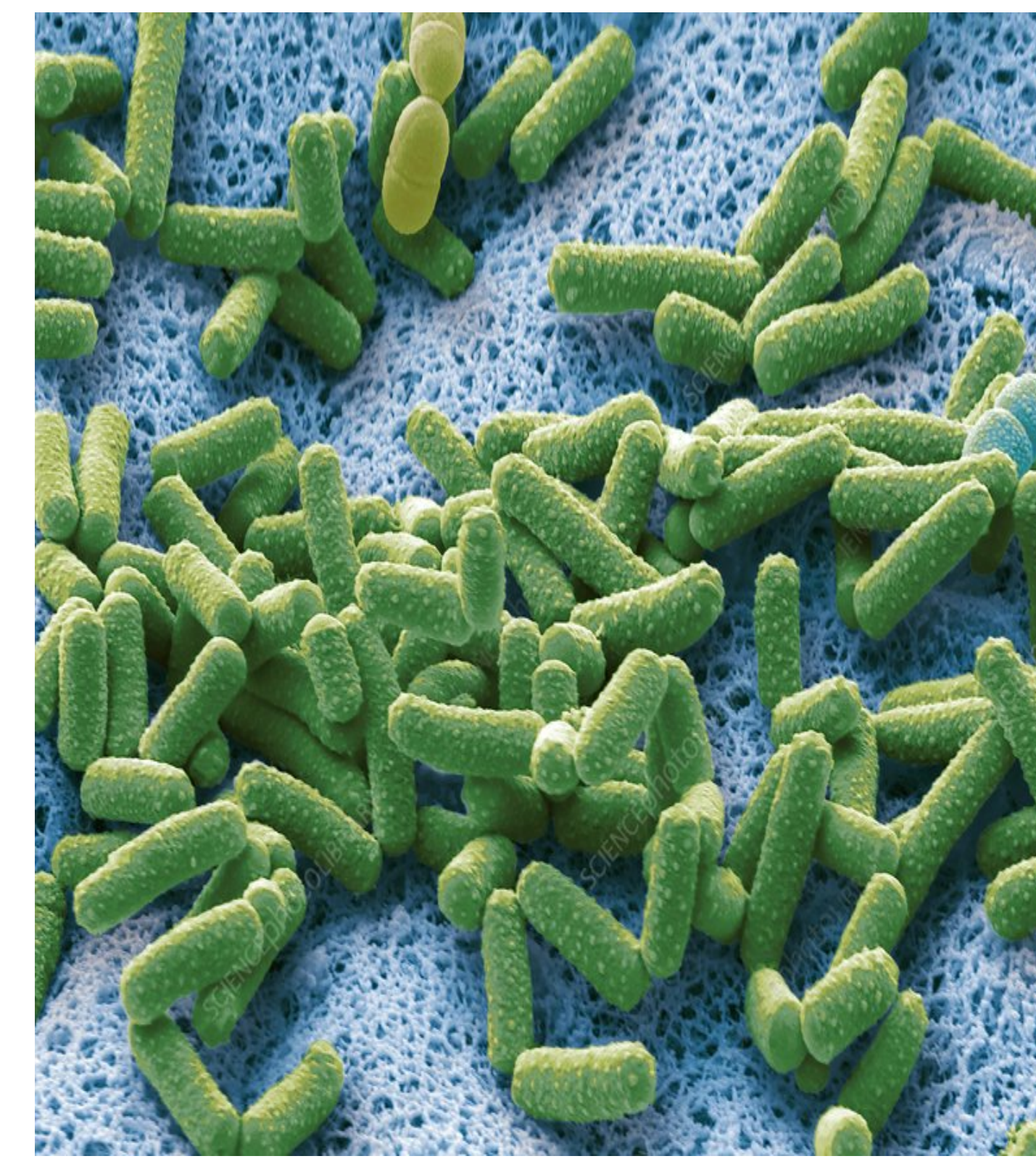
Plant: Treatment with IV cefepime while in-patient and amoxicillin/clavulanic acid upon discharge for a total of 14 days.

Imaging & Pathology

A. *P. multocida* gram stain of blood culture (10)



B. Electron microscopy of *P. multocida* (11)



C. Cellulitis of the right 2nd finger (12)



D. *P. multocida* cellulitis of LLE (13)



List Image Captions

A. *P. Multocida* gram stain of blood culture (12).

B. Electron microscopy of *P. multocida* (13).

C. Cellulitis of the right 2nd finger (14).

D. *P. multocida* cellulitis of LLE (15).

Discussion

P. multocida was not considered to be a source of our patient's bacteremia/sepsis because it is simply not a common cause of bacteremia. Wilson and Ho proved that, *P. multocida* infections are highly aggressive with skin or soft tissue inflammation, often manifesting within 24 hours and causing fever, pain and lymphadenopathy (6,7). Bradaric et al., also described a patient who presented with bacteremia and shock after being bitten by a cat on her lower leg 24 hours prior to presentation. Although the patient's bacteremia and shock resolved after treatment with amoxicillin and clavulanic acid, she further developed erysipelas-like cellulitis within the next 48 hours which responded to penicillin G and netilmicin (7). Infection with *P. multocida*, even in severe cases, can be treated successfully without relapse. The recommended length of treatment is 10 to 14 days with penicillin or, alternatively, a second or third generation cephalosporin, tetracycline or fluoroquinolone (8-9). Our patient responded well to IV cefepime while he was admitted and amoxicillin/clavulanic acid upon discharge.

Conclusion

In conclusion, *P. multocida* is associated with high mortality especially in immunocompromised patients (4). As the number of cohabitation with dogs and cats has increased, it is important to consider the diagnosis of *P. multocida* bacteremia/septicemia in any patient with febrile symptoms and exposure to cats and dogs (12). Physicians have to be vigilant and must operate with a high degree of suspicion when treating patients with exposure to pets with and without bites or scratches and treat patients with appropriate antibiotics (13).

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