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Titolo

Hidden Threats: Capnocytophaga canimorsus and the Risk Behind Dog Bites

Identificativo

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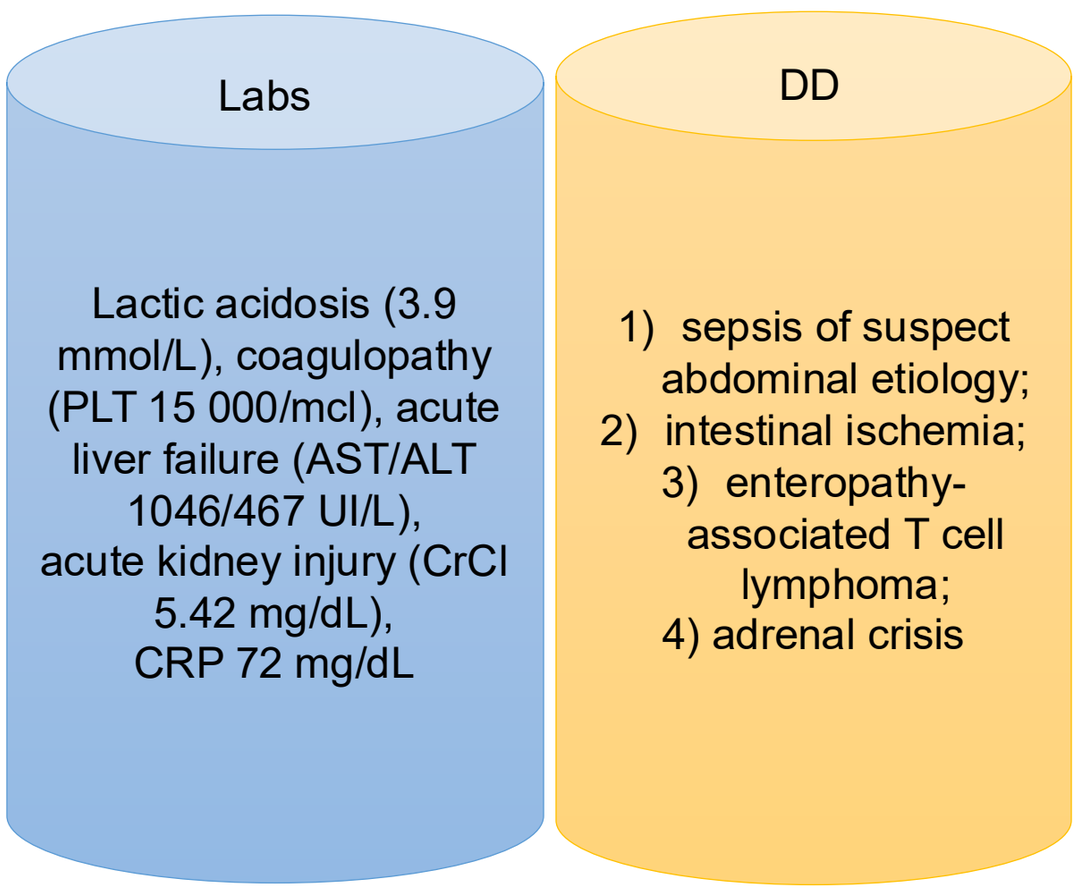
Introduction

This clinical case aims to show the usefulness of antibiotic prophylaxis after dog bite in immunocompetent patients, since according to latest guidelines, in absence of specific wound characteristics, these patients are defined as at low risk of developing complications.

Case Presentation and Initial Clinical Picture

We herein report the case of a 55 years old female, self-presented to the ER, complaining of fever (38°C), abdominal pain for the last two days, associated with nausea and vomiting.
She denied any other clinical symptoms and potential risky exposition/events.
On clinical history celiac disease and atopic dermatitis.
Despite her clinically stable appearance (normal vital signs and physical examination positive only for mild tenderness of deep palpation of epigastrium and right hypochondrium), her lab tests and ABG analysis described immediately a severe clinical picture.



In the diagnostic workup, the patient underwent an abdominal CT scan that only showed periportal edema, pericholecystic fluid layer and free effusion in the right side, left hypochondrium and in the pelvic excavation associated with a loose appearance of the ascending colon with slightly thickened walls compatible in first hypothesis with phlogistic insult.

Given the patient's clinical deterioration and worsening of laboratory tests, she was admitted to the intensive care unit and underwent an exploratory laparotomy, that was negative for acute ischemic parenchymal lesions.

Therefore diagnosis of sepsis associated multiorgan failure was made, supported by a partial report of blood culture that reported positive per Gram negative bacilli.
Empiric antibiotic therapy with meropenem and vancomycin was started, along with CRRT and norepinephrine support leading to clinical improvement.

48 hours after ICU admission, MALDI TOF mass spectrometry performed on blood cultures obtained in the ED resulted positive for Capnocytophaga canimorsus.

After being specifically asked, the patient then referred that 2-4 days before the beginning of the symptoms, her own dog, incidentally, bitten her just above the right elbow. On physical examination a sub centimetric scar was visible, almost completely healed, surrounded by normal skin in absence of signs of local infection.
The patient was discharged home after a course of antibiotic therapy, AKI resolution and laboratory test improvement.

Characteristics of *Capnocytophaga canimorsus*

Capnocytophaga canimorsus is a commensal bacterium of healthy pet, being isolated in up to 70% of dog oral swap, and it is known to cause infection in humans with an incidence of 0.5-0.7% of case per millions of people per year. Infection carries a wide variety of clinical manifestations from skin and soft tissue infection to fulminant septic shock leading to multiorgan failure and death. Incubation time ranges from 1 to 8 days, but also up to 3 weeks. According to the literature, it represents mainly a post-mortem finding: the most severe clinical pictures are related to relatively minor lesions. Capnocytophaga is sensible to β-lactam/β-lactamase inhibition, that represent the first line of antibiotic therapy, while potential resistance to them can be overcome due to the low incidence of the cases.

Clinical Implications and conclusion

In this view, knowing that dog bites are a frequent encounter in the ED, and that up to 70% of dogs carry Capnocytophaga canimorsus in their oral mucosa, isn't worth of it giving an antibiotic prophylaxis to the so defined "low risk patient"?

We don't have a definite answer but want to highlight the importance of an accurate history taking and physical examination also in the acute critically ill patient to increase our diagnostic efficacy, time to decision, unnecessary intervention and overall to improve patients' outcomes.

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