

Can Your Dog Cause Septic Shock? A Case of *Capnocytophaga*

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Case Presentation

A 58-year-old woman presented with a chief complaint of a rash across her face and arms. On examination, the patient had an abdominal scar consistent with history of splenectomy years prior. Broad-spectrum antibiotics were initiated due to septic picture. Over the next 12 hours, the patient's skin manifested diffuse purpura fulminans, confirmed with punch biopsy.

On further physical exam, a 0.5 cm excoriation was noted on the lateral aspect of the right hand first digit.

Approximately 36 hours before presentation the family dog accidentally cut her finger with its teeth while she was giving it a treat.

Pertinent laboratory investigation:

- Leukocytosis of 22.9 K/mm³
- Procalcitonin 291.15 ng/ml
- INR 3.5, fibrinogen level 60mg/dl, D. Dimer was elevated past what the laboratories threshold

Peripheral Blood Smear:

- Long, thin, and generally fusiform gram-negative rods within macrophages seen.

Capnocytophaga canimorsus was thus confirmed leading to purpura fulminans and DIC in an otherwise healthy woman prior to blood culture results based on physical exam and pathologic review.

Unfortunately, due to overwhelming illness patient died within the first 48 hours of admission.

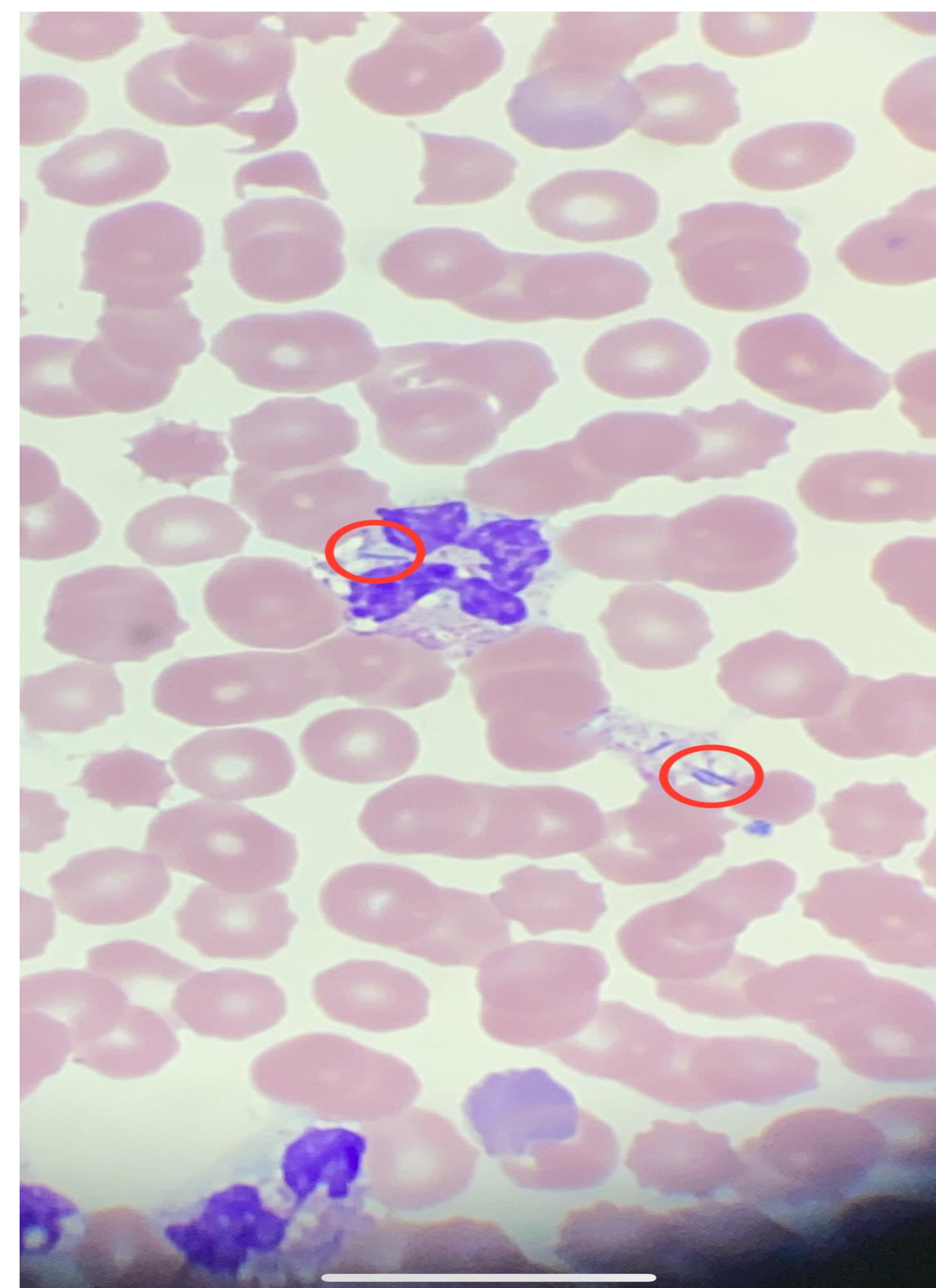


Figure 1. *Capnocytophaga* bacteria seen, characterized by long, thin, fusiform gram-negative rods

Discussion

Capnocytophaga species have been described in the literature as causing severe but rare infections in humans, especially those with asplenia¹.

Capnocytophaga bacterial species is a gram-negative rod found in the oral mucosa of household dogs and cats and due to the patient's history of asplenia, she was at increased risk for infection.

The patient's presentation was relatively aggressive and septic shock at three days is relatively fast for this bacterial infection².

Careful physical exam and medical history noting her relatively benign encounter with the family dog which led to rapid diagnosis of the patient's illness.

Additional pathology review of the peripheral blood noting organisms within macrophages led to rapid accurate diagnosis and appropriate antibiotic tailoring prior to growth and blood cultures.

As in many cases with *Capnocytophaga* infections, despite accurate identification and antibiotics, that patient succumbed to her illness.

References

1. Deshmukh PM, Camp CJ, Rose FB, Narayanan S. *Capnocytophaga canimorsus* sepsis with purpura fulminans and symmetrical gangrene following a dog bite in a shelter employee. *Am J Med Sci.* 2004;327(6):369-372. doi:10.1097/00000441-200406000-00015
2. Kullberg BJ, Westendorp RG, van 't Wout JW, Meinders AE. Purpura fulminans and symmetrical peripheral gangrene caused by *Capnocytophaga canimorsus* (formerly DF-2) septicemia--a complication of dog bite. *Medicine (Baltimore).* 1991;70(5):287-292. doi:10.1097/00005792-199109000-00001



Figure 2. Skin manifestation of purpura fulminans, (Left) showing lesion on second digit leading to infection

Conclusion

Accurate history gathering and a thorough physical exam along with supportive peripheral smear findings lead to the diagnosis of *Capnocytophaga* and appropriate choice of antibiotics.