



Case report

Dangerous dog licks! – A rare case of epidural abscess secondary to *Capnocytophaga*



Meher Singha^{a,*}, Camila Trejo Paredes^a, Neha Alang^b, Ulysses Wu^b

^a University of Connecticut, Farmington, CT, USA

^b Hartford Healthcare, Hartford, CT, USA

ARTICLE INFO

Article history:

Received 25 February 2022

Received in revised form 8 March 2022

Accepted 23 March 2022

Keywords:

Capnocytophaga

Dog bite

Epidural abscess

ABSTRACT

We present a rare case of a 71-year-old female. She has a history of irritable bowel syndrome that is diet controlled. However she presented to the emergency department (ED) with a history of diarrhea, weakness, chills and right lower back pain for two days. She was found to have epidural abscesses secondary to *Capnocytophaga* bacteremia. To date, there has been only one case report of a sacral abscess secondary to *Capnocytophaga* sp. *Capnocytophaga* is a genus of facultative anaerobic gram-negative bacilli that are frequent commensals in the oral cavity of cats and dogs. It can be transmitted by bites, scratches or contact of saliva with exposed mucosa or skin. It is a rare but potentially fatal infection, that is known to cause severe septicemia and shock, especially in patients with splenectomy. Our case is a unique presentation of sepsis and epidural abscesses in an immunocompetent host due to *Capnocytophaga*. Given the slow growing and fastidious nature of the organism, it requires a high suspicion in a patient presenting with slow growing gram-negative rod bacteremia and diligent following of cultures and sensitivities to ensure correct antibiotic coverage

© 2022 Published by Elsevier Ltd.
CC_BY_NC_ND_4.0

Introduction

Capnocytophaga is a genus of facultative anaerobic gram-negative bacilli that are frequent commensals in the oral cavity of cats and dogs. It can be transmitted by bites, scratches or contact of saliva with exposed mucosa or skin. It is a rare but potentially fatal infection that is known to cause severe septicemia and shock, especially in patients with splenectomy. We report a case of *Capnocytophaga* causing bacteremia in a patient without any other known risk factors but the unique finding in our particular case was epidural abscesses formation secondary to this bacteremia that has not previously been reported.

Case report

A 71-year-old female with a history of irritable bowel syndrome presented to the emergency department (ED) with a history of diarrhea, weakness, chills and right lower back pain for two days

that developed after dinner the night before. On awakening the next morning, she had severe pain in her right lower back that she rated as 10/10, constant, non-radiating, not associated with any weakness or change in sensation in the lower extremities. She denied any trauma to her back.

Upon presentation to the hospital, the patient was noted to be febrile to 100.7 F, A computed tomography (CT) of abdomen and pelvis showed cholelithiasis without any other acute findings. The patient was started on ceftriaxone and given one dose of vancomycin in the ED. She was found to have an elevated D-dimer and CT angiography of chest was negative for pulmonary embolism. The patient was also found to have a new left sternal border murmur of which a transthoracic echocardiogram was ordered that did not show valvular abnormalities. A CT of the patient's lumbosacral spine was obtained and showed advanced multilevel degenerative spondylosis of L4–L5 and L5–S1, severe canal stenosis at L4–L5 with moderate to severe neuroforaminal encroachment at multiple levels. Subsequently, her blood cultures turned positive for gram-negative rods. The patient was planned for an MRI of lumbosacral spine, however could not be performed at the due to her body habitus and was transferred to our care within the same health system.

On admission to our hospital, patient continued to endorse right sided mid-back pain radiating to her right flank. At this time, she had mild dyspnea and no other symptoms. The patient denied any

* Corresponding author.

E-mail addresses: meherSingha@gmail.com (M. Singha), trejoparedes@uchc.edu (C. Trejo Paredes), Neha.Alang@hhchealth.org (N. Alang), Ulysses.Wu@hhchealth.org (U. Wu).

previous surgeries in her back. She is married to a male partner, they were not sexually active. She had no fresh water exposure and had no wounds. She had poor dentition but no complaints of overt infection of lower teeth and she was upper denture dependent. She has two dogs: a golden retriever that she stated did not like to give kisses but she did have a cocker spaniel who did like to give kisses. There was no history of licks through broken skin but the cocker spaniel did like to kiss her around the head and may have accidentally licked her mouth at times.

Overall, the patient appeared well. The blood pressure was 127/67 mm Hg, pulse 84 beats per minute, temperature 97.4 F, and respirations 18 breaths per minute. She has an obese body habitus, laying comfortably in bed, and with spinal tenderness at the lower back at the L5 level. A systolic murmur was heard in all heart areas, loudest at the aortic area. The examination, including neurological examination was otherwise normal. Laboratory values were significant for a hemoglobin of 11.6 g/dL (reference range 11.7–15.7 g/dL), sodium of 133 mEq/L (reference range 135–145 mEq/L). All other routine laboratory test results were normal. Her blood cultures at presentation grew gram negative rods in 4/4 bottles and repeat cultures showed no growth. An MRI was obtained which showed a diffuse epidural phlegmon spanning L1–L5 levels with two peripherally enhancing collections above the ventral epidural space at L3 and L4, suspicious for epidural abscesses.

The patient was started on intravenous (IV) ceftriaxone and metronidazole for her gram-negative rod bacteremia and to cover anaerobic organisms. Neurosurgery was consulted and did not recommend drainage of the abscesses as the patient's neurological examination remained intact. Repeat cultures did not show any new growth and she did not spike any fevers during the rest of her hospital stay. After 12 days, the gram-negative rods in the blood were identified by MALDI-TOF to be most closely resembling *Capnocytophaga* species. No sensitivities were performed as the bacteria was slow growing. For outpatient antimicrobial therapy, the patient was switched to ertapenem, one gram IV daily to be continued for at least eight weeks and planned for follow up with repeat MRI.

Discussion

This is a rare case as there are no previously reported cases of epidural abscesses secondary to *Capnocytophaga* bacteremia. There has been one case report of a sacral abscess secondary to *Capnocytophaga* sp. Our case is a unique presentation of sepsis and epidural abscess in an immunocompetent host due to *Capnocytophaga*. Given the slow growing and fastidious nature of the organism, it requires a high suspicion in a patient presenting with slow growing gram-negative rod bacteremia with a significant pet history. A significant point to be highlighted through this case is

diligent following of cultures and sensitivities is essential to ensure correct antibiotic coverage for this organism to prevent deadly outcomes, even in immunocompetent patients and to always obtain a thorough history.

Sources of funding

No sources of funding.

Ethical approval

None.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in Chief of this journal on request.

CRediT authorship contribution statement

The following is the author statement of each of the authors for this submission. **Meher Singha:** Conceptualization, Data curation, Writing – original draft. **Maria Camilla Trejo Paredes:** Conceptualization, Data curation, Validation, Supervision. **Neha Alang:** Writing – review & editing, Supervision. **Ulysses Wu:** Conceptualization, Writing – review & editing, Supervision.

Conflicts of interest

No conflicts of interest.

Further reading

- [1] Gosset F, Sarret B, Mortreux S, Moquet O. Beware of the dog! Septic shock due to *Capnocytophaga canimorsus* revealed on peripheral blood smear. *Ann Biol Clin* 2019;77(6):685–6. <https://doi.org/10.1684/abc.2019.1508>
- [2] Hannon DM, Harkin E, Donnachie K, Sibartie S, Doyle M, Chan G. A case of *Capnocytophaga canimorsus* meningitis and bacteraemia. *Ir J Med Sci* 2020;189(1):251–2. <https://doi.org/10.1007/s11845-019-02045-0>
- [3] Joswig H, Gers B, Dollenmaier G, Heilbronner R, Strahm C. A case of *Capnocytophaga canimorsus* sacral abscess in an immunocompetent patient. *Infection* 2015;43(2):217–21.
- [4] Taquin H, Roussel C, Roudière L, Besancon A, Hubiche T, Kaidomar M, et al. Fatal infection caused by *Capnocytophaga canimorsus*. *Lancet Infect Dis* 2017;17(2):236. [https://doi.org/10.1016/S1473-3099\(16\)30200-6](https://doi.org/10.1016/S1473-3099(16)30200-6)
- [5] Erdem H, Inan A, Guven E, Hargreaves S, Larsen L, Shehata G, et al. The burden and epidemiology of community-acquired central nervous system infections: a multinational study. *Eur J Clin Microbiol Infect Dis* 2017;36(9):1595–611. <https://doi.org/10.1007/s10096-017-2973-0>