

Clinical Communications: Adults

A 52-YEAR-OLD MAN WITH MALAISE AND A PETECHIAL RASH

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□ **Abstract—Background:** *Capnocytophaga canimorsus* is a Gram-negative, fusiform, rod-shaped organism that is part of the normal oral flora of dogs, cats, and other animals. A significant number of Emergency Department (ED) patients are surgically or functionally asplenic and may be at marked risk for overwhelming post-splenectomy infection (OPSI). OPSI has a mortality rate estimated to be up to 70%. The risk of sepsis is estimated to be 30–60 times greater after splenectomy, and *C. canimorsus* is one of the organisms that can cause catastrophic OPSI. **Objectives:** To describe a case of *C. canimorsus* septic shock in a post-splenectomy patient and review the epidemiology of OPSI, the role of the spleen in protecting the body from infection, and the potential role of early goal-directed therapy in the resuscitation of patients with OPSI. **Case Report:** A 52 year-old man with a past medical history significant for idiopathic thrombocytopenic purpura (status post-splenectomy), and non-Hodgkin lymphoma (treated for cure), was brought to the ED with the chief complaints of light-headedness, malaise, and a rapidly spreading rash. He was found to be hypotensive, tachycardic, and tachypneic, and had a marked lactic acidosis. He was aggressively resuscitated with large volume fluid resuscitation and treated empirically with broad-spectrum antibiotics for septic shock of unclear etiology. His clinical course was complicated by acute lung injury and renal failure. Blood cultures grew *C. canimorsus*; he was extubated on hospital day 7 and discharged home several days later in good condition. **Conclusions:** Patients status-post-splenectomy are at greatly increased risk for infection from encapsulated organisms and other organisms, including *C. canimorsus*, which is part of the normal oral flora of dogs, cats, and other animals. It can be spread to humans by bites, scratches, or less invasive forms of

animal-human contact. *C. canimorsus* infection can lead to OPSI. Early recognition and aggressive clinical management, including early goal-directed therapy and rapid administration of antibiotics, may minimize the morbidity and mortality of this condition and other etiologies of severe sepsis and septic shock. © 2011 Elsevier Inc.

□ **Keywords—***C. canimorsus*; overwhelming post-splenectomy infection; early goal-directed therapy; severe sepsis; septic shock

INTRODUCTION

Capnocytophaga canimorsus is a Gram-negative rod that is part of the normal oral flora of dogs, cats, and other animals. It can cause septic shock in immunocompromised patients, including those that are post-splenectomy, functionally asplenic, or chronic alcoholics. This population is at marked risk for overwhelming post-splenectomy infection (OPSI). We present this case to increase awareness of this infection in this at-risk population that may present to the Emergency Department (ED).

CASE REPORT

A 52-year-old man was brought to the ED by his wife with chief complaints of light-headedness, malaise, and rapidly spreading rash. He had been in excellent health until the night before, when he felt weak after dinner and then went to bed. When he awoke the next morning his

wife thought he looked rather ill. The patient was referred to the ED by his private MD, who noted a rash on his forehead, which his wife thought may have worsened en route. On review of systems, the patient complained of back pain and pain in his fingers and feet; he denied cough, shortness of breath, headache, neck stiffness, abdominal pain, nausea, vomiting, or diarrhea. His past medical history was significant for a splenectomy in the 1970s for idiopathic thrombocytopenic purpura, and he was treated in 1982 for non-Hodgkin lymphoma. The patient was retired and lived at home with his wife and a dog. On physical examination he was an ill-appearing, middle-aged man who was lethargic but arousable. Triage vital signs were: temperature 37.2°C (99.0°F), blood pressure 70/40 mm Hg, heart rate 125 beats/min, respiratory rate 28 breaths/min, and oxygen saturation 65–85% on 100% oxygen (with poor waveform). Head and neck examination demonstrated dry oral mucosa, no scleral icterus, and a small area of conjunctival hemorrhage on the right eye. The neck was supple and there was no Kernig's or Brudzinski's sign. The lungs had coarse rhonchi bilaterally. On cardiovascular examination, the heart was tachycardic and the rhythm was regular without murmurs, rubs or gallops; peripheral pulses were thready. The abdomen was soft, with a large left upper quadrant scar, and was non-tender without organomegaly or distension. Rectal examination was hemoccult negative. The extremities were markedly cyanotic with associated mottling (Figure 1). The neurological examination was symmetric overall; cranial nerves II–XII were intact with normal motor and sensory testing. Skin examination was notable for a petechial rash on the forehead, face, and scalp (Figure 2).

Coincident with the initial resuscitation, a portable chest radiograph was obtained. This study demonstrated



Figure 1. Left leg of patient, demonstrating marked mottling and cyanosis.



Figure 2. Rapidly progressive petechial rash noted in the Emergency Department.

a poor inspiratory effort, normal heart size, and no focal opacities. An electrocardiogram showed sinus tachycardia with normal axis and intervals and no changes consistent with ischemia. A bedside cardiac ultrasound was also performed, and demonstrated an underfilled, hyperdynamic heart without focal wall motion abnormalities or pericardial effusion.

Laboratory evaluation revealed arterial blood gas results: pH 7.10, pCO₂ 12, pO₂ 112 on 100% O₂ by face mask. The lactate level was 11.4 mmol/L. The complete blood count was significant for a marked leukocytosis and moderate thrombocytopenia, with a white blood cell count of 23.4 K, hemoglobin of 14.8 g/dL, and platelets of 89 K. Coagulation studies demonstrated a profound coagulopathy, with a prothrombin time/partial thromboplastin time 16.9/63.1 and an international normalized ratio of 1.9. The metabolic panel demonstrated a significant metabolic acidosis (bicarbonate 11 and anion gap 26) with a blood urea nitrogen and creatinine of 43 and 5.1, respectively. Other electrolytes and glucose were normal. The patient's presentation was consistent with a presumed diagnosis of OPSI.

ED and Hospital Course

The patient was given empiric antibiotics to treat suspected pneumococcal sepsis and meningococcemia (Vancomycin 1 g and Ceftriaxone 2 g). A Foley catheter was placed but no urine was obtained. He was given multiple fluid boluses up to 2 L in the first 45 min with persistent hypotension. Dopamine was started and intravenous fluid was continued to maintain a systolic blood pressure of 90–105 mm Hg. Distal mottling and cyanosis persisted and the patient still had no urine output after receiving 3500 cc of crystalloid i.v. fluids. Acidosis and oxygenation worsened and the patient was intubated. A lumbar puncture was performed. The fluid was clear; there was no pleocytosis and no organisms were seen on

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