

Learning Objectives

- Benzocaine is commonly used as a topical anesthetic for pain relief and medical procedures, such as transesophageal echocardiogram.
- Its usage can lead to serious adverse effects, including methemoglobinemia.

Case description

A 51-year-old men presented to the emergency department with ankle and back pain, fever and chills.

Past medical history: No significant past medical history.

Physical examination: Left lower extremity weakness was present, especially when compared to the right side. Vital signs were unremarkable, except for fever.

Inpatient work-up:

• **Initial laboratory analysis:** Neutrophilic leukocytosis with a white blood cell count of 27,700/mcl (normal 4,000-11,000/mcl) and 83% neutrophils.

• **Computed tomography (CT) of the abdomen and pelvis:** Evidenced pyelonephritis and left psoas muscle abscess (Figure 1). Epidural abscess spanning from L2-L5 measuring 2.1 x 0.9 x 9.4 cm, and bilateral pulmonary nodules and consolidations suggestive of septic emboli.

• **Blood and Urine cultures:** Positive for Methicillin-Sensitive Staphylococcus Aureus (MSSA)

• **Initial Management:** The patient was initiated on cefazolin. He had a surgical evacuation of the epidural abscess, L2-L5 laminectomies, and partial medial facetectomy.

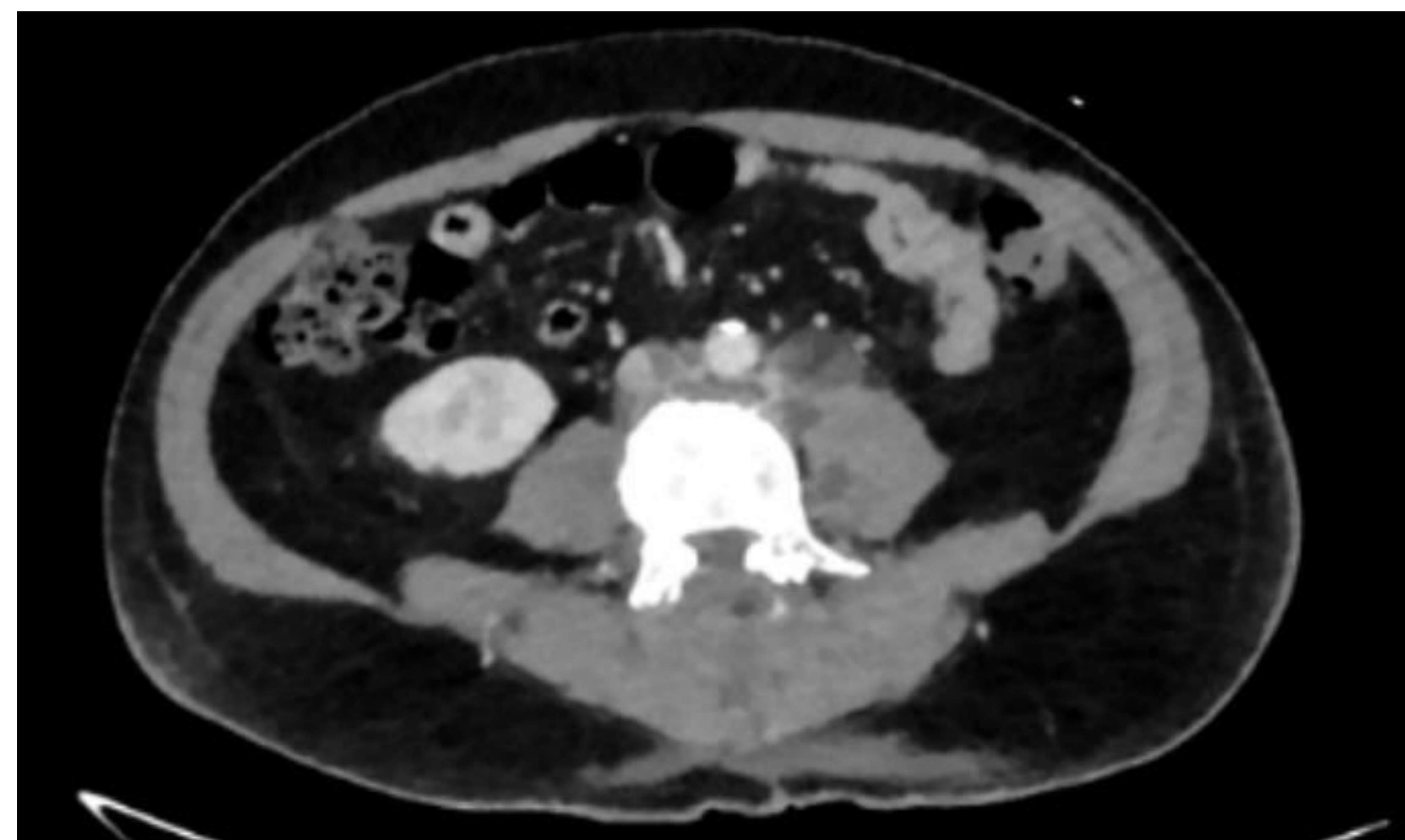
Case Continued

• **Transesophageal echocardiogram:** In day 9 of hospitalization, given persistent bacteremia, a transesophageal echocardiogram was performed to uncover potential hidden sources of infection that resulted negative for vegetations. For the procedure, the patient received two sprays of benzocaine at 20% orally, each dose administered for two seconds (equivalent to 2.0 mg/Kg).

• **Recovery period:** The patient began experiencing dizziness and malaise, became cyanotic and hypoxic with a pulse oximetry of 84%.

• **Arterial-blood-gas (ABG) with co-oximetry:** Methemoglobin concentration of more than 30%.

• **Methemoglobinemia management:** Methylene blue 100mg intravenously was administered at a slow infusion rate over 10 minutes with a dramatic clinical improvement after the therapy. He was transferred to the intensive care unit for closer monitoring.



Case Continued

- A repeated ABG demonstrated a reduction in the methemoglobin concentration.
- The patient was discharged in a stable condition to a rehabilitation facility when blood cultures demonstrated no further growth of organisms.

Discussion

• We presented a previously healthy man in the setting of an active widespread MSSA infection who developed acute hypoxemic respiratory failure secondary to methemoglobinemia after topical benzocaine spray administration.

• Although benzocaine toxicity is usually described in patients who receive doses higher than 7mg/Kg, in our case, methemoglobinemia occurred with a lower benzocaine dose. Fortunately, the patient was rapidly diagnosed and treated with a single intravenous dose of methylene blue.

• This incident demonstrates the importance of healthcare practitioners to promptly recognize and manage methemoglobinemia in patients with respiratory distress after benzocaine usage.

Figure 1: CT of the abdomen and pelvis showing left psoas muscle abscess.