

Case

Case Study: You have been paged to an 11D1-Abnormal Breathing, Partial Obstruction. Per CAD notes, patient is a 45 y/o female who developed sudden onset tongue swelling. On arrival, you find the patient in her home with her family. It is difficult for her to speak, as her tongue and lips are obviously swollen. The husband tells you that they were sitting on the front porch when the patient suddenly began having swelling, beginning with the lower lip and now involving the tongue. She denies any stings, has not had any new foods and denies changes in household detergents, soaps or perfumes. Her husband tells you that she takes a blood pressure medicine, “but has been on it for a long time” and has not changed dose or brand. The patient complains of a hoarse voice, and increasing difficulty breathing. You do not see any rash on the patient, and she denies itchiness.

Discussion:

- What is your assessment of this patient, and does she warrant EMS transport?
- What additional cues or clues should you be aware of while on scene?
- What treatments could you consider for this patient?

September Viz Quiz

You are responding to a local nursing home for a patient complaining of progressive left foot pain. When you arrive on scene, you find nursing staff there with the patient, who is awake, alert and talking. He has a history of Coronary Artery Disease (CAD), Type II Diabetes and Atrial Fibrillation. He states that his left foot started out “sore” but has been progressively more painful over the last two days. Your exam reveals the below images:

Based on this exam finding, you believe that this patient has a:

- A. Deep Vein Thrombosis (DVT)
- B. Arterial Occlusion
- C. Onychomycosis
- D. Chronic Diabetic Foot Ulcer



Submit your answer at <https://www.surveymonkey.com/r/DJSSJCP>

August Viz Quiz Answer

Answer: 3. Hyperkalemia

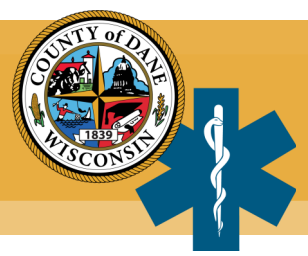
This patient is in acute renal failure due to the blocked catheter and pyelonephritis causing sepsis. Potassium is 7.1. After Calcium carbonate, sodium bicarbonate, and IV fluids, his rhythm strip normalized to a narrow-complex sinus rhythm.



Congratulations to Kim from Sauk Prairie Ambulance for winning the August Viz Quiz prize!

Dane County EMS Newsletter

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Case continued...

Bottom Line Up Front: ACE inhibitor-induced angioedema most commonly affects the lips, tongue, face, and upper airway.

- Early signs of laryngeal edema may include hoarseness of the throat and inspiratory stridor, which may progress to airway obstruction in up to 10 percent of cases. Rarely, fatalities due to massive tongue swelling and asphyxiation are reported
- The diagnosis of ACE inhibitor-induced angioedema is made clinically, based on the presence of angioedema, without itching or urticaria, affecting a characteristic anatomic site, in a patient taking ACE inhibitors.
- Airway management and discontinuation of the offending drug are the mainstays of treatment
- Treatments of unproven efficacy that may be considered include TXA and Fresh Frozen Plasma (FFP). Treating with epinephrine and antihistamines may not definitively help, but will not harm a patient who is progressing rapidly and has concern for impending loss of airway.
- Angiotensin Converting Enzyme (ACE) Inhibitors prevent the body from making angiotensin 2, a substance that narrows blood vessels. Common examples are; captopril, enalapril, or lisinopril
- Approximately 35% of all prescriptions for antihypertensive medications are for ACE-Inhibitors
- ACE-Inhibitor induced angioedema occurs in 0.1-0.7% of patients who take these medications; however these patients make up 20-40% of all angioedema cases seen in the Emergency Department. Approximately 10% of ACE-Inhibitor angioedema patients will develop airway obstruction.
- ACE-Inhibitor angioedema happens in episodes. Swelling develops in minutes to hours, peaks and then resolves over 24-72 hours. A history of preceding episodes with long symptom-free intervals is not unusual. If the ACE-Inhibitor is not discontinued, episodes will become progressively more severe.
- 50% of cases happen within the first week of medication initiation. Symptoms can begin at any time, from hours to years after initiation of the medication.
- Angiotensin Converting Enzyme is also responsible for breaking down the peptide bradykinin, which increases capillary permeability and acts as a vasodilator; it is believed that ACE-Inhibitors cause excess bradykinin which causes the angioedema seen in cases like this.
- The diagnosis is made clinically, based on the presence of angioedema, without itching or rash, affecting a characteristic site (face, lips, tongue) in a patient who is taking on ACE-Inhibitor. There are no lab tests or imaging studies that can confirm this diagnosis.

EMS Management: If the mouth or throat is involved, the airways should be immediately evaluated and repeatedly monitored until swelling is clearly resolving. Much like an airway burn, prompt intubation should be considered, as continued swelling could make intubation impossible and a surgical airway necessary. Consider medications that help promote vasoconstriction and blunt the immune response, such as Benadryl, solumedrol and SubQ epinephrine. Although it has not been proven, consider TXA in coordination with Medical Control for these patients.

Protocol Quiz

Test your knowledge of the Dane County EMS Protocols by completing the [September Newsletter Protocol Quiz](#). [Email us](#) for the answers and where to find them in the protocols!

Upcoming Events and Training

October 16th, 6pm - UW Monthly Training: STEMI

Register at uwhealth.org/een

October 27th, 8am - DCEMS Driving Range

Register to attend [here](#)