Rapid Fire: Superior Vena Cava Syndrome

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KEYWORDS

• Superior vena cava syndrome (SVCS) • Thrombosis • CT scan • Radiotherapy
• Chemotherapy • Stenting • Carcinoma • Non-Hodgkin lymphoma

KEY POINTS

- Superior vena cava syndrome (SVCS) occurs when there is mechanical obstruction of the superior vena cava caused by either external compression, neoplastic invasion of the vessel wall, or internal obstruction.
- The most common cause of SVCS is malignancy. Small cell lung cancer and non-Hodgkin lymphoma are the most common culprits, though intravascular devices with associated thrombosis are becoming a more common cause.
- Classic symptoms and findings in SVCS include edema of the face, neck, and upper extremity; shortness of breath and cough; plethora of the face and neck; distended veins in the neck and chest; and head ache and hoarseness.
- The treatment of SVCS in the emergency department is mostly supportive, with head elevation, oxygen, and steroids; emergent intervention is rarely required.
- Definitive treatment of SVCS typically includes both radiotherapy and chemotherapy, and, intravascular therapy with stenting is increasingly considered.

Case: superior vena cava syndrome (SCVS) associated with lung malignancy.

Pertinent History: A 65-year-old man presents to the emergency department (ED) via emergency medical services with a complaint of shortness of breath. The patient has a history of lung cancer. The patient's tumor was first discovered 2 months prior and needle biopsy was performed that revealed squamous cell carcinoma. PET scans revealed metastatic disease. The patient stated that he awoke at 6 AM and began feeling progressively short of breath. The patient complained of productive cough with a large amount of sputum, which resulted in the shortness

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of breath. He also complained of hoarseness and difficulty speaking with right-sided neck swelling that had been present for some time and seemed to be worsening. The patient denied fever, chills, headache, chest pain, wheezing, abdominal pain, nausea, or vomiting. He had a previous episode of shortness of breath 3 days before, was seen in the ED, placed on levofloxacin, and was discharged home. The patient had received several radiation treatments but no chemotherapy.

Social History: former smoker, no drug or alcohol use.
Past Medical History: lung cancer, chronic obstructive pulmonary disease.
Medications: aspirin Enteric Coated, Esomeprazole, magnesium oxide, metoprolol, fish oil, oxycodone, Umeclidinium bromide and vilanterol, diphenhydramine, prednisone

Pertinent Physical Examination: Temperature: 36.4°C, blood pressure: 150/88, heart rate: 118, Respiratory Rate: 26, Oxygen Saturation: 87% on room air.
General: alert with no immediate need for airway protection or signs of toxicity. The patient does appear to be mildly short of breath.
Ear, Nose and Throat: the patient has a notably hoarse voice.
- Eyes: pupils equal and round, no pallor or injection.
- Face: flushed and edematous.
- Mouth: mucous membranes are moist.

Neck: neck is supple, nontender. Jugular Venous Distension present. Right neck swelling. Neck is flushed.
Respiratory: wheezing bilaterally in all lung fields with decreased breath sounds at the right lower base.
Cardiovascular: tachycardia with regular rhythm.
Gastrointestinal: abdomen is soft and nontender, no masses, bowel sounds are normal.
Neurologic: no altered mental status or confusion. No focal deficits appreciated.
Skin: warm and dry. dilation of upper extremity veins.
Musculoskeletal: mild pitting edema in the bilateral lower extremities. Extremities are nontender with full range of motion.

Diagnostic testing

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White blood cell count	$7.2*10^9$/L
Hemoglobin	11.7 G/DL
Sodium	128 mmoL/L
pH	7.431 mmol/L
Lactate	7.53 mmoL/L
Creatinine	0.78 mG/DL
Glucose	299 mG/DL

Computed tomography (CT) chest Pulmonary Embolus protocol: no pulmonary emboli, new right middle lobe pneumonia, multiple masses right lung again noted compatible with patient's history of known malignancy. Mass effect on the superior vena cava (SVC).

Clinical Course: Sputum cultures from prior visit 3 days before grew out *Pseudomonas* sensitive to ciprofloxacin. Cultures were not sensitive to levofloxacin. The patient's oncologist was contacted, who thought the patient required admission to the