



Visual Case Discussion

Hyperdense artery sign in a case of paradoxical embolism

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Case presentation

A 65-year-old female presented to the emergency department with dyspnea. Abnormal initial vitals included tachypnea, hypoxia (82%), and tachycardia (102). Physical exam and chest X-ray was unremarkable, with the EKG showing sinus tachycardia. Prior to imaging to rule out pulmonary embolus (PE) she developed acute onset left sided weakness and ipsilateral gaze deviation. A non-contrast CT head was performed, revealing a hyperdense middle cerebral artery (MCA) sign



Fig. 1. Hyperdense artery sign located at the MCA indicating acute ischemic CVA.

(Fig. 1). Consequently, tissue plasminogen activator was administered resulting in rapid resolution of hemiparesis and hypoxia. She was admitted to the CCU, and found to have bilateral pulmonary emboli and a patent foramen ovale (PFO), which was closed prior to discharge.

Discussion

Hyperdense artery sign is a focal density most often seen in the middle cerebral artery representing thromboembolic occlusion.¹ It may also occur in the carotid artery, anterior cerebral artery, posterior artery, basilar artery or vertebral artery. It is often the only radiographic indicator of acute ischemic stroke, and is only visible within the first 90 minutes of vessel occlusion before parenchymal changes occur. Patients with hyperdense artery sign usually have poor outcomes, large volume strokes and severe neurological deficits. It is highly specific for acute ischemic stroke, but has a sensitivity of about 30% likely due to large slice thickness of routine non-contrast head CT.²

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.visj.2018.12.011](https://doi.org/10.1016/j.visj.2018.12.011).

References

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Questions

1. Administration of 100% oxygen to patient with subcutaneous emphysema is not recommended. Because it interferes with the absorption of air.
 - a. True
 - b. False
2. What is the complication of subcutaneous emphysema?
 - a. Infection
 - b. Pneumopericardium
 - c. Cardiac tamponade
 - d. Air embolism
 - e. Above all

Answers

1. False. Explanation: Administration of 100% oxygen can hasten the resolution of emphysema because oxygen, which replaces the air, is more readily absorbed.
2. Above all. Explanation: Subcutaneous emphysema is usually a harmless, but complications are possible, such as infections (because the air entering the tissue is contaminated with oral bacteria) and respiratory distress. Severe complications are rare and include pneumopericardium, pneumoperitoneum, cardiac tamponade, tension pneumothorax, and air embolism.