

## Jugular Air Embolism

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### Abstract

Ultrasound is a technique very useful in emergency medicine. The potential of ultrasound have not yet been fully discovered. This case report aims to highlight the capabilities of ultrasound. A 72-year-old man with septic shock was admitted to our Emergency Department. While ultrasound of central veins for vascular access was performed, gas emboli were noted in the left internal jugular vein. The patient experienced no adverse effects from the air embolism.

**Keywords** Air embolism; Ultrasound; Jugular ultrasound

### Description

A 72-year-old man with a three days history of fever and stranguria was admitted to our Emergency Department. After clinical evaluation, laboratory and radiologic data, the final diagnosis was septic shock due to pyelonephritis. The SOFA score was 8. Empirical antibiotics were started after urine and blood-culture samples were obtained. In this setting, an integrated clinical ultrasound was performed: IVC was 17 mm in diameter with an inspiratory collapsibility of more than 50%; cardiac ultrasound showed an eyeball ejection fraction of 20-25% with an apparent enlarged left ventricle, a grade 2 diastolic dysfunction with a E/E' ratio of 7; the right chambers was normal; chest ultrasound showed an A-profile with a bilateral normal basal curtain sign [1]. Need of vasopressors and inotropes was hypothesized because of persistence of shock even if a normalized fluid status. Afterwards, a central venous catheter was necessary. While pre-procedural ultrasound imaging of central veins for vascular access was performed, gas emboli were noted in the left internal jugular vein. These emboli are recognized as hyperechoic bubbles in the anterior wall of the vessel, with reverberation artifacts extending deeper occupying almost the vein lumen (Figure 1). At the time of imaging, the patient had been placed in the reverse Trendelenburg position, with slight right side dependency [2]. The right internal jugular vein and the left subclavian vein had no evidence of air embolism. The patient experienced no adverse effects from the air embolism. We supposed that these emboli inadvertent entry through routine peripheral access catheter previously guaranteed. Other possible causes were excluded by history and physical examination (no previous history of hemodialysis, central vein catheters placement or neurosurgical operations) [3]. The day after the identification of left internal jugular vein air embolism, the ultrasound examination of that vein showed no persistence of that emboli (image not showed). The absence of emboli was probably due to intravascular volume expansion and to catecholamine therapy [3].

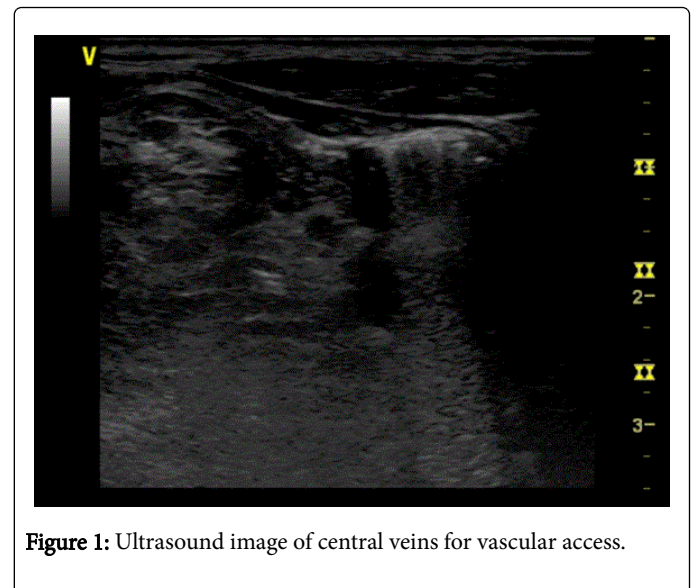


Figure 1: Ultrasound image of central veins for vascular access.

### Conclusion

Venous air embolism is a largely iatrogenic clinical problem that can result in serious morbidity. This condition is difficult to diagnose. Ultrasound is a useful method to help the physician.

### References

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