

A brain computed tomography (CT) showed multiple cerebral venous gas emboli. No potential causes were found apart from previous peripheral vein cannulation and intravenous medication administration” Costa Carneiro et al (2019).

Abstract:

Cerebral venous air embolism (CVAE) is an extremely rare phenomenon. Most reports of cerebral air embolism focus on the arterial territory, and consequently CVAE has remained poorly understood, especially regarding its pathophysiology and treatment. The authors describe an elderly male patient who was admitted through the Emergency Department with subacute confusion. A brain computed tomography (CT) showed multiple cerebral venous gas emboli. No potential causes were found apart from previous peripheral vein cannulation and intravenous medication administration. The patient received supportive treatment, with complete radiological resolution of the gas emboli, while maintaining his previous confusional state. The aim of this report is to highlight a rare and understudied entity, and discuss its causes, proposed pathophysiology and appropriate management.

LEARNING POINTS: Cerebral venous air embolism (CVAE) is a very rare phenomenon, assumed to result from retrograde progression of air bubbles introduced into the venous circulation through central venous catheter manipulation or, less often, peripheral vein cannulation, although its precise pathophysiology remains to be completely understood. CVAE's clinical presentation can be varied, often mimicking acute stroke, and diagnosis can easily be established through a conventional brain-CT scan. Treatment must be initiated promptly by placing the patient in the Trendelenburg position and providing high concentration oxygen, intravascular volume expansion and other supportive measures as needed; hyperbaric oxygen therapy may be considered for selected patients.

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Reference:

Costa Carneiro, A., Diaz, P., Vieira, M., Silva, M., Silva, I., Custodio, M. and Faria, M. (2019) Cerebral Venous Air Embolism: A Rare Phenomenon. *European Journal of Case Reports in Internal Medicine*. 6(1), p.001011. eCollection 2019.

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