Cerebral gas embolism (CGE) is a potentially catastrophic complication of central venous catheters (CVCs) manipulation or accidental disconnection, which is rarely reported in the literature" Pinho et al (2016).

Abstract:

OBJECTIVE: Cerebral gas embolism (CGE) is a potentially catastrophic complication of central venous catheters (CVCs) manipulation or accidental disconnection, which is rarely reported in the literature. This systematic review aims to characterize the clinical manifestations, imaging features and outcome of CGE associated with CVCs.

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METHODS: Systematic literature search of all published cases of CGE associated with CVCs, and identification of previously unreported local cases. Descriptive analysis of all cases, mortality analysis for cases with individualized data.

RESULTS: Of the 158 patients with CGE associated with CVCs found, 71.8% were male and mean age was 56.4years. CGE symptoms frequently occurred while in the upright position. The most frequent neurological manifestation was sudden-onset focal neurological sign

(67.7%), followed by coma (59.5%), epileptic seizures (24.7%) and encephalopathy (21.5%). Imaging revealed intracranial air bubbles in 69.1% and cerebral ischemia or edema was demonstrated in 66.7%. Overall mortality was 21.7%, and clinical predictors of mortality were increasing age (p<0.001), coma (p=0.001), cardiorespiratory arrest shortly after symptom onset (p<0.001) and male sex (p=0.035).

CONCLUSIONS: CGE associated with CVCs may mimic ischemic stroke, but patients frequently present a severe vigilance disturbance and epileptic seizures. Mortality occurs in 1/5 of patients, which substantiates implementation of protocols and measures to prevent this severe complication of CVC use.

Reference:

Pinho, J., Amorim, J.M., Araújo, J.M., Vilaça, H., Ribeiro, M., Pereira, J. and Ferreira, C. (2016) Cerebral gas embolism associated with central venous catheter: Systematic review. Journal of the Neurological Sciences. 362, p.160-4.

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