



## Image Article

# Livedo Reticularis and Seizure Associated With Radial Arterial Line Flushing

**Frank Fideler\***, Christian Grasshoff

Department of Anesthesiology and Intensive Care Medicine Tuebingen, Germany.

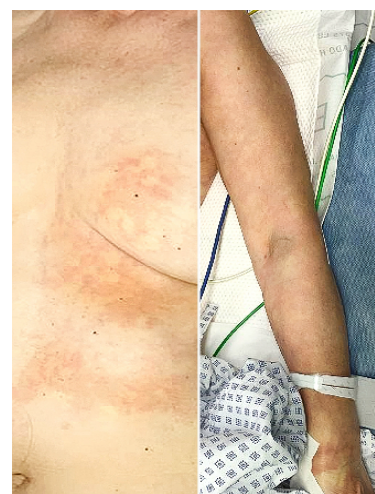
\***Corresponding author:** Frank Fideler, Department of Anesthesiology and Intensive Care Medicine University Hospital Tuebingen, Germany.

**Citation:** Fideler F, Grasshoff C (2023) Livedo Reticularis and Seizure Associated With Radial Arterial Line Flushing. Ann Case Report 08: 1568. DOI: 10.29011/2574-7754.101568.

**Received Date:** 20 December 2023; **Accepted Date:** 23 December 2023; **Published Date:** 26 December 2023

### Case

A 56-year-old female patient (152cm, 48kg, ASA IV, NYHA III) with severely reduced left ventricular function (EF 15%, left bundle branch block, mitral regurgitation grade C) was scheduled for coronary artery bypass graft surgery. In preparation for the induction of anesthesia, a 20G arterial cannula was placed in the left radial artery. When the cannula was flushed with about 8 ml 0.9% NaCl from the irrigation bag (250mmHg, flush rate 1.5ml/s, room temperature), an epileptiform seizure occurred immediately, with foaming at the mouth and gaze deviation to the lower left. Furthermore, with the onset of symptoms a livedo reticularis appeared in the supply region of the radial, axillary, subclavian, internal carotid, thoracoacromial and superior thoracic arteries (Figure). The seizure was terminated by the application of midazolam, the trachea intubated and a head CT scan was performed immediately which excluded pathological findings like e.g. cerebral air embolism.



**Figure:** With onset of symptoms a livedo reticularis appeared in the supply region of the radial, axillary, subclavian, internal carotid, thoracoacromial and superior thoracic arteries

Livedo reticularis is a physical finding consisting of macular, violaceous, connecting rings caused by temperature-dependency or local hypoxia [1]. The patient gave written consent for publication of the images.

As seen here, arterial line flushing can provoke a narrowly defined manifestation livedo reticularis and, more importantly, a generalized tonic-clonic seizure either due to cold saline or due to air liberated from the blood solution during rapid warming.

Therefore, control of the flush volume as well as the speed of flushing is an essential safety measure when using arterial lines [2]. Cerebral air embolism by retrograde arterial flushing has previously been described [3]. When an arterial line is flushed, one must ensure that there is no air in the line and flush with a minimum effective amount of saline. If a large volume is vigorously flushed, particularly in patients with low cardiac output, retrograde flushing can reach the cerebral circulation and lead to serious adverse events.

**Disclosures:** The authors do not have any commercial or noncommercial affiliations that may be considered conflicts of interest.

FF and CG contributed equally to the manuscript.

**Acknowledgements:** none

**Funding statement:** This project does not have any sources of funding.

## References

1. Gibbs MB, English JC 3rd, Zirwas MJ (2005) Livedo reticularis: an update. *J Am Acad Dermatol.* 52: 1009-1019.
2. Lowenstein E, Little JW 3rd, Lo HH (1971) Prevention of cerebral embolization from flushing radial- artery cannulas. *N Engl J Med.* 285: 1414-1415.
3. Zink M, Hainzl G, Maier A, Stadlbauer V (2021) Cerebral air embolism after flushing a radial arterial line: a case report. *Journal of Emergency and Critical Care Medicine.* 5: 28.