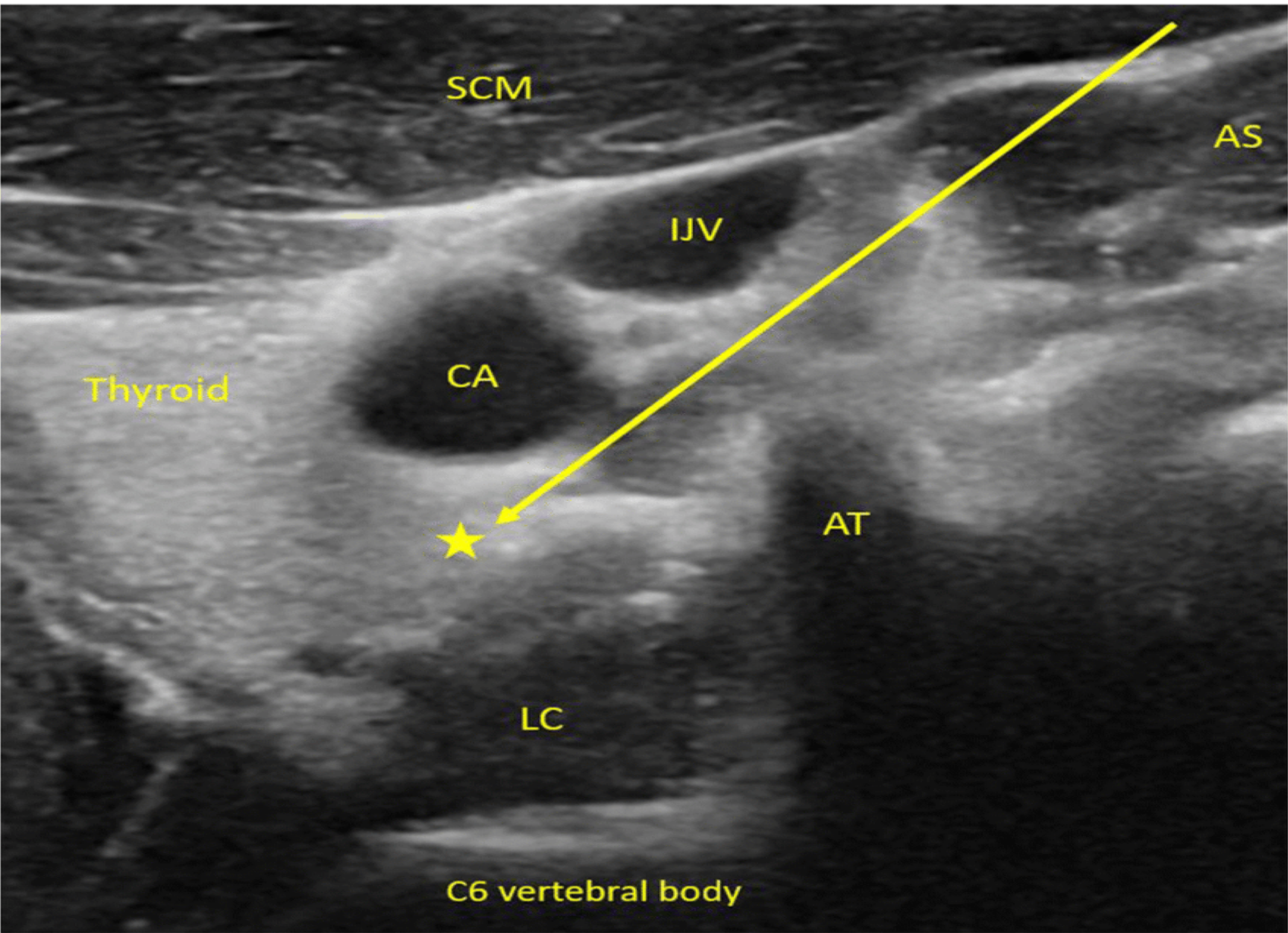


Introduction

Electrical storm (ES) is driven in part by sympathetic overactivity and carries high early mortality; stellate ganglion block (SGB) is increasingly used as a rapid rescue for refractory VT/VF. We report what appears to be the first generalized tonic–clonic seizure immediately after attempted SGB in this setting, explore local anesthetic systemic toxicity (LAST) as the likely mechanism, and summarize guideline-directed recognition and management.

Case Report

A 58-year-old man with ischemic cardiomyopathy in refractory VT storm—despite amiodarone, procainamide, lidocaine, escalating β -blockade and VA-ECMO with Impella—underwent attempted left SGB with needle positioned between prevertebral fascia and longus colli under ultrasound. After negative aspiration, injection of 0.5% ropivacaine was initiated. After ~1 mL, the patient developed a generalized tonic–clonic seizure. Injection was halted, airway supported (BVM), and lipid emulsion was mobilized for suspected LAST. Seizure activity ceased within ~3 minutes without additional medication; hemodynamics remained stable and neurologic recovery was complete. Neuroimaging showed no structural lesion. The event was attributed to early CNS LAST in the context of overlapping systemic lidocaine and regional ropivacaine exposure. The patient was subsequently listed for heart transplantation.



Discussion

SGB reduces VT/VF burden in refractory ES via sympatholysis, but complications may occur. This case is, to our knowledge, the first seizure reported immediately following attempted SGB in the VT/VF storm population and is most consistent with early LAST, likely potentiated by concurrent antiarrhythmic therapy. Guidelines recommend immediate cessation of local anesthetic; secure airway/oxygenation; treat seizures with benzodiazepines; and initiate lipid emulsion at first neurologic signs (20% lipid: 1.5 mL/kg bolus over ~1 min, then 0.25 mL/kg/min; repeat/escalate if instability persists; apply modified ACLS with reduced epinephrine; observe for recurrence). Prevention: ultrasound visualization, fractionated injection, frequent aspiration, minimal effective dose, and awareness of cumulative systemic exposure—especially in critically ill arrhythmia patients. Despite this complication, SGB remains a valuable bridge for ES when alternatives pose greater hemodynamic risk or are less deployable acutely.

Conclusions

Seizure after attempted stellate ganglion block for refractory VT/VF storm, most consistent with LAST, represents a previously unreported serious complication in this population. Early recognition and adherence to guideline-based management, including readiness with lipid emulsion therapy and cautious technique, are critical to mitigate risk. Incorporation of explicit LAST prevention and response protocols into SGB pathways is recommended as SGB continues to be used for electrical storm stabilization.

References

[1] Nademanee K, et al. Comparative efficacy of sympathetic blockade vs. ACLS in electrical storm. J Am Coll Cardiol. 2000;35(7):183–189.

[2] Fudim M, et al. Stellate ganglion block in electrical storm: multicenter retrospective analysis. JACC Clin Electrophysiol. 2020;6(4):481–490.

[3] Meng L, et al. Efficacy of stellate ganglion blockade in managing electrical storm: systematic review. JACC Clin Electrophysiol. 2017;3(9):942–949.

[4] Neal JM, et al. ASRA practice advisory on local anesthetic systemic toxicity. Reg Anesth Pain Med. 2010;35(2):152–161.