

The Head and the Heart: Myocardial Infarction and Transient Global Amnesia After a Right Stellate Ganglion Block for Complex Regional Pain Syndrome

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ABSTRACT

BACKGROUND

Stellate ganglion block (SGB) is frequently used to treat sympathetically mediated pain conditions such as complex regional pain syndrome (CRPS).

Though typically safe under image guidance, SGB can produce cardiovascular and neurologic complications via modulation of autonomic tone and systemic local anesthetic absorption.

Reported complications include bradycardia, hypertension, syncope, cardiac arrest, and rare neurological sequelae such as transient global amnesia (TGA).

Type 2 non–ST elevation myocardial infarction (NSTEMI) results from oxygen supply–demand imbalance rather than plaque rupture.

To our knowledge, this is the first reported case of simultaneous type 2 NSTEMI and TGA following an uncomplicated SGB.

OBJECTIVE

To describe a rare case of concurrent type 2 NSTEMI and transient global amnesia following a right stellate ganglion block and to propose a pathophysiologic mechanism linking autonomic modulation, coronary steal, and cerebral venous congestion.

ABSTRACT

CASE PRESENTATION

- Patient: Woman in her 70s with CRPS of the right hand, OSA, hyperlipidemia, hypothyroidism, and a remote history of pericarditis.
- Procedure: Fourth, right-sided SGB at C6 with 4 mL of 0.5 % ropivacaine under fluoroscopic guidance (see Figure 1).
- Event: One-hour post-block, patient experienced a coughing fit, confusion, repetitive questioning, and chest discomfort.

Findings:

- Troponin rose from 20 → 232 ng/L at 2 hr.
- ECG: 0.5 mm ST elevation in aVR; lateral ST depressions.
- Brain CT/MRI: no acute lesion; EEG: mild left temporal slowing.
- Echo: EF 63 %; CTA coronaries: no obstructive disease.
- Outcome: Diagnosed with type 2 NSTEMI and TGA. Symptoms resolved within 8 h; discharged on guideline-directed therapy with no recurrence

IMAGES

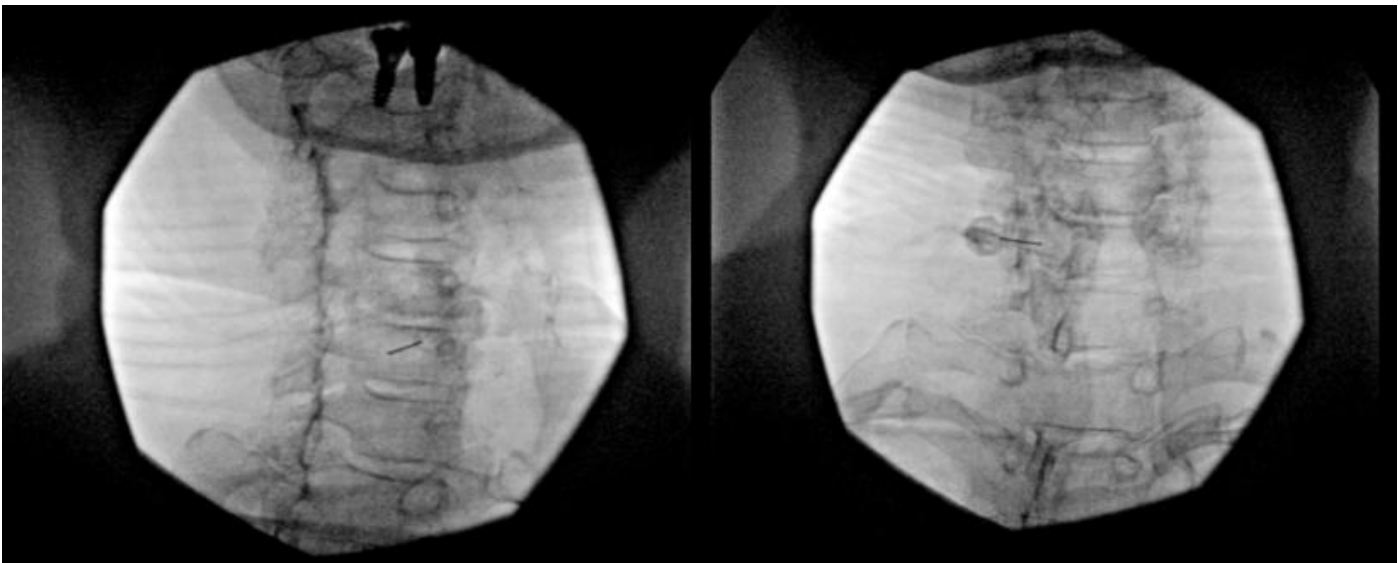


Image: Fluoroscopically guided stellate ganglion block, right-sided at the C6 level

DISCUSSION

MECHANISMS

- The stellate ganglion supplies sympathetic fibers to the heart and brain. Right-sided block can attenuate baroreflex sensitivity, alter cardiac contractility, and transiently reduce coronary blood flow.
- SGB may therefore predispose to myocardial oxygen supply–demand mismatch.
- A Valsalva-like cough may further exacerbate these effects by increasing intrathoracic pressure, causing venous congestion and transient cerebral hypoperfusion.

PATHOPHYSIOLOGIC LINK

- In animal studies, SGB reduced coronary blood flow by up to 30 %, decreased contractility, and increased myocardial oxygen extraction ratio.
- The combination of SGB-induced autonomic imbalance and procedural stress may produce simultaneous coronary steal and hippocampal vulnerability, explaining concurrent MI and TGA

IMPLICATIONS

CLINICAL PRACTICE

Risk Assessment: Pre-procedural cardiovascular evaluation should be considered for older patients with risk factors.

Monitoring: Observe for ≥ 60 min post-block with continuous vital and mental status monitoring.

Counseling: Discuss both common transient and rare serious complications with patients prior to SGB

REFERENCES

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2. Taneyama C, Goto H. Fractal cardiovascular dynamics and baroreflex sensitivity after stellate ganglion block. *Anesth Analg*. 2009;109(4):1335-40.