

Introduction

- Stellate ganglion blocks (SGB) offer significant diagnostic and therapeutic benefits for treating sympathetically maintained pain syndromes in the head, neck, upper extremities, and peripheral vascular disease.¹
- Radiofrequency ablation (RFA) is a minimally invasive technique providing long-term effects through nerve cell death from coagulation necrosis, commonly used in outpatient settings for chronic pain treatment.²
- Peripheral vascular injuries (PVI) from blunt or penetrating trauma to the extremities can have severe consequences if not treated promptly. Primary treatment is open or endovascular surgical intervention, promoting revascularization and tissue healing.³
- We report a trauma patient with left upper extremity (LUE) persistent vasospasm, peripheral vascular compromise and intractable pain who achieved significant symptom relief after SBG RFA.

Methods

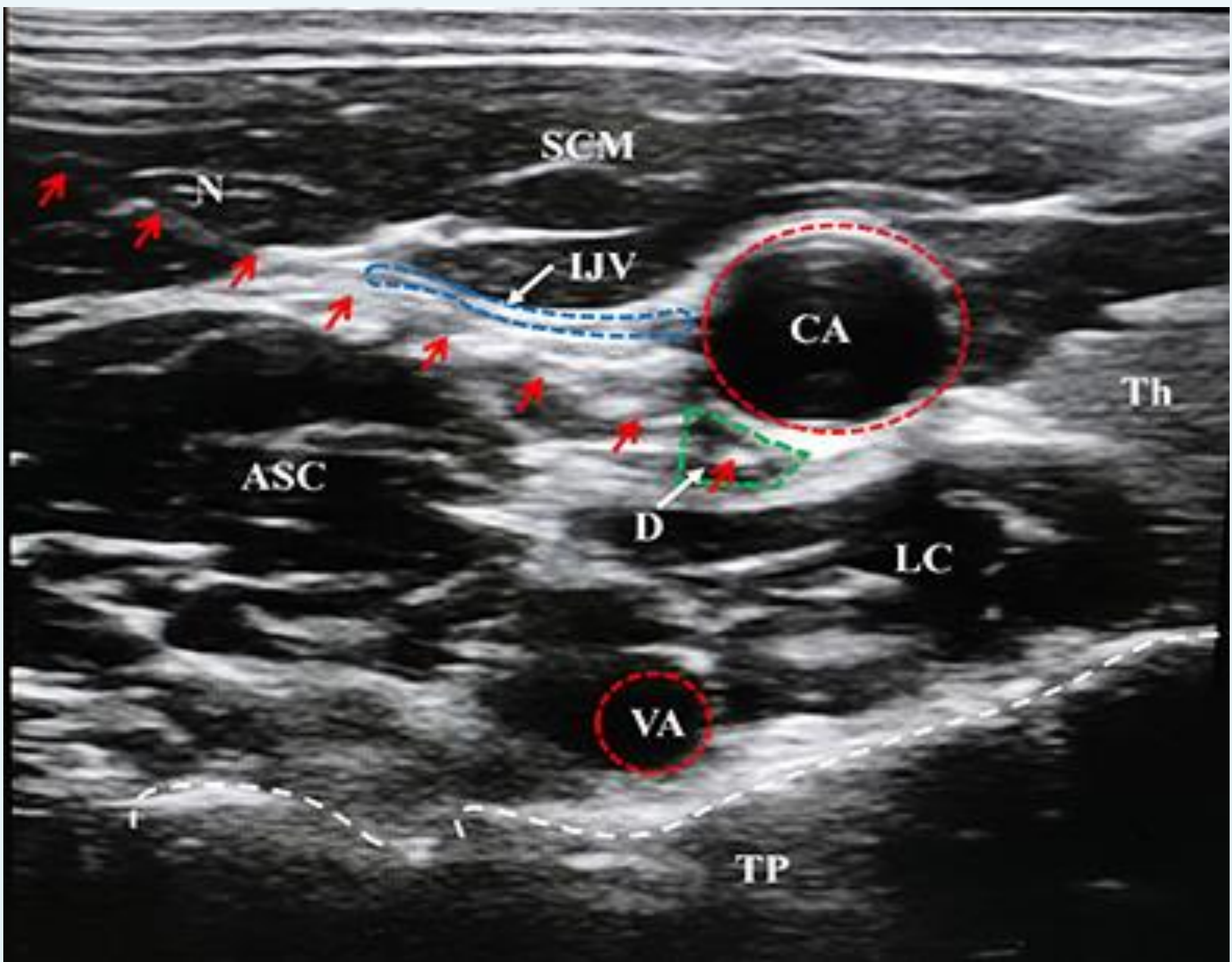
- As this case report is devoid of patient identifiable information, it is exempt from IRB review requirements as per Tufts policy.
- Patient informed consent was obtained for the publication of this case.

Case Report

- 64F presented as a trauma after her upper extremities became trapped in a dough mixer.
- She self-extricated the right upper extremity, but the LUE was trapped for 45 minutes and extricated by the fire department.
- She had bilateral open fractures of the radius and ulna with soft tissue injury to the left forearm down to the bone, along with injury to the left radial artery and transection of the left ulnar artery.
- She underwent debridement of the open fractures with bilateral fasciotomies, wound vac placement, ulnar artery repair, and open reduction and internal fixation of the fractures.

- Despite surgical repair, the LUE continued to demonstrate vascular compromise and intermittent vasospasms, evidenced by weak Doppler signals in the ulnar and radial arteries, associated with severe and intractable extremity pain.
- Hence, a left stellate ganglion block followed by radiofrequency ablation was performed.

Figure 1. US-Guided Stellate Ganglion Block



- Under ultrasound guidance, a 27G 33mm needle was advanced towards the longus colli muscle. After identifying the stellate ganglion, 5 ml of 0.5% bupivacaine and 100mcg clonidine were injected incrementally. Significant LUE reperfusion was achieved, with complete cessation of vasospasm and strong Doppler signals in both arteries.
- Afterwards, A 22G 100mm active tip radiofrequency cannula was then advanced to the prior identified area under continuous ultrasound guidance. Sensory and motor testing showed no abnormal movements. Pulse radiofrequency at 42°C for 2.5 minutes for a total of 2 burns was performed.
- The procedure was uncomplicated, and the benefits of SBG blockade/RFA continued throughout her admission, with no further evidence of vascular compromise.

Conclusion

- SGBs are a practical and effective intervention for the treatment of peripheral vascular disease.
- While they provide immediate relief, their effect is short lasting and not optimal in patients with refractory symptoms.
- While RFAs are commonly used in the outpatient setting, their application in the acute/inpatient setting for post-trauma vascular compromise appear promising.
- In our case, SG RFA proved to be significantly effective in promoting long term vascular reperfusion and pain relief.
- The exact mechanism remains unknown but could be explained by peripheral arterial vasodilation of greatly inflamed/damaged vasculature in setting of sympathectomy via stellate ganglion blockade and ablation.

References

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