Stellate Ganglion Block for Sympathetically Sustained Symptoms

A Retrospective Case Series

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INTRODUCTION

The stellate ganglion block (SGB) has been well described in the treatment of painful conditions including post-herpetic neuralgia and vascular insufficiency of the upper extremity [1]. The role of SGB in non-painful sympathetically mediated conditions remains poorly defined by existing guidelines [2,3]. This case series describes the technique and outcome of SGB in two quality-of-life–limiting conditions: post-menopausal hot flashes and long COVID-19–associated olfactory dysfunction (OD).

METHODS

Study design: Single-center retrospective case series at a large urban academic center.
Consent & IRB: Verbal informed consent was obtained from all patients. The series was exempt from IRB review per Northwestern Memorial HealthCare policy because it contained no patient-identifiable information.
Setting: SGB was performed at the bedside in an outpatient Pain Management clinic with standard monitoring.
Ultrasound guidance: The cervical sympathetic chain was identified at **C6**, deep to the prevertebral fascia between the longus colli and longus capitis.
The fascia was traced caudad to **C7**.
A **22-gauge, 40-mm echogenic needle** was advanced under real-time ultrasound guidance to the longus colli.
Injection: 5 mL of **0.5% bupivacaine** was injected below the prevertebral fascia.
Procedural confirmation: All patients demonstrated a **4°C skin-temperature rise** and **Horner syndrome**.
Outcomes: Self-reported symptom improvement and interest in repeat SGB were assessed.

DISCUSSION

All patients reported improved symptom intensity and underwent at least one repeat SGB.
COVID-19–related olfactory dysfunction (OD): Maladaptation to pro-inflammatory cytokines may cause excessive cervical sympathetic activity, potentially explaining the response to SGB [5].
Menopausal vasomotor symptoms: SGB may alleviate symptoms by modulating norepinephrine in thermoregulatory brain regions [2].
Future research: Larger controlled trials are needed to quantify outcomes and identify patient populations most likely to benefit from SGB.

Stellate Ganglion Block (SGB) is associated with meaningful symptom improvement in patients with COVID-19 associated olfactory dysfunction and post-menopausal hot flashes.

REPORTED OUTCOMES

30%
improvement in olfaction
66-year-old woman

>50%
improvement in olfaction
26-year-old man

80%
reduction in hot-flash intensity & frequency
59-year-old woman

ULTRASOUND-GUIDED TECHNIQUE

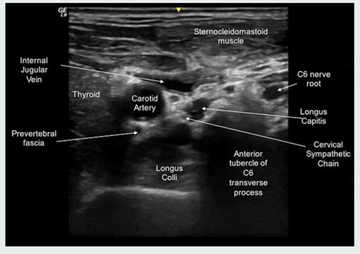


FIGURE 1
Sonographic image of the Cervical Sympathetic Chain and surrounding structures

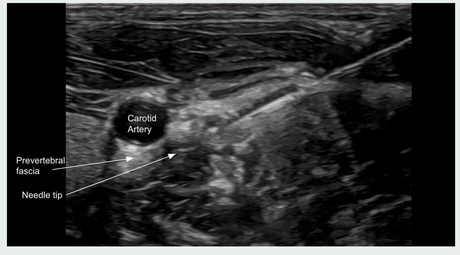


FIGURE 2
Needle position at C7

TAKE-HOME MESSAGE

These preliminary observations support further controlled study of SGB for selected non-painful sympathetically mediated symptoms. Larger studies are needed before efficacy and appropriate patient selection can be established.

ADDITIONAL CASE DETAILS

CASE 1 — OLFACTORY DYSFUNCTION

66-year-old woman with fibromyalgia and type II diabetes; COVID-related anosmia and dysgeusia persisted for 3 years. After serial right and left SGBs, she reported 30% improvement in olfactory function that was meaningful to her. She has undergone 3 right and 4 left SGBs.

CASE 2 — OLFACTORY DYSFUNCTION

26-year-old healthy man developed persistent diminished taste and smell 3 weeks after recovering from COVID-19 respiratory symptoms. After left SGB, he reported >50% improvement in olfaction and underwent right SGB two weeks later; re-evaluation is pending.

CASE 3 — HOT FLASHES

59-year-old woman with aggressive leiomyoma, status post hysterectomy and oophorectomy, developed severe hot flashes after discontinuation of long-term HRT. Right SGB reduced frequency by 50%; after additional SGBs she reported an 80% reduction in intensity and frequency. She has undergone >20 SGBs over 6 years.

REFERENCES

1. Gofeld M, Shankar H, Benzon HT. Fluoroscopy and ultrasound-guided sympathetic blocks. In: Benzon HT, Raja SN, Liu SS, Fishman SM, Cohen SP, eds. *Essentials of Pain Medicine*. 4th ed. Elsevier; 2018:789-804.e2.
2. Feigin G, Velasco Figueroa S, Englesakis MF, D'Souza R, Hoydonckx Y, Bhatia A. Stellate ganglion block for non-pain indications: a scoping review. *Pain Med*. 2023;24(7):775-781. doi:10.1093/pm/pnad011
3. Farrell NF, Crock LW, Islam A, et al. Stellate ganglion block for the treatment of COVID-19-induced parosmia: a randomized clinical trial. *JAMA Otolaryngol Head Neck Surg*. 2025;151(8):741-749. doi:10.1001/jamaoto.2025.1304
4. Nguyen KT, Hillen LM, Nader AM. When options are limited: case report of an ultrasound guided stellate ganglion block at bedside. *Pain Med Case Rep*. 2021;5(1):45-49. doi:10.36076/pmcr.2021/5/45
5. Chauhan G, Upadhyay A, Khanduja S, Emerick T. Stellate ganglion block for anosmia and dysgeusia due to long COVID. *Cureus*. 2022;14(8):e27779. doi:10.7759/cureus.27779

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