

Serial Stellate Ganglion Blocks for Anosmia and Ageusia: A Case Report

Margaret Martinez, DO[1]; Anna Woodbury, MD[1,2]; Sudheer Potru, DO[1,2]
[1]Emory University School of Medicine, [2]Atlanta VA Medical Center

EMORY UNIVERSITY

INTRODUCTION

The stellate ganglion block (SGB) reduces cervical and/or higher sympathetic activity and is increasingly used as an adjunctive treatment for a variety of conditions, including facial pain, headaches, and long COVID[1]. Persistent taste and smell disturbances, including anosmia, ageusia, and parosmia, may occur following previous COVID-19 infection. Although the underlying mechanisms remain unclear, symptoms have been hypothesized to result from autonomic dysregulation and heightened sympathetic activity[2]. SGB may help restore autonomic balance by attenuating cervical sympathetic activity[3].

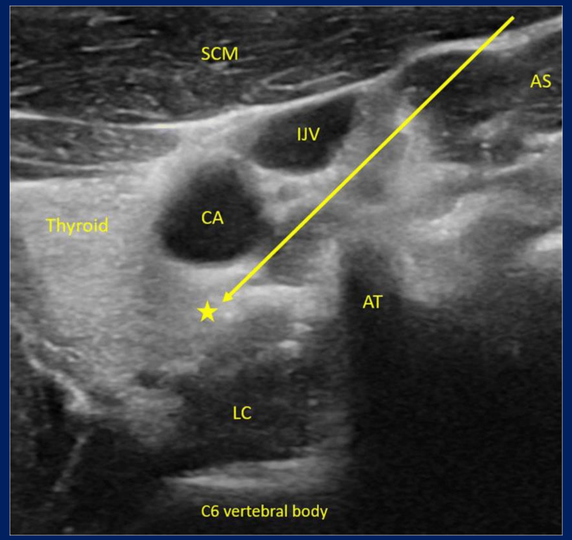
CASE DESCRIPTION

A 62-year-old male presented to the pain clinic, where he was already receiving treatment for other chronic pain conditions including neck and back pain, with persistent loss of taste and smell following a confirmed COVID-19 infection approximately 13 months earlier. At the time of infection, he developed complete anosmia and ageusia, which persisted despite resolution of his other COVID-19-related symptoms.

After several treatment options were explored, a stellate ganglion block (SGB) was considered a potential therapeutic intervention for his persistent post-COVID-19 olfactory and gustatory dysfunction. The patient subsequently underwent a right-sided SGB under ultrasound guidance. The injectate consisted of 10 mg dexamethasone, 3 mL of 0.25% bupivacaine, and 3 mL of 1% lidocaine.

At follow-up, the patient reported incremental improvement in his symptoms. Given the clinical response, the right-sided SGB was repeated approximately four months later, after which he reported approximately one year of symptomatic relief. Following recurrence of his symptoms, the right SGB was repeated twice more at four-month intervals. Similar medication combinations and doses were used for subsequent procedures.

Serial stellate ganglion blocks were associated with progressive and sustained improvement in post-COVID-19 anosmia and ageusia at 2 year follow-up.



Ultrasound-guided stellate ganglion block[7]
SCM sternocleidomastoid muscle, CA Carotid artery, IJV Internal jugular vein, AS anterior scalene muscle, LC Longus colli muscle, AT Anterior tubercle of C6 vertebrae

CASE DESCRIPTION (CONT'D)

After the fourth SGB, the patient's symptoms resolved almost completely, and no further interventions were required. At two-year follow-up, he continued to report sustained improvement, particularly in his sense of taste. He currently estimates that his ageusia remains approximately 85–90% improved compared with baseline.

DISCUSSION

This case highlights the potential role of SGB in the treatment of persistent post-COVID-19 anosmia and ageusia. Although several case reports have described favorable outcomes following SGB, early clinical trials have yielded less encouraging results.[4,5] A small randomized controlled trial found that a single SGB was not more effective than placebo for the treatment of COVID-19–associated parosmia.[6] However, that study evaluated only a single SGB and did not assess the potential benefits of repeated interventions or long-term outcomes. In contrast, the present case demonstrated progressive and sustained improvement following a series of right-sided SGBs administered at four-month intervals, with substantial symptom relief persisting two years after the final treatment. These findings suggest that repeated SGB may warrant further investigation as a potential strategy for achieving more durable improvement in post-COVID-19 olfactory and gustatory dysfunction.

REFERENCES

1. Kirkpatrick K, Khan MH, Deng Y, Shah KB. A Review of Stellate Ganglion Block as an Adjunctive Treatment Modality. Cureus. 2023 Feb 19;15(2):e35174. doi: 10.7759/cureus.35174. PMID: 36949968; PMCID: PMC10029323.
2. Hira, R., Karalasingham, K., Baker, J. R., & Raj, S. R. (2023). Autonomic Manifestations of Long-COVID Syndrome. Current neurology and neuroscience reports, 23(12), 881–892. https://doi.org/10.1007/s11910-023-01320-z
3. Fischer, L., Barop, H., Ludin, S. M., & Schaible, H. G. (2022). Regulation of acute reflectory hyperinflammation in viral and other diseases by means of stellate ganglion block. A conceptual view with a focus on Covid-19. *Autonomic neuroscience : basic & clinical*, *237*, 102903. https://doi.org/10.1016/j.autneu.2021.102903
4. Kim, D. H., Jang, D. W., & Hwang, S. H. (2026). Efficacy of stellate ganglion block for refractory sensorineural olfactory dysfunction: a systematic review and meta-analysis. The Journal of laryngology and otology, 140(6), 606–612. https://doi.org/10.1017/S0022215126104769
5. Liu LD, Duricka DL. Stellate ganglion block reduces symptoms of Long COVID: A case series. J Neuroimmunol. 2022 Jan 15;362:577784. doi: 10.1016/j.jneuroim.2021.577784. Epub 2021 Dec 8. PMID: 34922127; PMCID: PMC8653406.
6. Farrell, N. F., Crock, L. W., Islam, A., Adkins, D., Peterson, A. M., Kallogjeri, D., & Piccirillo, J. F. (2025). Stellate Ganglion Block for the Treatment of COVID-19-Induced Parosmia: A Randomized Clinical Trial. JAMA otolaryngology– head & neck surgery, 151(8), 741–749. https://doi.org/10.1001/jamaoto.2025.1304
7. Ganesh, G., Arun, Y., Qadri, Y., Boortz-Marx, R., Al-Khatib, S., Harpole, D., Katz, J., Koontz, J., Mathew, J., Ray, N., Sun, A., Tong, B., Ulloa, L., Piccini, J., & Fudim, M. (2020). Stellate ganglion blockade: An intervention for the management of ventricular arrhythmias. *Current Hypertension Reports*, *22*, 1–8. https://doi.org/10.1007/s11906-020-01111-8