Stellate Ganglion Block for Long COVID-Associated Pain Syndromes: A Case Series

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BACKGROUND

- Approximately 36% of patients with previous SARS-CoV-2 infection develop post-acute sequelae of SARS-CoV-2 infection, commonly known as long COVID syndrome[1].
- Long COVID is a multisystem condition characterized by chronic pain, fatigue, cognitive dysfunction, and dysautonomia[2]. Pain may arise from neuroinflammation, autonomic dysregulation, and abnormal neuroimmune signaling[2,3].
- Stellate ganglion block (SGB) transiently reduces sympathetic outflow and may also modulate inflammatory and autonomic pathways[4]. Although SGB has shown promise for long COVID, prior studies have primarily focused on fatigue, cognitive dysfunction, and autonomic symptoms rather than pain as a primary outcome[4].
- This case series characterizes pain and functional responses to SGB in patients with long COVID-associated pain syndromes.

METHODS

- We conducted a retrospective case series of 4 patients with chronic pain following COVID-19 infection who were treated with SGB.
- Patients underwent ultrasound-guided unilateral or bilateral, single or sequential SGB with 5-9 mL of 0.25% bupivacaine with 10 mg dexamethasone, with protocol and laterality varying by patient.
- Charts were reviewed for pain severity and characteristics, functional status/activities of daily living (ADLs), non-pain long COVID symptoms, COMPASS-31 scores, duration of benefit, and adverse events.
- Patient outcomes were reviewed for trends in pain relief, functional improvement, non-pain symptoms, duration of benefit, and response to serial SGB.

RESULTS: LONG COVID-ASSOCIATED PAIN SYNDROMES

- Pain improved after SGB in all 4 patients, despite heterogeneous pain phenotypes including:
  - Diffuse musculoskeletal pain
  - Polyarthralgia
  - Paroxysmal cervical pain
  - Neuropathic pain
  - Headache
  - TMJ pain
  - Myofascial pain
  - Upper extremity complex regional pain syndrome
- All 4 patients reported pain improvement after the first SGB:
  - P1 improved from 7/10 to 2/10
  - P2 improved from 4/10 to 0/10
  - P3 reported qualitative improvement
  - P4 improved from 6/10 to 4/10

Stellate ganglion block improved pain across diverse long COVID pain syndromes, with additional improvements in function and non-pain symptoms.

All 4 patients reported **pain improvement** after SGB.

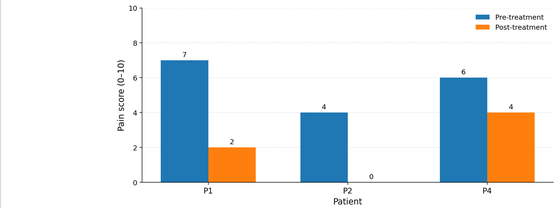
In all patients, benefits extended beyond pain to function and non-pain symptoms.

Patient	Pain	Function (ADLs)	Other Symptoms	Duration
P1	7/10 → 2/10	↑	Fatigue, POTS	8 wks
P2	4/10 → 0/10	↑	Fatigue, POTS, cognition, sleep	4 wks
P3	Improved	↑	Fatigue, POTS, cognition, mood	2 wks
P4	6/10 → 4/10	↑	Fatigue, POTS, cognition, digestion, exercise	6 wks

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PAIN SCORES BEFORE AND AFTER TREATMENT



RESULTS: FUNCTION AND NON-PAIN SYMPTOMS

- Function improved after SGB in all 4 patients, including walking, showering, doing chores, socializing, exercising, and returning to work.
- All 4 patients also experienced improvement of non-pain long COVID symptoms such as fatigue, POTS, cognition, sleep, and mood.
- Only one patient had both pre- and post-procedure COMPASS-31 scores, which improved from 39 to 20.

RESULTS: DURATION AND SAFETY

- Symptomatic benefit lasted 2-8 weeks, though patients had variable follow-up.
- Response to serial SGB varied, with one patient reporting greatest benefit after the first SGB and two reporting greatest benefit after the second SGB; P4 underwent only a single SGB.
- No serious adverse events occurred; one patient reported a transient, self-resolving headache following treatment.

CONCLUSIONS AND LIMITATIONS

- SGB improved pain and daily function across heterogeneous long COVID pain presentations. Prospective controlled studies with standardized outcomes are needed to determine efficacy, durability, and optimal treatment protocols.
- Limitations:
  - Small uncontrolled retrospective cohort
  - Non-standardized outcomes and treatment protocols
  - Concurrent therapies and placebo effects may confound response
  - Variable follow-up limits assessment of durability

BIBLIOGRAPHY

1. Hou, Y., Gu, T., Ni, Z., Shi, X., Ranney, M. L., & Mukherjee, B. (2025). Global prevalence of long COVID, its subtypes, and risk factors: An updated systematic review and meta-analysis. Open Forum Infectious Diseases, 12(9), ofaf533. https://doi.org/10.1093/ofid/ofaf533
2. Hoshijima, H., Mihara, T., Seki, H., Hyuga, S., Kuratani, N., & Shiga, T. (2023). Incidence of long-term post-acute sequelae of SARS-CoV-2 infection related to pain and other symptoms: A systematic review and meta-analysis. PloS one, 18(11), e0250909. https://doi.org/10.1371/journal.pone.0250909
3. Gupta, G., Buonsenso, D., Wood, J., Mohandas, S., & Warburton, D. (2025), Mechanistic insights into long Covid: Viral persistence, immune dysregulation, and multi-organ dysfunction. Comprehensive Physiology, 15(3), e70019. https://doi.org/10.1002/cph4.70019
4. Liu, L. D., & Duricka, D. L. (2022). Stellate ganglion block reduces symptoms of long COVID: A case series. Journal of Neuroimmunology, 362, 577784. https://doi.org/10.1016/j.jneuroim.2021.577784