



Serial Stellate Ganglion Blocks Incidentally Improve Personality – A Case Report

Dylan Banks MD, Yining Shao MD, Michael Flamm DO
New York University



Introduction

- First line PTSD management revolves around trauma-focused therapy, often paired with pharmacologic management such as SSRI/SNRI or alpha-1 antagonists for nightmares. If traditional modalities are ineffective, an adjunct treatment option includes the stellate ganglion block (SGB).¹
- SGBs target the stellate ganglion at the base of the neck to address sympathetically mediated pain (**Image 1, 2**). Studies have demonstrated significant improvement in PTSD symptoms compared to a sham injection.²
- Under recent investigation is the utilization of SGBs for a wider array of psychiatric conditions. The existing evidence is primarily case reports/series in addition to a pilot randomized control study assessing their use in refractory depression.^{3,4}

Case Description

- **Pertinent History:**
 - A 55-year-old male veteran with a history of major depressive disorder and PTSD has been following with our VA based pain clinic for 8 years for PTSD management.
 - Despite a PTSD targeted psychoeducational course and a trial of fluoxetine, he continued to have nocturnal awakening and mood swings, including anger outbursts, anxiety and difficulty concentrating. His wife also noted he was manipulative.
 - Additionally, he noted a sharp shooting pain along the left side of his face.
- **Intervention:**
 - An initial right-sided SGB provided incomplete PTSD relief.
 - A subsequent left-sided SGB provided significant improvement of PTSD symptoms including improved mood and sleep. He also noted improved left sided facial pain.
- **Conclusion:**
 - Over the past eight years of treatment with left sided SGBs approximately every 3 months, the patient reports that his personality has changed. He is no longer prone to outbursts of anger and feels more in control of his emotions. This has also been noted by his wife who reports he is less manipulative, generally less angry and more tolerable to be around. His friends and colleagues have reported the same change in his personality.

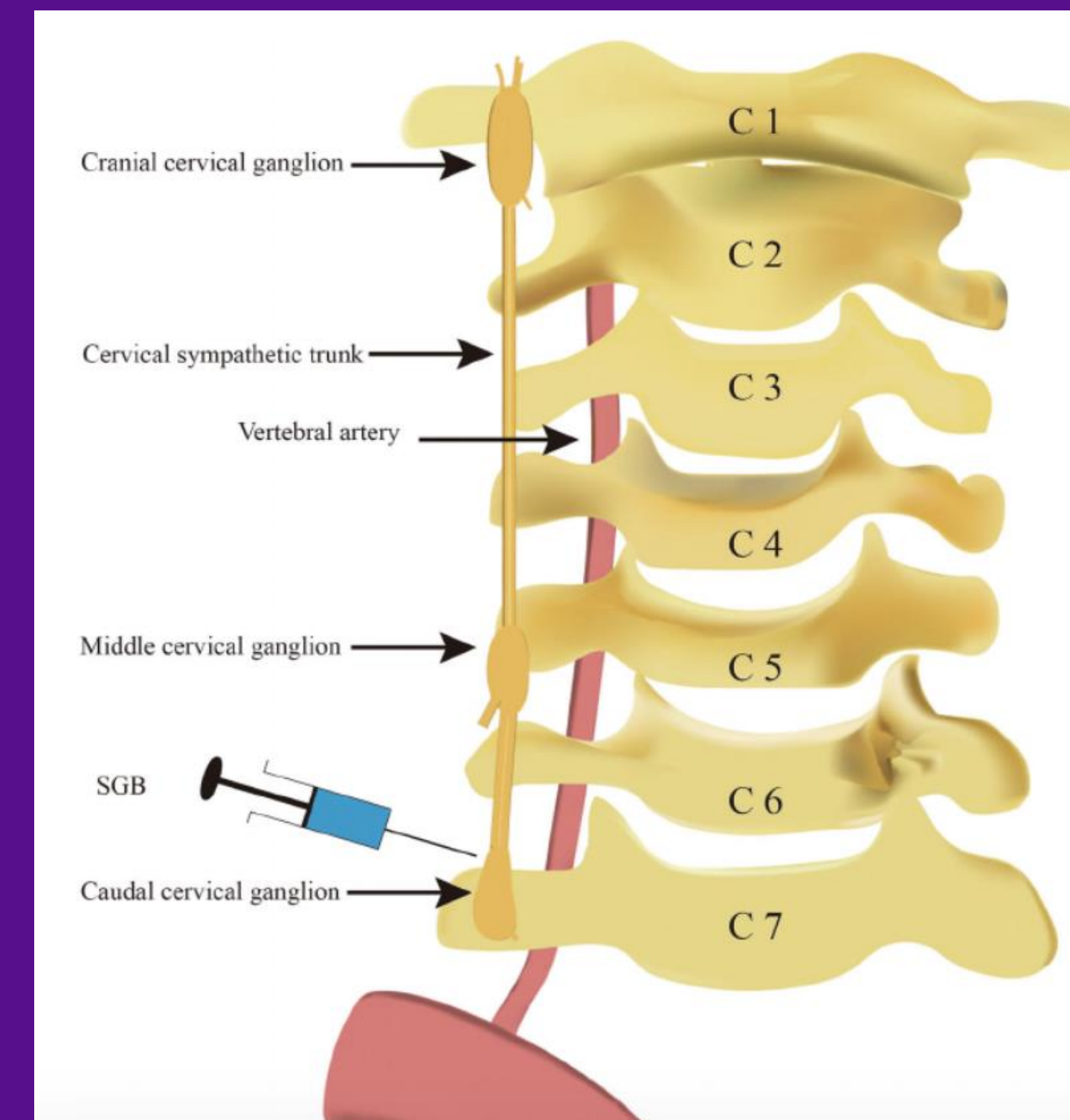


Image 1: Stellate ganglion block ⁶

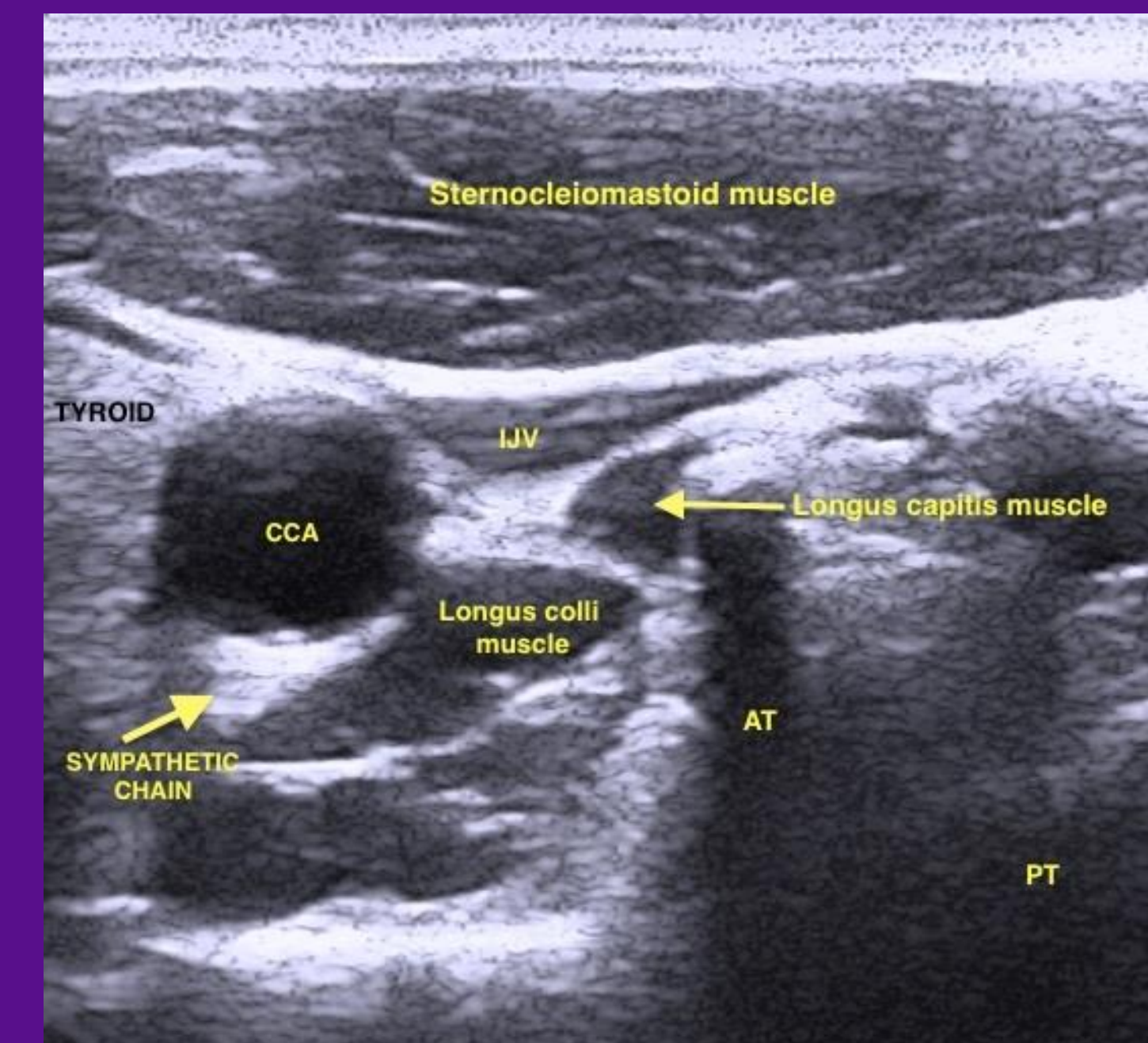


Image 2: Sonographic image of the sympathetic chain and surrounding anatomy including the carotid artery (CCA) and internal jugular vein (IJV) ⁷

Take Away Points:

- While SGBs are acknowledged as a treatment modality for refractory PTSD management, their utilization for a wider array of psychiatric conditions is still novel.
- While SGBs are traditionally performed on the right side, some evidence suggests left sided injections may be effective for patients who did not respond to right sided injections⁵
- It is suspected this may be due to anatomical differences in the central autonomic network⁵
- The proposed mechanism for PTSD management is to decrease the hyper-arousability of the sympathetic nervous system, which we suspect may play a role in their mediating of this patient's personality changes as well.³
- This patient's symptomatic improvement may also be due in part to reduction of his sympathetically mediated left facial pain managed with SGBs.
- This case contributes to the growing literature of potential novel uses of SGBs in the management of a wider array of conditions.

References

1. Schrader et al. (2021), A Review of PTSD and Current Treatment Strategies. PMID: 34924624
2. Olmsted et al. (2020), Effect of Stellate Ganglion Block Treatment on Posttraumatic Stress Disorder Symptoms: A Randomized Clinical Trial. PMID: 31693082.
3. Kerzner et al. (2021), Stellate Ganglion Block for Psychiatric Disorders: A Systematic Review of the Clinical Research Landscape. PMID: 34901677.
4. Sussman et al. (2023), Local Injection for Treating Mood Disorders (LIFT-MOOD): A Pilot Feasibility RCT of Stellate Ganglion Block for Treatment-Resistant Depression. *Chronic Stress*. PMID: 36895443
5. Mulvaney et al. (2022), The Successful Use of Left-sided Stellate Ganglion Block in Patients That Fail to Respond to Right-sided Stellate Ganglion Block for the Treatment of Post-traumatic Stress Disorder Symptoms: A Retrospective Analysis of 205 Patients. PMID: 33580677
6. Zhang GT, Wang FL, Ran Y, Liu DX. Applications of the ultrasound-guided nerve block technique for nonanalgesic effects. *Ibrain*. 2022;8(3):389-400. Published 2022 Aug 15. doi:10.1002/ibra.12061
7. Piraccini E, Munakomi S, Chang KV. Stellate Ganglion Blocks. (2023). StatPearls. StatPearls Publishing.