



"Gasserian Ganglion Block as a Novel Approach for Refractory Burning Mouth Syndrome in Complex Regional Pain Syndrome"

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INTRODUCTION

•The introduction of this abstract provides the clinical and scientific background necessary to understand the case's relevance.

Burning Mouth Syndrome (BMS) is described as a complex **neuropathic pain condition** characterized by burning sensations in the oral mucosa without identifiable lesions or pathology. The case presented involves a patient with **comorbid Complex Regional Pain Syndrome (CRPS)**, which implies overlapping mechanisms involving **small fiber neuropathy** and **central sensitization**.

•Traditional pharmacologic treatments (gabapentinoids, antidepressants, and topical therapies) offered minimal relief, underscoring the **refractory nature of the condition**. The use of **sphenopalatine ganglion (SPG)** and **gasserian ganglion blocks** provided substantial but temporary benefit, highlighting the **trigeminal system's critical role** in mediating orofacial neuropathic pain.

•The introduction therefore positions the **gasserian ganglion block** as a **novel, interventional neuromodulation strategy** for managing refractory BMS—especially in patients with overlapping neuropathic syndromes like CRPS.

METHODOLOGY

This section details both the **therapeutic interventions attempted** and the **procedural approach** used in this case study.

• Previous Failed Treatments:

The patient had trialed multiple pharmacologic and topical therapies with limited or no success, including:

- **Gabapentin (900 mg TID)**
- **Pregabalin (150 mg BID)**
- **Nortriptyline**
- **Baclofen** (discontinued due to diarrhea)
- **Naltrexone, tramadol, opioids** (fentanyl, hydrocodone)
- **Topical agents:** lidocaine and capsaicin rinses

• Reported Transient Relief Factors:

Interestingly, the patient experienced temporary relief with **mint chewing gum, peppermint toothpaste, and spicy foods**, suggesting modulation of **TRPV1** and **TRPM8** receptors — ion channels known to be involved in thermal and chemical nociception.

• Interventions Performed:

- **Sphenopalatine Ganglion (SPG) Blocks:**
Achieved approximately 80% temporary pain relief lasting 2–3 weeks.
- **Bilateral Diagnostic Gasserian Ganglion Block:**
Conducted under fluoroscopic guidance using 0.5% ropivacaine with dexamethasone, performed with sedation.

• Ethical Considerations:

The patient provided informed consent, understanding that their clinical details would be used for educational and research purposes with confidentiality maintained.

ANALYSES

•**Clinical Response:** Following bilateral gasserian ganglion block with 0.5% ropivacaine and dexamethasone under fluoroscopic guidance, the patient's pain decreased from 7/10 to 1–3/10 immediately post-procedure. Relief was substantial, without complications or adverse effects, reinforcing the procedure's safety and short-term effectiveness in refractory BMS.

•**Mechanistic Insight:** The patient's robust response supports the hypothesis that Burning Mouth Syndrome involves trigeminal system hyperexcitability and small fiber neuropathy. The coexistence of CRPS further suggests shared mechanisms of central sensitization and abnormal pain signaling across peripheral and central pathways.

•**Therapeutic Implication:** Given the limited benefit from conventional pharmacologic agents, the successful use of gasserian ganglion block points toward interventional neuromodulation as a viable adjunct for chronic orofacial neuropathic pain. The patient's interest in radiofrequency ablation highlights the potential for achieving longer-term analgesia through targeted trigeminal interventions.

SUMMARY AND CONCLUSION

•**Clinical Impact:** Gasserian ganglion block provided significant pain relief in a patient with refractory Burning Mouth Syndrome (BMS) and comorbid Complex Regional Pain Syndrome (CRPS), highlighting the trigeminal system's role in neuropathic orofacial pain.

•**Pathophysiologic Insight:** The case supports emerging evidence that BMS involves small fiber neuropathy, TRPV1 receptor overactivity, and central sensitization, aligning with shared mechanisms seen in CRPS.

•**Future Implications:** Gasserian ganglion interventions may serve as safe, effective adjuncts for refractory BMS, warranting further research into their long-term efficacy and application in broader clinical practice.

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