Evaluating the Effect of SPG Block on Post-Operative Pain Following Functional Endoscopic Sinus Surgery

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Introduction

•**Functional Endoscopic Sinus Surgery (FESS)** is commonly performed for **chronic rhinosinusitis (CRS)** and related sinonasal pathologies.

•**Post-operative pain** remains a significant clinical challenge following FESS.

•Current pain management often relies on **opioids**, raising concern for dependence and side effects. 14% of patients undergoing FESS do not take any post-operative opioids, and many only take a small portion of their prescribed opioid.

• **Sphenopalatine Ganglion (SPG) block injections** are emerging as a potential adjunct for postoperative pain control.

•This study investigates whether **adding a SPG block** to standard topical anesthetic application reduces pain and opioid use after FESS.

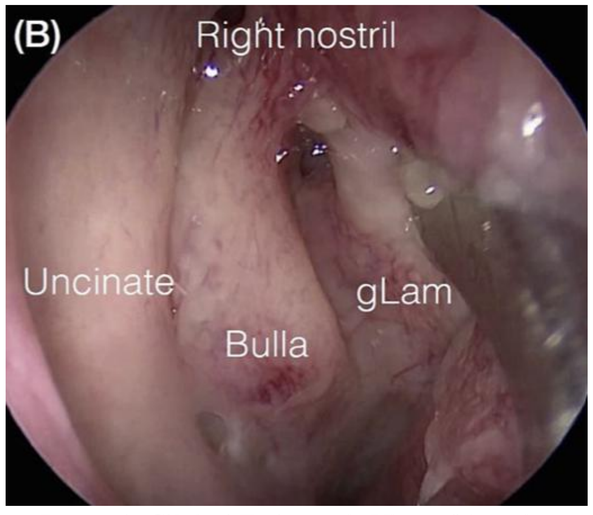

Image 1: Clinical Endoscopic View of Anterior Gates of Right Nasal Fossa

Image Source: Adapted from *Brand Y, Prepageran N. (2019). Basic FESS - Step-by-step guide with surgical videos. In The Open Access Atlas of Otolaryngology, Head & Neck Operative Surgery.*

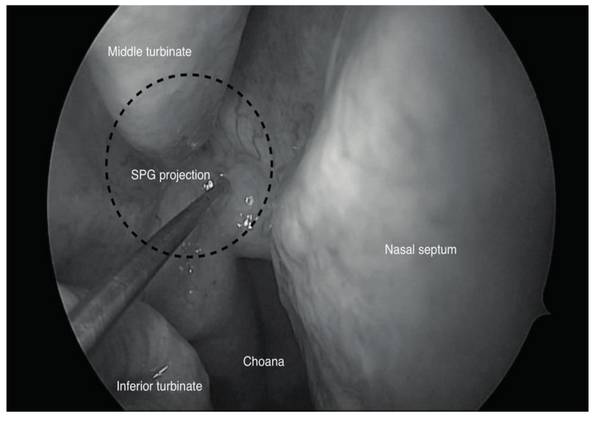

Image 2: Clinical Endoscopic View of Right Sphenopalatine Ganglion in Right Nasal Fossa

Image Source: *Lehrer E, Nogués A, Jaume F, Mullol J. (2019) Assessment of craniofacial hyperhidrosis and flushing by sphenopalatine blockade - a randomized trial*

Methods

Study Design

Prospective, single-blinded, randomized controlled trial, IRB Approved

Our Lady of the Lake Hospital, Baton Rouge, LA.

Study Population

Patients (≥18 years old) undergoing FESS for CRS or other sinonasal pathologies.
Arm A Group: topical pledgets soaked in ropivacaine and epinephrine plus a SPG block
Arm B Group: Patients receiving only topical pledgets soaked in ropivacaine and epinephrine

Data Collection

Primary Outcomes:
•Post-operative pain (measured by Numerical Pain Rating Scale – NPRS)
•Opioid utilization (measured by pill counts at follow-up)

Secondary Outcomes:
•Quality of life improvement measured via a SNOT-22 questionnaire: assesses symptoms and quality-of-life impacts of CRS, with each item rated on a scale of 0 (no problem) to 5 (worst possible problem)

Data Collection Timeline:
•Day of surgery
•Post-op day 1
•Post-op days 4–5
•Post-op week 3

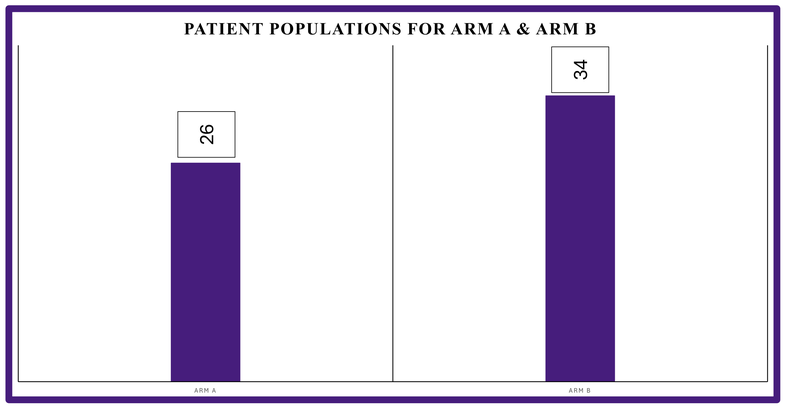

Chart 1: The current patient population includes sixty individuals who underwent FESS. The population does not exclude those lost to follow-up or disqualified due to adverse peri- or postoperative events, advanced pathologies, or allergies to pain management therapies.

Potential Risks and Benefits

•Combining a SPG block with topical anesthetics may provide more complete analgesia and longer-lasting pain relief. Better pain management could minimize or eliminate the need for narcotic pain medications, lowering risks of dependence and adverse effects.

•Along with the inherent risk of FESS, SPG block injections may cause transient bleeding, pain at the injection site, or local tissue irritation.

Future Goals

Future goals of this project include expanding the patient population in both arms to enhance the study's data significance and overall validity. By increasing the sample size, the study gains greater statistical power, thus providing more reliable detection of actual differences or effects between populations. A larger, more diverse patient population undergoing FESS could improve the generalizability of the findings, ensuring that results are more representative of real-world clinical settings rather than being limited to a narrow demographic.

Conclusion

Optimizing postoperative analgesia after FESS has the potential to reduce narcotic use and enhance patient recovery. This study will determine whether topical anesthetics with a SPG block offer superior pain control compared to topical anesthetics alone. Findings may inform safer, more effective postoperative pain management protocols in sinonasal surgery.

References

1. Al-Qudah M. Endoscopic sphenopalatine ganglion blockade efficacy in pain control after endoscopic sinus surgery. Int Forum Allergy Rhinol. 2016;6(3):334-338.

2. Garzaro M, Dell'Era V, Rosa MS, Cerasuolo M, Garzaro G, Aluffi Valletti P. Effects of glove finger- versus lidocaine-soaked nasal packing after endoscopic nasal surgery: a prospective randomized controlled trial. Eur Arch Otorhinolaryngol. 2020;277(2):439-443.

3. Haytoğlu S, Kuran G, Muluk NB, Arıkan OK. Different anesthetic agents-soaked sinus packings on pain management after functional endoscopic sinus surgery: which is the most effective? Eur Arch Otorhinolaryngol. 2016;273(7):1769-1777.

4. Kim DH, Kang H, Hwang SH. The Effect of Sphenopalatine Block on the Postoperative Pain of Endoscopic Sinus Surgery: A Meta-analysis. Otolaryngol Head Neck Surg. 2019;160(2):223-231.

5. Kim KS, Yeo NK, Kim SS, et al. Effect of Fentanyl Nasal Packing Treatment on Patients With Acute Postoperative Pain After Nasal Operation: A Randomized Double-Blind Controlled Trial. Ann Otol Rhinol Laryngol. 2018;127(5):297-305.

6. Mo JH, Park YM, Chung YJ. Effect of lidocaine-soaked nasal packing on pain relief after endoscopic sinus surgery. Am J Rhinol Allergy. 2013;27(6):e174-177.

7. Yilmaz S, Yildizbas S, Güçlü E, Yaman H, Yalçin Sezen G. Topical levobupivacaine efficacy in pain control after functional endoscopic sinus surgery. Otolaryngol Head Neck Surg. 2013;149(5):777-781.