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Case Report

Empty nose syndrome case study

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ABSTRACT

Empty nose syndrome (ENS) is a rare rhinological disorder secondary to excessive loss of nasal turbinate tissue. This case study presents a 33-year-old male who developed ENS following functional endoscopic sinus surgery (FESS). Despite significant improvement of rhinosinusitis severity and incidence, the patient experienced severe facial pain and suffocation sensation during nasal breathing starting several months postoperatively. Diagnosis was confirmed using the ENS6Q and a positive cotton test. An in-office intervention was successful in temporarily alleviating symptoms and improving quality of life. This intervention was placement of intranasal dissolvable packing (Nova Pack). After three weeks, the symptoms did recur. However, the patient was extremely grateful for temporary relief from his symptoms. This case highlights an in-office short-term remedy for ENS severe symptoms, which may be extremely helpful for these difficult-to-treat patients.

Keywords: Empty nose syndrome, Turbinate reduction, Nasal airflow, Intranasal packing, Cotton test, Rhinological disorders

INTRODUCTION

Empty nose syndrome (ENS) is a rare and debilitating nasal disorder developed as a complication of turbinate reduction surgery. Significantly reduced turbinate tissue disrupts the airflow dynamics within the nasal cavity causing a paradoxical obstruction sensation, despite a wide nasal airway.[1] Symptoms of ENS are often delayed months or years postoperatively, and the exact pathophysiology is still unknown. While difficult to diagnose objectively, symptoms of ENS include nasal dryness, suffocation, restricted airflow, nasal crusting, burning sensation, and nasal openness.[1] The ENS 6-item questionnaire (ENS6Q) was developed as a diagnostic tool to identify ENS patients.[2] Management of ENS remains challenging, with limited evidence for effective treatments. Current options include saline irrigations, emollients, and topical therapies, with some experimental treatments like platelet-rich plasma (PRP) injections and hyaluronic acid (HA) fillers showing potential but carrying significant risks.

CASE REPORT

A 33-year-old male presented for evaluation of ENS following functional endoscopic sinus surgery (FESS) for chronic rhinosinusitis. He states that prior to surgery, he experienced chronic sinusitis and a persistent dry nasal sensation. He was treated with recurrent antibiotics, along with systemic and intranasal corticosteroids which failed to control his chronic facial pressure. He underwent bilateral inferior turbinate reduction, middle turbinate subtotal resections, maxillary antrostomies, and total ethmoidectomies.

Postoperatively, while sinus pressure resolved, he reported no improvement in airway function. Two months later, he developed severe facial pain and feelings of suffocation during nasal breathing. This pain with nasal respiration has led to significant emotional distress, and anxiety and depressive symptoms. He then pursued a second opinion. On intake, an ENSQ6 was done with a score of 27, demonstrating extreme severity.

An intranasal examination revealed a relatively straight septum and 2+ inferior turbinates with scarring from likely medial flap technique. A posterior remnant of the middle turbinate was seen with widely patent ethmoid cavities and maxillary antrostomies. No purulence was seen. A cotton test was performed by placing a small cotton ball on the lacrimal crest area. After several minutes a significant improvement in facial pain on respiration was noted. This confirmed his diagnosis of ENS-MT (middle turbinate subtype).

A thorough discussion was had with the patient on surgical and nonsurgical management of ENS. Informed consent was obtained from the patient for intranasal dissolvable package placement. A portion of Nova Pack (Medtronic Xomed, Minneapolis, MN) was then placed with the proximal end at the lacrimal crest, extending back into the ethmoid cavity on the left side. Overall, approximately ⅔ of the ethmoid cavity was obscured by the packing while the maxillary antrostomy was largely unobstructed. The packing was hydrated with 1% lidocaine, which expanded the packing, holding it in place. Immediate symptom relief was noted following packing insertion, with the ENS6Q score decreasing to 11. The packing material largely persisted for three weeks. His symptoms remained improved for three weeks overall. During follow-up, he stated that with the packing in place, his ENSQ6 was 11. However, his symptoms did recur, with similar symptomatology and severity prior to intervention.

DISCUSSION

This case highlights the significant challenges in understanding and managing ENS. Using intranasal packing with Nova Pack provided immediate symptom relief, demonstrating the potential benefit of partially obstructing the airflow towards the sinus cavities. This may have reduced turbulent airflow and improved nasal airflow dynamics, thus alleviating the patient's discomfort. The recurrence of symptoms after the packing dislodged underscores the limitations of this approach, and emphasizes the need for more durable and effective long-term treatment strategies for ENS.

Current treatment options are limited and often provide only temporary relief. Saline irrigations, emollients, and topical therapies may assist in alleviating some symptoms, but their efficacy is variable. More experimental approaches, such as platelet-rich plasma (PRP) injections and hyaluronic acid (HA) fillers, have shown some potential in restoring mucosal integrity and improving nasal airflow - however, these interventions carry potential risks and require further investigation.[1]

CONCLUSION

It is important that patients are aware of the potential risks and complications regarding FESS, particularly those involving turbinate reduction. Early recognition and diagnosis of ENS are crucial for timely intervention of chronic symptoms and the associated psychological distress. Additionally, further research is urgently needed to improve our understanding of this complex condition and develop more effective management options for patients suffering from ENS.

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