



Background

- Empty nose syndrome (ENS) is a rare surgical complication classically characterized as paradoxical nasal obstruction, crusting, dryness despite the presence of a patent nasal airway¹
- Manifests months to years following a partial or complete turbinectomy
 - May also occur following procedures where turbinates remain intact
- Proposed explanations include alterations in airflow dynamics, mucosal surface area, and thermoreception²⁻⁴
- Though ENS is associated with chronic fatigue, anxiety, depression, it is not well-described in psychiatric literature

Case Description

- Patient:** 37-year-old man with a reported psychiatric history of anxiety and a medical history of deviated nasal septum and inferior nasal turbinate hypertrophy
- Course at Henry Ford Main Hospital:**
 - Underwent an endoscopic septoplasty and inferior turbinate reduction
 - Approximately 3.5 months post-operatively, airway was patent, and the patient reported breathing “very well” bilaterally
 - Over the course of the next 12 months, he complained of right-sided nasal obstruction, dryness, suffocation
 - As a result of persistent post-operative complaints, he contacted the on-call otolaryngologist, presented to the emergency department numerous times, and underwent plastic surgery evaluation
- Course at hospital systems locally, regionally, nationally**
 - Seen and evaluated by approximately 20-30 different otolaryngologists
 - Repeated close inspection and imaging failed to reveal any pathology
 - Underwent costly procedures, including 2 stem cell injections and cartilage augmentation surgery
- Course at our inpatient psychiatric hospital:**
 - Admitted as a result of suicidal statements in context of uncontrolled anxiety
 - Ultimately was diagnosed with somatic symptom disorder
 - Initiated on duloxetine monotherapy, which was titrated to 60 mg after tolerability was established
 - Referred to outpatient cognitive behavioral therapy (CBT) at discharge; however, he was eventually lost to follow-up

Images

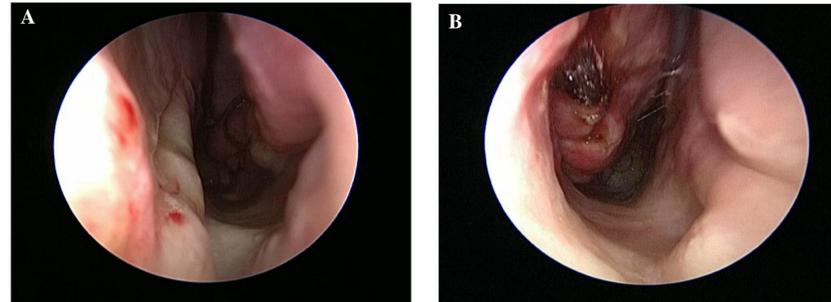


Figure 1. Endoscopic images of left (1A) and right (1B) nasal cavities 2 weeks postoperatively, when patient had no complaints of nasal obstruction or other associated symptoms.

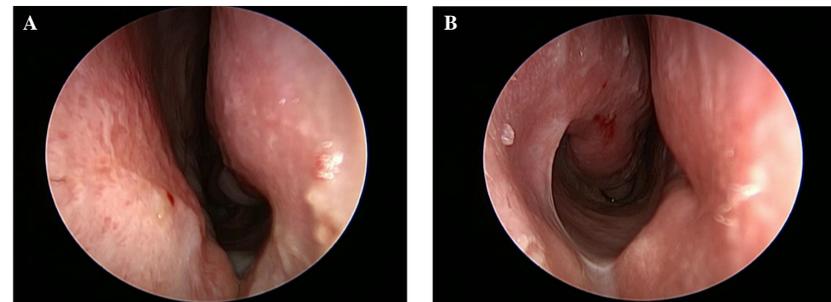


Figure 2. Endoscopic images of left (2A) and right (2B) nasal cavities 18 months postoperatively, at which time the patient complained of nasal obstruction, dryness, suffocation, as well as anxiety.

Validated Measures

ENS6Q	SSD-12
Dryness	Subcriterion I (Cognitive) I think that my physical symptoms are signs of a serious illness.
Lack of air sensation	I am convinced that my symptoms are serious.
Suffocation	Others tell me that my physical problems are not serious.
Nose feels too open	I think that doctors do not take my physical complaints seriously.
Nasal crusting	Subcriterion II (Affective) I am very worried about my health.
Nasal burning	My symptoms scare me.
	I'm worried that my physical complaints will never stop.
	I am worried that my physical symptoms will continue in the future.
	Subcriterion III (Behavioral) My health concerns hinder me in everyday life.
	My physical complaints occupy me for most of the day.
	My worries about my health take my energy.
	Due to my physical complaints, I have poor concentration on other things

ENS-6 Item questionnaire (ENS6Q). A subjective measure of symptoms highly correlated with ENS-related symptoms. Each symptom is rated on a scale from 0 (no problem/not applicable) to 5 (extremely severe). The ENS6Q may differentiate ENS from primary nasal obstruction⁵

Somatic Symptom Disorder- B Criteria Scale (SSD-12). Self-report questionnaire to measure psychological characteristics of DSM-V Somatic Symptom Disorder. Each of the psychological sub-criteria is measured by 4 items on a Likert-scale from 0 (never) to 5 (very often)⁶

Discussion

- ENS and somatic symptom disorder have many similarities:
 - High comorbidity with anxiety, depression, suicidality⁷⁻¹⁰
 - High utilization of healthcare services¹¹
 - Hyperactivation of neurologic fear circuitry¹²⁻¹³
- Up to 63% of patients with somatic symptom disorder have “Type D” personality traits¹⁴⁻¹⁵
 - These personality traits can be seen in those with other illnesses thought to be at least in part somatic-related, such as tinnitus and fibromyalgia
- Previously reported treatments of ENS include a combination of cognitive behavioral therapy and an SSRI or SNRI¹⁶⁻¹⁷

Conclusion

- ENS may be a subtype of a somatic symptom disorder and multidisciplinary management between otolaryngologists and behavioral health specialists may help to facilitate treatment
- Clinicians should consider the possibility of a somatic symptom disorder in patients with ENS, as patient discussions can facilitate a therapeutic alliance
- Future studies are necessary to understand the relationship between ENS and somatic symptom disorder

References

- Sozansky J, Houser SM. Pathophysiology of empty nose syndrome. *Laryngoscope*. 2015;125(1):70-4.
- Law RH, Ahmed AM, Van Harn M, Craig JR. Middle turbinate resection is unlikely to cause empty nose syndrome in first year postoperatively. *Am J Otolaryngol*. 2021;42(4):102931.
- Li C, Farag AA, Maza G, McGhee S, Ciccone MA, Deshpande B, Pribitkin EA, Otto BA, Zhao K. Investigation of the abnormal nasal aerodynamics and trigeminal functions among empty nose syndrome patients. *Int Forum Allergy Rhinol*. 2018;8(3):444-452.
- Manji J, Nayak JV, Thamboo A. The functional and psychological burden of empty nose syndrome. *Int Forum Allergy Rhinol*. 2018;8(6):707-712.
- Velasquez N, Thamboo A, Habib AR, Huang Z, Nayak JV. The empty nose syndrome 6-item questionnaire (ENS6Q): A validated 6-item questionnaire as a diagnostic aid for empty nose syndrome patients. *Int Forum Allergy Rhinol*. 2017;7(1):64-71.
- Toussaint A, Murray AM, Voigt K, Herzog A, Gierk B, Kroenke K, Rief W, Henningsen P, Löwe B. Development and Validation of the Somatic Symptom Disorder-B Criteria Scale (SSD-12). *Psychosom Med*. 2016;78(1):5-12.
- Huang CC, Wu PW, Lee CC, Chang PH, Huang CC, Lee TJ. Suicidal thoughts in patients with empty nose syndrome. *Laryngoscope Investig Otolaryngol*. 2022;7(1):22-28.
- Torres ME, Löwe B, Schmitz S, Pienta JN, Van Der Feltz-Cornelis C, Fiedorowicz JG. Suicide and suicidality in somatic symptom and related disorders: A systematic review. *J Psychosom Res*. 2021;140:110290.
- Payne SC. Empty nose syndrome: what are we really talking about? *Otolaryngol Clin North Am*. 2009;42(2):331-7, ix-x.
- Huang CC, Wu PW, Fu CH, Huang CC, Chang PH, Lee TJ. Impact of Psychologic Burden on Surgical Outcome in Empty Nose Syndrome. *Laryngoscope*. 2021;131(3):E694-E701.
- Tian P, Ma Y, Hu J, Zhou C, Liu X, Chen Q, Dang H, Zou H. Clinical and psychobehavioral features of outpatients with somatic symptom disorder in otorhinolaryngology clinics. *J Psychosom Res*. 2021;148:110550.
- Freund W, Wunderlich AP, Stöcker T, Schmitz BL, Scheithauer MO. Empty nose syndrome: limbic system activation observed by functional magnetic resonance imaging. *Laryngoscope*. 2011;121(9):2019-25.
- Chen Y, Wu Y, Mu J, Qiu B, Wang K, Tian Y. Abnormal fear circuits activities correlated to physical symptoms in somatic anxiety patients. *J Affect Disord*. 2020;274:54-58.
- Hyphantis T, Gouli P, Carvalho AF. Personality traits, defense mechanisms and hostility features associated with somatic symptom severity in both health and disease. *J Psychosom Res*. 2013;75(4):362-9.
- de Vroeghe L, de Heer EW, van der Thiel E, van den Broek KC, van Eck van der Sluijs JF, van der Feltz-Cornelis CM. Type D personality, concomitant depressive and anxiety disorders, and treatment outcomes in somatic symptom and related disorders: An observational longitudinal cohort study. *Front Psychiatry*. 2019;10:417.
- Lemogne C, Consoli SM, Limosin F, Bonfils P. Treating empty nose syndrome as a somatic symptom disorder. *Gen Hosp Psychiatry*. 2015;37(3):273.e9-10.
- Tian P, Hu J, Ma Y, Zhou C, Liu X, Dang H, Zou H. The clinical effect of psychosomatic interventions on empty nose syndrome secondary to turbinate-sparing techniques: a prospective self-controlled study. *Int Forum Allergy Rhinol*. 2021;11(6):984-992.