American Rhinologic Society Position Statement: Nasal Valve Collapse

Nasal valve collapse is a common cause of nasal airway obstruction, with a reported prevalence of up to two-thirds of otolaryngology patients with sinonasal complaints.[1] The majority of nasal resistance is formed by the nasal valve, which consists of external and internal components and is formed by the border of the septum, inferior turbinate, and nasal sidewall.[2] In addition to causing nasal obstruction, nasal valve collapse is associated with sleep disturbance, snoring, and quality of life impairment.[3] Nasal valve collapse may co-exist with or be completely independent of septal deviation or inflammatory sinonasal disorders[1]. However, it is widely agreed that nasal valve collapse is a distinct clinical entity separate from other etiologies of nasal obstruction.[4]

Nasal valve collapse is a clinical diagnosis determined by history and physical exam. Examination includes external nasal anatomical evaluation and anterior rhinoscopy with the Cottle and modified Cottle maneuver. Adjunctive evaluation including nasal endoscopy and computed tomography may be useful in determining additional causes of nasal obstruction or congestion but are not required for diagnosis.[4] External structural nasal abnormalities at the level of the nostril, vestibule, and internal nasal valve must be carefully examined in addition to the intranasal components of the septum, turbinates, and nasal mucosa.

Treatment options for nasal valve collapse include both non-invasive measures and a broad spectrum of nasal valve surgical repair techniques. Internal and external nasal dilators are non-surgical options that can offer temporary relief of nasal valve obstruction in patients with nasal valve collapse who are poor surgical candidates or those who elect to defer surgical intervention.[5] While utilization of nasal dilators is widely considered safe, discomfort may limit compliance. Medical therapies such as intranasal corticosteroid use are targeted treatments for sinonasal disorders such as turbinate hypertrophy, chronic rhinosinusitis or forms of rhinitis, but do not address the anatomic causes of nasal valve collapse.

Surgical interventions range from minor procedures, such as suture suspension techniques and the removal of excess soft tissue and cartilage, to more complex intervention such as septorhinoplasty with cartilage grafting.[4] Surgical interventions have been found to be effective both for symptomatic relief and quality-of-life improvement.[6-8] The use of a temperature-controlled radiofrequency treatment of the nasal valve [(3, 9-11)] and bioabsorbable implant placement [(12-14)] are techniques that may be employed for both operating room and office-based surgical treatment of the nasal valve. These office-based treatment options have been found to be safe, tolerable, and offer both nasal symptom and quality-of-life improvement. Surgical intervention for nasal valve collapse may be offered as a standalone procedure or in conjunction with other sinonasal operations such as septoplasty, turbinate reduction, and endoscopic sinus surgery in order comprehensively address anatomical and inflammatory causes of nasal obstruction.

References:

1. Clark DW, Del Signore AG, Raithatha R, Senior BA. Nasal airway obstruction: Prevalence and anatomic contributors. Ear Nose Throat J. 2018 Jun;97(6):173-6.
2. Haight JSJ, Cole P (1983) The site and function of the nasal valve. Laryngoscope 93: 49-55.
3. Jacobowitz O, Ehmer D, Lanier B, Scurry W, Davis B. Long-term outcomes following repair of nasal valve collapse with temperature-controlled radiofrequency treatment for patients with nasal obstruction. Int Forum Allergy Rhinol. 2022 Nov;12(11):1442-1446.
4. Rhee JS, Weaver EM, Park SSet al. Clinical consensus statement: Diagnosis and management of nasal valve compromise. Otolaryngol Head Neck Surg 2010; 143:48-59.
5. Nicole Kiyohara, Christopher Badger, Tjoson Tjoa, Brian Wong. A Comparison of Over-the-Counter Mechanical Nasal Dilators. *JAMA Facial Plastic Surgery*, 2016;
6. Kandathil CK, Spataro EA, Laimi K, Moubayed SP, Most SP, Saltychev M. Repair of the Lateral Nasal Wall in Nasal Airway Obstruction: A Systematic Review and Meta-analysis. JAMA Facial Plast Surg 2018; 20:307-313.
7. Lindsay RW. Disease-specific quality of life outcomes in functional rhinoplasty. Laryngoscope 2012; 122:1480-1488.

8. Rhee JS, Poetker DM, Smith TL, Bustillo A, Burzynski M, Davis RE. Nasal valve surgery improves disease-specific quality of life. Laryngoscope 2005; 115:437-440.
9. Ephrat M, Jacobowitz O, Driver M. Quality-of-life impact after in-office treatment of nasal valve obstruction with a radiofrequency device: 2-year results from a multicenter, prospective clinical trial. Int Forum Allergy Rhinol. 2021 Apr;11(4):755-576.
10. Silvers SL, Rosenthal JN, McDuffie CM, Yen DM, Han JK. Int Forum Allergy Rhinol. 2021. Temperature-controlled radiofrequency device treatment of the nasal valve for nasal airway obstruction: A randomized controlled trial. Int Forum Allergy Rhinol. 2021 Dec;11(12):1676-1684.
11. Han JK, Silvers SL, Rosenthal JN, McDuffie CM, Yen DM. Outcomes 12 Months After Temperature-Controlled Radiofrequency Device Treatment of the Nasal Valve for Patients With Nasal Airway Obstruction. JAMA Otolaryngol Head Neck Surg. 2022. Oct 1;148(10):940-946.
12. San Nicolo M, Stelter K, Sadick H, Bas M, Berghaus A. Absorbable Implant to Treat Nasal Valve Collapse**.** *Facial Plast Surg,* 2017 33(2):233-40.
13. Stolovitzky P, Sidle DM, Ow RA, Nachlas NE, Most SP. A prospective study for treatment of nasal valve collapse due to lateral wall insufficiency: outcomes using a bioabsorbable implant. *Laryngoscope*. 2018 Nov;128(11):2483-9.
14. Stolovitzky P, Senior B, Ow RA, Mehendale N, Bakhazi N, Sidle DM. Assessment of bioabsorbable implant treatment for nasal valve collapse compared to a sham group: a randomized control trial. *Int ForumAllergy Rhinol.* 2019 Aug;9(8):850-6