

# SURGICAL TREATMENT OF PATIENTS WITH NASAL EDGE DEFORMITIES THROUGH THE REINFORCEMENT OF THE INTERNAL NASAL VALVE: A CLINICAL CASE

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## Abstract

Up to 13% of people will collapse their nasal valves in their lifetime. Previous rhinoplasty, other surgical procedures, facial paralysis, congenital abnormalities, trauma, and aging are among the etiologies. Collapse of the internal nasal valve impairs nasal breathing, which seriously impairs quality of life. There are numerous methods for expanding the internal nasal valve's cross-sectional area.

**Keywords:** Collapsed valve, Internal valve, Nasal valve, Stenosis.

## Introduction

Up to 13% of adults are thought to experience nasal valve collapse [1]. Nasalvalve collapse is most frequently caused during rhinoplasty [2]. Other causes include congenital abnormalities, aging, trauma, facial paralysis, and tumor excision. The exterior and internal nasal valves regulate nasal airflow [3–5]. The caudal edge of the lower lateral cartilage, the nasal floor, and the columella make up the external nasal valve [6]. The caudal margin of the upper lateral cartilage, the nasal septum, the nasal floor, the anterior aspect of the inferior turbinate, and the mucosa that covers them all make up the internal nasal valve [7–10]. Although the internal nasal valve is dynamic and has a wide range of angles, it normally lies between 10 and 15°.



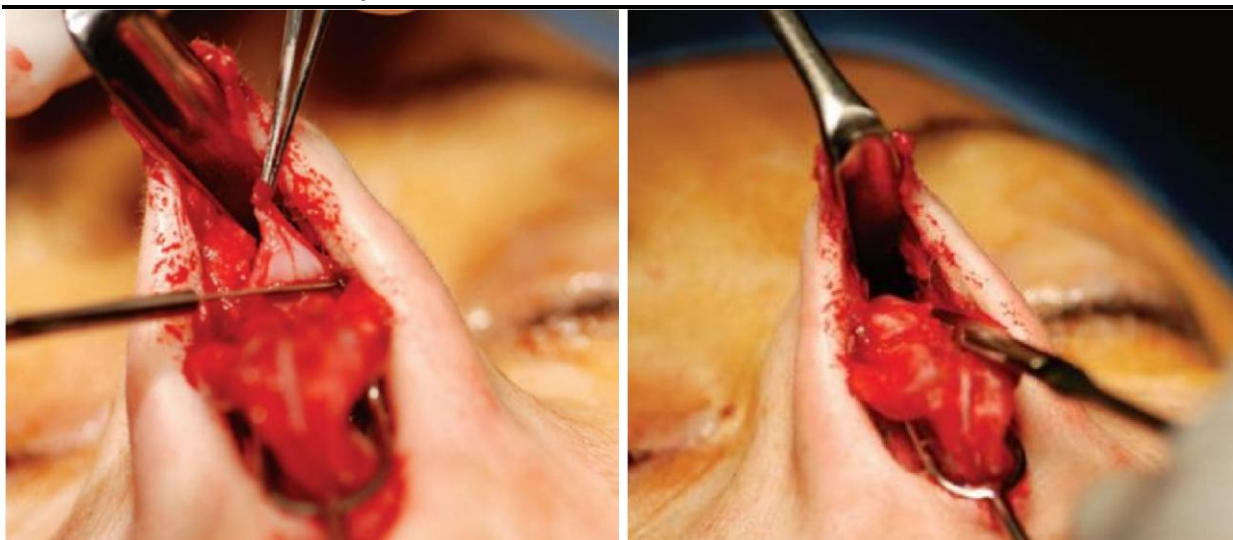
**Clinic case:** Under endotracheal anesthesia in the operating room, the surgical area of the skin is treated with a 70% alcohol solution, and the mucous membrane of the nasal cavity is treated with a 0.05% chlorhexidine solution three times. Hydropreparation is then performed on the skin's terminal part, as well as the back and wings of the nose, using a physiological solution. In the columella area, incisions are made in a W-shape. Using the acute dissection method, the skin in the terminal area, as well as the back and lateral sides of the external nose, is cleaned up to the anterior edge of the nasal bone and the edges of the almond-shaped diaphragm. In the rectangular nasal area, the perichondrium is cleaned, the bent portions of the rectangular nasal cartilage are resected, and the curved parts of the vomer are removed. Under the control of a Karl Storz wide-angle rigid endoscope (4 mm diameter, 300-degree optical axis angle), after anesthetizing the mucous membrane of the turbinates, lateralization and electrocoagulation of the inferior turbinates are performed, and the bony part of the turbinate is resected. Subsequently, the winged cartilage is separated and reinforced through longitudinal folding and suturing with Lonsorb 6/0 sutures (Figure 1), helping to strengthen both the external and internal nasal frameworks.



A plaster cast is applied to the external nasal area.

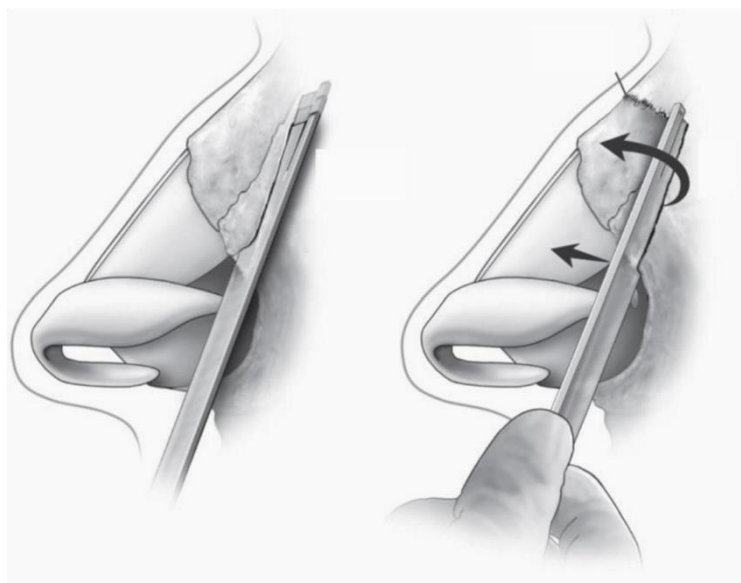
The resected part of the rectangular cartilage is placed between the medial legs of the winged cartilage and the anterior nasal septum, secured with knotless sutures. The other part is inserted between the upper sections of the triangular and rectangular cartilages, thereby widening the angle of the internal nasal framework. The medial legs of the winged cartilage are sutured together. The osteotomy line at the base of the nasal pyramid is skeletonized. Bilateral lateral osteotomy of the nasal bones is performed, creating downward and medial curved osteotomies on both sides (Figure 2).





The angular deformation of the bony part of the nose is resected (Figure 3). The bone fragments are repositioned anatomically. Hemostasis is achieved during the procedure. The wounds are sutured with monofilament sutures. Intranasal silicone splints are placed in the nasal passages and secured with sutures.

**Figure 3. Diagram of the nasal bone pyramid osteotomy procedure.**



### Conclusion

There are different indications for each surgical technique used to treat the deflated external nasal valve. Suture suspension, implants, and cartilage grafting are surgical therapy options. Suture suspension techniques typically minimize intraoperative time by preventing tissue transposition. Furthermore, suture suspension techniques need less tissue manipulation and produce a pleasing cosmetic result. Certain suture suspension techniques can be performed under local anesthetic. The internal nasal valve can be surgically corrected using a wide range of different procedures. Currently, patients should have a thorough evaluation to determine the best method depending on their unique pathology and presentation.



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