MAIN ROLES OF MODERN ENDONASAL SPLINTS AFTER SEPTOPLASTY

Saydalikhodjayeva Ozoda [1], Khakimov Ismatullo [2], Xudoyqulov Zokir [3]

[1]*Accosiate professor, Department of Normal and pathological physiology, Tashkent, Uzbekistan.*
[2]*Assistant, Department of Normal and pathological physiology, Tashkent, Uzbekistan.*
[3]*Assistant, Department of Normal and pathological physiology, Tashkent, Uzbekistan.*

KEYWORDS

septoplasty; prevention of complications; endonasal splints, nasal splint.

ABSTRACT

In recent years, the use of endonasal splints in septoplasty has been actively discussed in the literature. There are different types of splints, each of which has its own advantages and disadvantages. The results of surgery can vary considerably depending on the type of splint chosen and the methods of its application. This article will review the current types of endonasal splints, their effectiveness in the postoperative period, and possible complications. Current clinical recommendations on the use of splints will also be analyzed and prospects for their further development will be discussed. Based on the presented data, it can be concluded that the effectiveness of endonasal splints in preventing postoperative complications and improving patient comfort has been confirmed by numerous clinical studies. However, the choice of a specific type of splints should be based on the individual characteristics of the patient, the nature of surgical intervention and the surgeon's preferences.

Introduction

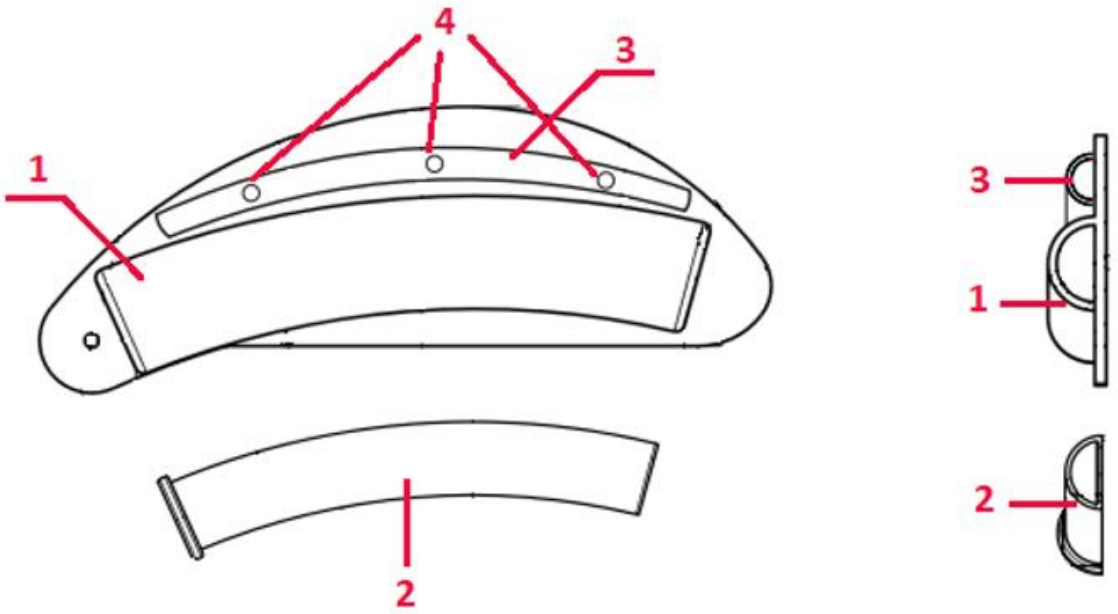
Septoplasty is a surgical intervention aimed at correcting deformities of the nasal septum, which may be deviated as a result of congenital anomalies or trauma. The main purpose of this surgery is to restore normal breathing through the nose, as the deviated septum can cause breathing difficulties, frequent inflammatory diseases of the sinuses (sinusitis), as well as snoring and apnea. Currently, septoplasty is one of the most common ENT surgeries, and techniques are constantly being refined to minimize risks and improve outcomes. After septoplasty, patients may experience various complications in the postoperative period, such as bleeding, edema, adhesions and synechiae formation, and recurrent septal deviation. These complications can significantly affect the success of the surgery and delay the patient's rehabilitation. To minimize the risks of complications and accelerate the healing process, endonasal splints are often used, which are placed in the nasal passages immediately after surgery [1,3,8].

Endonasal splints are medical devices that are used to maintain the correct position of the nasal septum after surgical correction, prevent fusion of the nasal mucosa, and reduce the risk of bleeding. They provide mechanical support to the tissues, which promotes their proper healing, reduces inflammatory reactions and reduces pain in patients in the first days after surgery. However, despite the widespread use of splints, their use remains a topic of debate among specialists, as they are not always necessary, and their insertion and removal may cause discomfort to the patient [2,6].

The use of endonasal splints in septoplasty practice has been actively discussed in the literature in recent years. There are several types of splints, each with its own advantages and disadvantages. Depending on the choice of the type of splint and methods of its application, the results of surgery may differ significantly. In this paper we will review the existing types of endonasal splints, as well as their effectiveness in the postoperative period, complications. We will

also analyze current clinical recommendations on the use of splints and discuss the prospects for their further development.

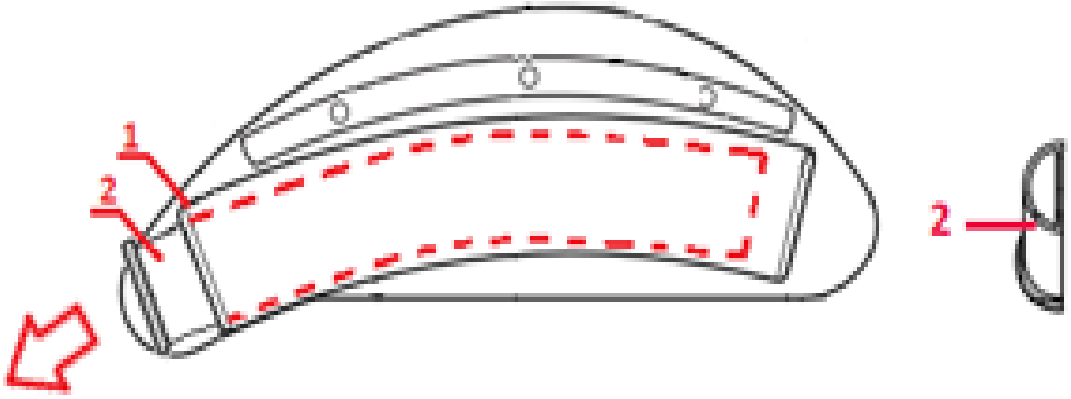
The improved splint to which the patent **No. FAP 2629** was obtained in the Republic of Uzbekistan as a utility model refers to medicine, namely to otorhinolaryngology, and can be used for fixation of the nasal septum and prevention of postoperative complications after submucosal resection of the nasal septum.



The splint contains a moon-shaped silicone plate with an arc-shaped air duct (1) placed in the center. The central duct is provided with a similarly shaped separable cavity inside (2), which in turn is made of medical polyvinyl chloride, stepping in 1 cm from the edge of the plate facing the nasal vestibule. Above the central duct there is a groove (3) of the same shape which has three holes (4) located at the same distance from each other and facing towards the nasal cavities.

Scheme - 1

The use of the utility model provides improved cleaning of postoperative tissues and prevention of postoperative complications due to accumulation of sputum and blood clots in a dedicated moon-shaped cavity (2) located inside the central duct (1). This allows all accumulated sputum and blood clots to escape during cleaning along with the newly added moon-shaped cavity (2), ensuring easy and painless cleaning of the central airway (1).



Scheme - 2

The groove (3) located on top of the central air duct has an opening (5) facing the nasal vestibule for the introduction of medication through a syringe. The injected medication exits into the nasal cavity through three openings (4) which are located in the lateral projection. The lateral openings are equidistant from each other and allow the injected medication to be distributed evenly in the nasal cavity despite contamination by sputum or blood clots.

The utility model used in otorhinolaryngology is designed to fix the nasal septum and prevent complications after surgery to remove part of the nasal mucosa. In 1905, Killian and Freer independently developed a method of submucosal resection of the nasal septum. However, the use of conventional gauze tamponade to stop bleeding after surgery resulted in difficulty breathing. Other complications included abscess formation, hematomas, and even perforation of the nasal septum.

In 1955, Selenger and Kuhen proposed the use of X-ray films to shield the mucosa and stabilize the nasal septum. However, the use of sodium hypochlorite treated x-ray films may have resulted in excessive brittleness of the material. In 1986, Richard Wagner pioneered the use of plastic intranasal splints, which led to the development of infectious toxic shock in the patient.

Polypropylene intranasal splints, introduced in 1969 by Wright, proved more reliable but did not provide normal breathing after surgery. Donald E. Doyle proposed a splint with an airway to improve nasal breathing in the postoperative period. However, all these techniques can cause complications, including perforation of the nasal septum. Careful proportioning of the fixation suture is necessary to avoid this complication and ensure stabilization of the nasal septum.

We present examples of clinical use of the proposed device.

Example 1.

Patient N., 26 years old.

Main diagnosis: Nasal septal deviation with impaired nasal breathing.

Associated disease: Vasomotor rhinitis.

Complaints of nasal breathing difficulty alternately, more on the right side, she denies dependence on vasoconstrictor drops.

Past medical history: considers herself a patient for 10 years, when complaints of constant nasal congestion, mucous discharge from both halves of the nose appeared. She used topical glucocorticosteroids without positive dynamics for 2 weeks. She was treated in hospital. Surgery on ENT organs had not been performed before.

Status of ENT organs on examination: deviation of the nasal septum to the right by the whole plane, angular displacement in the bony part, C-shaped displacement in the cartilaginous part. Other ENT organs are not changed.

The patient underwent submucosal resection of the nasal septum with silicone splints with a separable cavity in the central airway and a distributor of medications mainly in the anterior parts of the nasal septum and fixators around the periphery, which were fixed with sutures. The patient was rastamponed on the second day. The plates were removed on the fifth day. As noted by the patient during the stay of nasal splints in the nasal cavity, nasal breathing was kept qualitative due to convenient cleaning of the central airway with the help of a detachable plate inside (Scheme 2). After removal of the splints, the mucosa was pink, without hemorrhages, there was a slight mucosal edema. The patient felt comfortable in the postoperative period. She was discharged in a satisfactory condition on the eighth day. Nasal breathing was restored in full.

Video endoscopy of the nasal cavity, paranasal sinuses and nasopharynx in 3 months: septum along the midline, mucosa pink, nasal passages passable, free, nasopharynx free, auditory tube orifices without peculiarities, sphenoethmoidal space and middle nasal passage without changes.

Nasal CT scan three months later: nasal septum centered.

Example 2. Patient G., 19 years old

Diagnosis: Nasal septal deviation with impaired respiratory function.

Complaints of nasal breathing difficulties, more on the left side.

Past medical history: He considers himself sick for 5 years, when complaints of constant nasal congestion appeared. Has not been treated before. Nasal surgeries have not been performed before.

ENT examination: deviation of the nasal septum to the left, angular displacement in the bony part, ridge in the cartilaginous part. Other ENT organs are not changed.

The patient underwent submucosal resection of the nasal septum with the application of silicone splints with a separable cavity in the central airway and distribution groove of medications mainly in the anterior portions of the nasal septum and fixators around the periphery, which were fixed with sutures. The patient was rastamponed on the second day. The plates were removed on the fifth day. After removal of the plates, the mucosa is pink, without hemorrhages, there is a slight edema of the mucosa. As noted by the patient during the stay of the nasal splints in the nasal cavity, nasal breathing was kept qualitative due to convenient cleaning of the central airway with a detachable plate inside. According to the Sino-Nasal Outcome Test 20, the patient rated the severity of runny nose as very slight on the first day after surgery. Pain syndrome on the first day after surgery was noted by the patient as mild pain (on the zipper scale). The patient noted completely free nasal breathing on the 5th day after the operation

At control video endoscopy of the nasal cavity, paranasal sinuses and nasopharynx in 3 months: septum on the middle line, mucosa pink, nasal passages are passable, free, nasopharynx is free, auricular tube mouths without features, sphenoethmoidal space and middle nasal passage without changes.

Formula of the utility model

Intranasal splint containing a silicone plate with a longitudinally placed centered air duct and with a separable cavity in the central air duct, and a distributing groove above the central air duct of a moon-shaped.

Conclusion

Based on the presented data, it can be concluded that the effectiveness of endonasal splints in preventing postoperative complications and improving patient comfort has been proven by numerous clinical studies. However, the choice of a specific type of splints should be based on the individual characteristics of the patient, the type of surgical intervention and the surgeon's preferences.

References

1. Bawazeer, N. A., & Nuseir, K. (2020). Intranasal splints: A review of the literature. Journal of Otolaryngology - Head & Neck Surgery, 49(1), 1-8.
2. Becker S.S., Dobratz E.J., Stowell N., Barker D., Park S.S. Revision septoplasty: review of sources of persistent nasal obstruction. // Am J Rhinol. – 2008. – 22. – P. 440–444.
3. Шадманова Н. К., Халилов Х. Д. НАУЧНО-ПРАКТИЧЕСКИЙ ИНТЕРЕС ИЗУЧЕНИЯ ВЕГЕТАТИВНОЙ РЕГУЛЯЦИИ ДИЗАДАПТИВНЫХ РЕАКЦИЙ СЕРДЕЧНО-СОСУДИСТОЙ СИСТЕМЫ //Евразийский журнал академических исследований. –2023.–Т.3.–№.8.–С.126-134.
4. Xalilov H. et al. TELEMEDITSINANING PROFILAKTIK DAVOLANISHDA AHAMIYATI //Евразийский журнал академических исследований. – 2024. – Т. 4. – №. 4Part2.–С.66-70.
5. Xalilov X. D., SHadmanova N. K., Qayumov M. N. Gipertireorizmni exsperemental modellashtirish.–2023.
6. Dilshodovich K. H., Normurotovich K. M., Akromovich E. A. RELATIONSHIP BETWEEN THYROID DISEASE AND TYPE 2 DIABETES. – 2023.
7. Berdiyev O. V. et al. Telemeditsina Orqali Qalqonsimon Bez Kasalliklarini Boshqarish //Open Academia: Journal of Scholarly Research. – 2024. – Т. 2. – №. 6. – С. 69-74.
8. Xalilov H. D. et al. GIPERTIROIDIZM VA YURAK ETISHMOVCHILIGI //Research and Publications. –2024.–Т.1.–№.1.–С.60-63.