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CLINICAL ARTICLE

THE RESULTS OF SEPTOPLASTY IN PATIENTS WITH VARIOUS FORMS OF DEVIATED OF THE NASAL SEPTUM USING THE TECHNIQUE OF EXTRACORPOREAL REMODELING AND REPLANTATION OF THE SEPTUM

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Abstract

Objective: To present the results of extracorporeal septoplasty in patients with various forms of deviated of the nasal septum, using the technique of replantation of the septum and to discuss the advantages and limitations.

Materials and methods: The work is based on clinical observations of 164 patients with curvature of the nasal septum from 2018 to 2023. All patients underwent a standard otorhinolaryngological examination, spiral computed tomography CT of the nose and paranasal sinuses in coronary and axial projections.

Endoscopic examination of the nasal cavity carried out by an endoscope of the Karl Storz company. Nasal breathing is objectively evaluated with the help of the "PC 300 nose manometer" by ATMOS, which allows to register the pressure in one half of the nose while the patient breathes through the other.

A modified "extracorporeal" septoplasty is used, which consists in the complete isolation and temporary removal of the deformed quadrilateral cartilage, followed by its correction and reimplantation. The operation was performed under general anesthesia with performed oral intubation.

Results: No complications were observed during the operation, the patients were satisfied with the aesthetic and functional results of septoplasty. Complications were noted in the remote postoperative period. long-term swelling of the mucous membrane of the nose (partially obstructed nasal breathing), which was stopped by taking antihistamines, in 5 patients. In all clinical observations, stable support of the cartilaginous part of the nasal septum and the absence of its secondary deviation were obtained, which also directly affects the harmonic aesthetic results of the shape of the external nose and free nasal breathing.

The indicators of the rhinomanometer showed a significant improvement in nasal breathing and are approaching the values accepted as the norm.

Conclusions: Extracorporeal septoplasty in patients with various forms of curvature of the nasal septum is an effective surgical technique that gives optimal functional results.

Keywords: *septoplasty, deviated nasal septum, extracorporeal remodeling, replantation*

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Introduction

Septal deformity is an extremely common anatomical feature in humans and one of the most common causes of nasal breathing difficulties.[1]

In this regard, septal deformity correction is one of the most frequently performed rhinological surgical interventions.[2-5]

The field of the nasal septum is indisputable in terms of functionality and aesthetics. Normally, being the main supporting structure of the nose, the nasal septum provides support and stability to the structures of the external nose and its position relative to the central vertical axis of the face. The curvature of the nasal septum is a fairly common phenomenon among the population. According to the literature, up to 96.5% of the population has a deviated of the nasal septum to one degree or another. The deviated of the nasal septum can often lead to both difficulty in nasal breathing and aesthetic complaints, mainly to various deviations of the back and/or tip of the nose. In rare cases, it is possible to eliminate the deformation of the external nose and the violation of nasal breathing after the correction of the curved nasal septum.

In some cases, the curvature of the septum is asymptomatic, but in a large number of patients it causes functional disorders. The degree of curvature of the septum affects the severity of the symptoms, so that severe nasal congestion strongly affects the quality of life.

Causes of curvature of the septum of the nose

- uneven growth of the bones of the skull, which leads to the fact that the dimensions of the nasal cavity also change, the nasal septum becomes tight in the nasal cavity, and it has to bend;
- traumatic reasons (often they are characteristic for boys and men). as a result of a strong impact, there is a displacement of the bones of the nose, deformation of the nasal septum and improper fusion of the bones, which leads to the curvature of the nasal septum;
- the presence of polyps and tumors of the mucous membrane of the nose, which leads to breathing disorders in one of the nostrils, and then to the deviated of the nasal septum;
- hypertrophy (uneven development of one of the nasal shells), exerting pressure on the septum of the nose.

The overwhelming majority of adults have small deviated of the septum of the nose. But they do not interfere with proper air circulation through the nostrils and proper breathing.

The curvature of the septum of the nose can "give itself" with the following symptoms:[6]

- asymmetrical shape of the nose (especially noticeable when the septum of the nose is curved as a result of trauma);
- permanent chronic runny nose (impaired nasal breathing, mucous discharge from the nose);
- reflex headaches, which arise as a result of constant irritation of the deviated nasal septum of the mucous membrane of the nose;
- loud snoring at night;
- bleeding from the nose, appearing due to the thinning of the mucous membrane on the side of the curvature of the nasal septum;
- reduced performance, increased fatigue of the body due to reduced oxygen supply to the blood;
- discomfort during nasal breathing;
- frequent acute respiratory infections with cough, sneezing, runny nose, increased temperature;
- rash, pain in the throat, cough;
- hearing loss as a result of the inflammatory process in the ear;
- reduction of olfactory abilities;
- distracted attention, deterioration of memory.

The deviated of the nasal septum worsens the work of mucociliary transport, the first protective adaptive mechanism of the nasal cavity to prevent and eliminate adverse exogenous factors, contributing to the development of a number of pathological conditions of the ENT organs and the body as a whole.[7-9]

Deformation of the nasal septum causes not only difficulty in nasal breathing. As a rule, it is accompanied by deformation and hypertrophy of the nasal concha, vasomotor changes, the formation of chronic rhinitis, and also contributes to the development of ear pathology, paranasal sinuses, as well as the cavity of the middle ear through the Eustachian tube, is a predisposition to the occurrence of acute and chronic sinusitis and otitis media.[10,11]

This contributes to constant infection of the vestibule of the nose. As a result, such patients are

more prone to boils in the nose. The development and chronicity of the atrophic process of the mucous cavity of the nose also extends to the olfactory zones, which leads to the violation of the olfactory function of the nose - hypo- and anosmia.

In this regard, it is logical that the curvature of the nasal septum worsens the work of mucociliary transport, the first protective adaptive mechanism of the nasal cavity to prevent and eliminate adverse exogenous factors, contributing to the development of a number of pathological conditions of the ENT organs and the body as a whole. With IPN, in cases of asymmetry of the lumen of the half of the nasal cavity, a high degree of resistance to air flow is constantly created on the side of the narrowing. The main volume of air goes through the wider half. As a result of such a constant functional overload, there is a compensatory increase in the lower nasal concha (HHP) with the development of chronic rhinitis, which in turn leads to a constantly increasing resistance to the air flow, up to a complete obstruction of the lumen on this side.[12,13]

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A number of authors recommend treating patients with diseases of the middle ear and pharynx (adenoiditis, angina, tonsillitis) in combination with correction of the nasal septum and other intranasal structures in the presence of pathological changes.[15,16]

Studies convincingly prove that the condition of the nasal septum in a significant degree affects lung function and processes occurring in lung tissue.[17]

Clinically significant deformation of the septum requires increased attention of otolaryngologists, etc. k. causes not only the development of pathology on the part of the nasal cavity and paranasal sinuses, but also contributes to the occurrence of diseases of other organs pathologies of the ear, throat, lower respiratory tract. Each half of the nasal cavity has a reflex relationship with the corresponding lung.

Septoplasty is the most common procedure performed in rhinology.[18,19]

Traditional methods of septoplasty are effective for improving nasal breathing in patients with mild or moderate curvature of the septum. On the other hand, with severe anterior deformities, usually associated with stenosis of the nasal valve, these methods give unsatisfactory results and sometimes can cause functional problems due to excessive resection or excessive weakening of the cartilage.[20]

Indications for surgery to correct the septum of the nose may be the following.

- external cosmetic defect;
- difficult breathing with the nose;
- rhinitis in chronic form;
- inflammation of the middle ear (otitis media), which occurred as a result of the curvature of the septum of the nose;
- constant headaches;
- sinusitis, ethmoiditis, which appeared due to the curved septum of the nose.

Currently, there is no standard treatment for all types of deformities. This wide range of approaches illustrates the complexity of treating curvature of the caudal septum.

Since Killian and Freer introduced the concept of submucosal resection, this technique has been gradually developed by many operators on a stable and scientific basis. Modern septal surgery was developed in the 1950s by Kott.[21,22]

The modern principles of nasal septum surgery are the maximum preservation, reconstruction and restoration of the anatomical integrity of the lost structures of the septum bone. An analytical review of the literature devoted to plastic surgery of the nasal septum shows that the choice of methods for the elimination of deformity of the nasal septum (IPN) and the prevention of postoperative complications is still a subject of discussion.[23,24]

Analysis of a large number of methods aimed at treating a curved nasal septum shows interest and significant progress in this area.

To date, a large number of modifications of autotissue reimplantation in septoplasty have been described. Thus, with isolated curvature of the cartilage core, methods of partial resection and

autoimplantation are used, which are most often carried out through endonasal septoplasty or mini-invasive endoscopic access.

During the last decades, methods of eliminating PN deformation using endoscopic techniques have been developed and improved, allowing to precisely and economically remove deviated parts of the septum.[25-29]

To restore the deficiency of the septal bone, rhinosurgeons most often use autotissues - removed areas of the cartilage and bones of the septum of the nose.[30-32]

In the treatment of curvature of the caudal septum, such methods as suturing, hinged door, septal rail, ethmoid sandwich graft, tongue in groove and extracorporeal septoplasty have been used.[33,34]

The treatment of nasal septal deformity, despite the long history of development and many modifications of the classical operation, is one of the urgent problems of modern rhinosurgery.

Most of the modern methods of surgical correction of deformities of the nasal septum are divided into several large groups (submucosal resection, closed and open septoplasty).[35]

Despite the existence of various methods of surgical correction of the nasal septum in case of its curvature, all of them have certain disadvantages that must be taken into account when choosing the tactics of managing a particular patient, and the search for new approaches to its plastic surgery is very relevant.

The best known of these techniques is the 19th century Killian resection, which recommends maintaining an "L" strut at least 1.5 cm wide in the dorsal and caudal portions of the quadrangular cartilage of the nasal septum.[36]

This technical aspect is essential for good long-term cosmetic and functional results. However, often the remaining dorsal and caudal parts of the septum, under the influence of various forces on it: improper redistribution of axial load, cartilage memory, scarring and contraction of the skin cover, etc., are not able to provide adequate support for the structures of the middle and lower third of the nose.

Decades later, Metzenbaum proposed a more conservative septoplasty using a septal graft.[37]

Among the various methods of septoplasty, extracorporeal is used for severe deformities of the caudal septum and consists mainly in the removal of the nasal septum with subsequent correction of the deformity. Extracorporeal septoplasty is a technique in which the entire nasal septum is removed in an attempt to straighten it as much as possible and reposition it. Reconstruction of the neo-septum is carried out by repositioning the fragments of the septum into a straight position. Extracorporeal septoplasty with the described suturing technique has a number of advantages over other methods of caudal septal correction.[38]

Caudal septum straightening can be checked intraoperatively immediately with a low risk of recurrent deviation. In fact, this method completely prevents cartilage memory from bending, which is a serious problem since cartilage has a strong tendency to return to its original shape.[39,40]

The concept of extracorporeal septoplasty was first described by King and Ashley. correct these severe deviations of the nasal septum. They take out the entire partition, redo it, straighten it, and finally transplant it.[41]

In recent decades, the concept of extracorporeal septoplasty has been carefully revised and refined to avoid the aesthetic complications described by this technique, such as saddle nose or dorsumal irregularities.[42-45]

Nasal breathing is assessed using Rhinopneumometry, a functional test of nasal aerodynamics that measures transnasal airflow and pressure gradient, allowing nasal resistance to be calculated from these data.[46]

At the current level, anterior active rhinomanometry is the main and most clinically relevant methodology for obtaining data on nasal patency or nasal resistance and other aerodynamic characteristics of nasal breathing.[47] Rhinomanometry is an objective test by determining the assessment of nasal airway patency. Rhinomanometry measures air pressure and airflow rate during breathing. These measurements then arise to calculate the nasal airway resistance.

Indications for rhinovnevmometry: violation of nasal breathing - curvature of the nasal septum, vasomotor rhinitis, hypertrophy of the pharyngeal tonsil, snoring, control

The purpose of this article is to present the results of extracorporeal septoplasty in patients with various forms of deviated septum using the septum

replantation technique and discuss the advantages and limitations.

Materials and methods

The work is based on clinical observations of 164 patients with deviated nasal septum treated in the Department of Otorhinolaryngology from 2018 to 2023. Males - 123, females - 41, which indicates the highest incidence among men.

The selection of patients for the planned study was carried out according to the criteria of "inclusion, exclusion".

Criteria for inclusion in the study: all cases of primary reconstructive operations on the nasal septum with maximum preservation of supporting tissues, voluntary consent to the study.

Criteria for exclusion from the study: repeated operations on the nasal septum (reoperations), sparing endoscopic interventions with removal of the spike or ridge of the nasal septum, the need for simultaneous reconstruction of the nasal pyramid.

Nasal obstruction is usually diagnosed by observable complaints from patients of nasal congestion in connection with the physical examination, a disease of anatomical narrowing of the nasal passages.

All patients underwent a standard otorhinolaryngological examination (Figure 1), spiral computed tomography of the nose and paranasal sinuses in the coronal and axial projections (Figure 2).

Figure 1. *Clinical picture before of septoplasty*

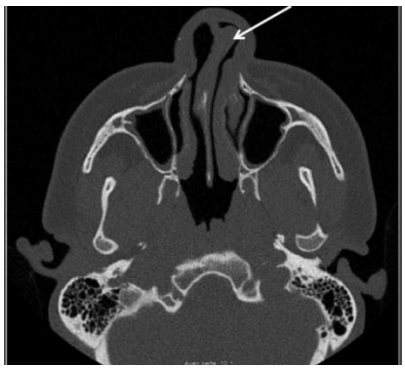

Figure 2. *CT Deviated of the nasal septum deviated of the nasal septum*

In computed tomography of the nose and paranasal sinuses, we most often observed a combined deviation and deformation of the bone and cartilage sections of the nasal septum. In the presence of the above aspects, the support capacity of the septal cartilage is most often impaired and/or virtually absent.

All patients underwent endoscopic examination of the nasal cavity with a Karl Storz endoscope with a 0-degree viewing angle in order to identify pathological changes in the area of the osteomeatal complex, which are difficult to diagnose during anterior and posterior rhinoscopy. The diagnosis and the complex of subsequent medical and surgical measures were ultimately determined in many respects on the basis of the results obtained during endoscopy. At the same time, the most diverse types of curvature of the nasal septum were revealed in patients. Moreover, the type of curvature in many cases is associated with previous nasal injuries and in 54.9±3.6% of patients it is combined with other diseases of the nasal cavity and paranasal sinuses.

The clinical examination ended with a functional assessment with rhinomanometry, which gave an objective assessment of nasal airflow.

Nasal breathing was objectively assessed using the PC 300 rhinomanometer from ATMOS (Germany), which evaluates the aerodynamic resistance of the nose, which allows recording pressure in one half of the nose while the patient breathes through the other (Figure 3).

Figure 3. *PC 300 Rhinomanometer*

Rhinomanometer 300 is designed to determine respiratory obstruction, which is especially important in the diagnosis and monitoring of therapeutic progress after surgery.

The results are displayed on the monitor in polar coordinates so that the flow and pressure graph for each inhalation and exhalation can be observed as a parabolic curve.

During the study, one half of the nose was closed with a special latex tip, and the patient breathes into the mask of the device for 1 minute. Then the other half of the nose was closed and the study is repeated. In this case, the device determines how much air passes through each half of the nose separately per unit of time, and prints the corresponding graph. Normally, from 500 to 800 cm 3 of air per second passes through the nasal cavity at a standard pressure of 150 Pa.

The principle of operation of the device is based on the joint operation of two sensors. The first sensor measures the volume of air passing through the mask into which the patient breathes per unit of time. The second sensor measures the variable pressure that occurs in the airways during inhalation and exhalation. Special software plots the corresponding flow vs. pressure graph, which makes it possible to quantify the patency of the left and right half of the nose. In addition, the shape of the resulting graph allows diagnosing the level of obstruction of the nasal cavity, which serves as an objective addition to the standard diagnostic endoscopy of the nasal cavity. The examination procedure is non-invasive and painless, the measurement duration is 15s for each half of the nose. Parts of the device that come into contact with the patient can be easily disinfected.

A modified "extracorporeal" septoplasty according to O.T. Freer and G. Killian, which consists in the complete isolation and temporary removal of the deformed quadrangular cartilage, followed by its correction and reimplantation.

After correction, the graft was removed from the device and reimplanted between the layers of the perichondrium and periosteum. The nasal cavity is tamponed with oil swabs

The operation was performed under general anesthesia with performed oral intubation.

Surgical access, incision and exposure

Only the columella and internal nasal septum were anesthetized locally with ARTICAIN 1:200,000. Mid-columellar incision (stepped or inverted V) with a #11 blade, bilaterally elongated with marginal incisions. The dissection of the tip of the cartilage was performed in the subperichondral plane and extends upward to the bony vault of the nose. The dissection and dislocation of the septum was performed in 3 stages (incision and exposure, dissection, dislocation and separation) (Figure 4). The membranous septum was cut to expose the anterior margin of the nasal cartilaginous septum. Then a bilateral perichondral flap from the upper outer surface of the upper lateral cartilages. Subperiochondral dissection of the nasal septum was performed first on the concave side to limit the risk of mucosal injury and secondly on the other side. Bilateral extramucosal incision at the junction of the border between the dorsal septum and the superolateral cartilages was implemented to preserve an intact mucosal wall. The dorsal septum and superior lateral cartilages can be safely separated at this stage. The dissection of the septum was extended to the posterior and inferior junction with the vomer and maxilla to the anterior nasal spine. After incisions and separation, a removed cartilage septum was performed (Figure 5).

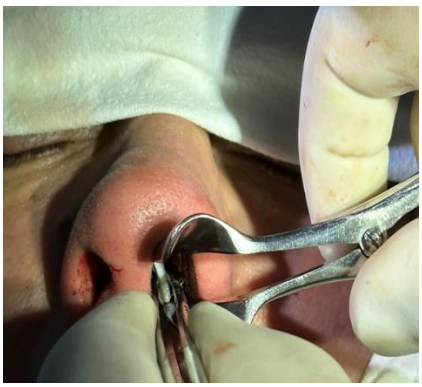

Figure 4. *Incision and exposure*

Figure 5. *Septum cartilage removal*

For septum autocartilage correction, a device was used that worked as follows: the removed cartilage is placed between the plates and, by turning the handle, it is correction (Figures 6, 7).

Figure 6. *Removed Septum cartilage*

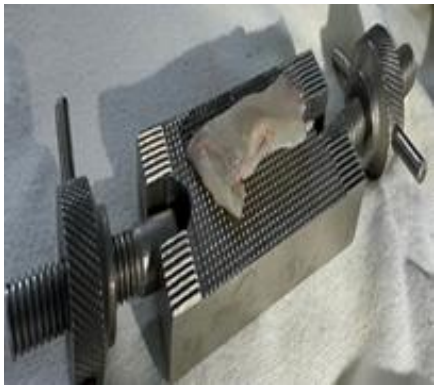

Figure 7. *Removed cartilage is placed in device*

After correction of the septum autocartilag, it is removed from the apparatus and processed with a blade (Figures 8, 9).

Figure 8. *Septum cartilag processed with a blade*

Figure 9. *Processed autocartilag*

Reimplantation and fixation of the neosepta

To ensure long-term stability the neoseptum was transplanted between the subperiosteal and subperiosteal layers dissected previously (Figure 10 A, B, C).

A **B** **C**

Figure 10 A, B, C. *The neoseptum was transplanted between the subperiosteal and subperiosteal layers dissected previously*

After positioning the anterior and caudal parts of the reconstructed septum in the midline of the face, a double non-absorbable suture with a 3.0 round needle is applied to the anterior nasal spine passes through the periosteum of the premaxillary bone and the neoseptum. The surgical access was closed with 5.0 absorbable sutures for intranasal incisions and 6.0 non-absorbable sutures per skin incision (Figure 11).

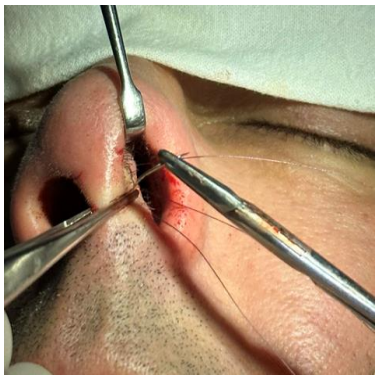

Figure 11*. Non-absorbable sutures per skin incision*

To protect the result of the surgical intervention, the nasal wall was lined with a nasal splint, and the neosepta was also covered with intranasal splints for 15 days, preventing any mobility in the postoperative period.

Evaluation of the effectiveness of the surgical treatment of the operation was based both on the clinical picture (Figure12), subjective assessment of nasal breathing by the patient himself, and on objective data from endoscopy of the nasal cavity and functional research methods (rhinopneumometry).

Figure 12. *Clinical picture after of septoplasty*

In addition to the insufficient effectiveness of the operation, we also took into account late postoperative complications: retraction of the back of the nose; retraction of the "columella" with a change in the shape of the tip of the nose; the formation of a "duck" nose; "floating" of the nasal septum during breathing; persistent impairment of smell; atrophic changes in the mucous membrane with the formation of crusts in the nose; development of perforation of the nasal septum.

Results

No complications were observed during the operation, the patients were satisfied with the aesthetic and functional results of septoplasty.

In the late postoperative period, complications were noted: prolonged swelling of the nasal mucosa (partially difficult nasal breathing), which was stopped by taking antihistamines, in 5 patients. Perforations and secondary deviations of the

cartilaginous part of the nasal septum were not detected due to reliable fixation of the cartilaginous part of the nasal septum. In all clinical cases, a stable support of the cartilaginous part of the nasal septum and the absence of its secondary deviation were obtained, which also directly affects the harmonious aesthetic results of the shape of the external nose and free nasal breathing.

Rhinomanometry indicators show a significant improvement in nasal breathing and are approaching the values accepted as the norm. Prior to septoplasty, rhinomanometry data in patients revealed a significant decrease in the total volume flow and an increase in the total resistance in all patients with deviated nasal septum. A year after surgical treatment, the patients operated on experienced an increase in the average SOP value to 671±82* Pa/ccm/s and a decrease in SS to 0.39±0.05*, which shows a significant improvement in nasal breathing and is approaching the values accepted for the norm. (676±110 Pa/ccm/s and 0.38±0.12 Pa/ccm/s) (Table.1).

Table1. Data of rhinomanometry in patients operated on for deviated nasal septum

Timing	**Modified "extracorporeal" septoplasty (n=164)**	
	Total volume flow, cm/s, M ± m	Total resistance, m/s, M ± m
Before surgery	308 ± 64*	0,74 ± 0,03*
1 year after surgery	671 ± 82*	0,39 ± 0,05*

Note: * - p<0.05; Pa / scm / s - pressure in pascals per centimeter cubic per second

The method of modified "extracorporeal" septoplasty proposed in the study made it possible to avoid cases of late postoperative complications and achieve restoration of nasal breathing in all operated patients. Thus, the developed methods of surgical treatment of patients with various forms of deviated nasal septum, due to the introduction of modified surgical interventions, can reduce the number of complications and provide a good anatomical and functional result. The use of a single tactic for the surgical treatment of deviated nasal septum makes this area of gentle surgery highly effective.

Discussion

Severe deviations of the nasal septum, especially when the anterior and superior or caudal parts are involved, represent one of the most challenging tasks for nasal surgeons.[48,49]

In these cases, conservative surgical procedures with radial cartilage incisions or removal of deviated segments may be unsatisfactory. They can lead to recurrence due to the pronounced tendency of the cartilage to return to its original shape or to almost total resection of the cartilage, also leading to postoperative saddle of the middle fornix and collapse of the internal valve.

Simple replacement of cartilaginous segments between two mucoperiosteal layers, as proposed by other authors, is a very inaccurate maneuver that cannot strengthen the anterior and superior septum and may lead to postoperative doubling of the cartilage of the nasal obstruction.[50-53]

Extracorporeal septorhinoplasty with remodeling of the external septal cartilage and its reinsertion into the mucoperchondral pocket represents an alternative to address these concerns and improve good functional and aesthetic outcomes.[54,55]

This technique can be performed using an open or closed approach.[56-60]

This article presents the results of extracorporeal septoplasty in patients with various forms of deviated septum using the septal replantation technique, advantages and limitations. The work is based on clinical observations of 164 patients with deviated nasal septum. All patients underwent extracorporeal septoplasty. Clinical observations of patients showed a satisfactory aesthetic result of the shape of the external nose.

In patients after extracorporeal rhinoseptoplasty, according to the examination and computed tomography of the nose and paranasal sinuses, good long-term results were noted, such as stable support of the cartilaginous part of the nasal septum, the absence of its secondary deviations and perforations, restored and free nasal breathing, and a harmonious shape of the nose.

Computed tomography in all clinical cases 12 months after extracorporeal rhinoseptoplasty performed, the cartilaginous part of the nasal septum retains its median position. There were no signs of deformation and secondary deviation of the cartilaginous part of the nasal septum.

The total volumetric flow, as well as the total resistance was studied. A year later, after surgical treatment, in patients, the functional assessment according to rhinomanometry data shows a significant improvement in nasal breathing and approaches the values accepted for the norm.

This method has been shown to be safe and effective in restoring nasal patency, and the results remain stable over a long follow-up period.

Correction of the nasal septum must always proceed progressively, first correcting the deviation of the anterior nasal septum (septum), that is, the external one, and as we progress, we move on to correcting the more posterior or internal bony septum.

Repositioning and holding the nasal septum in the correct position is very difficult if it is done as a block, because we have to fix it with sutures that create symmetrical tension on both sides of the nostrils so that they do not subsequently cause the nasal septum to deviate to one side.

The clinical effectiveness of the use of simulated cartilage for reimplantation, prepared with a special device, during "extracorporeal" septoplasty was determined. We emphasize that the replacement of the removed cartilage using the described suture technique is an important stage of the operation, which must be taken into account in order to obtain good functional and aesthetic results. Extracorporeal septal reconstruction is the recommended procedure to correct a marked deviated septum.

Thorough preoperative examination and planning of rhinoseptoplasty with the identification of defects, deformities and anomalies in the development of the cartilaginous part of the nasal septum helps to avoid severe postoperative complications that affect the stability and support of the cartilaginous part of the nasal septum, and is also necessary for a plastic surgeon when choosing the right surgical procedure.

Based on our own experience, the indications for extracorporeal rhinoseptoplasty include:

1. Severe combined deformation of the bone and cartilage sections of the nasal septum;
2. Multiple fractures of the cartilaginous part of the septum, which led to its permanent deformation and/or replacement of fracture lines with a connective tissue component;
3. Pronounced curvature of the anterior cartilaginous part of the nasal septum;
4. Pronounced high deviation of the perpendicular plate, which required complete separation of the septum in the K-zone in the presence of curvature of the cartilaginous part of the nasal septum;
5. Rhinoseptoplasty for anomalies in the development of bone and cartilage structures (involved in the formation of the nasal cavity during embryogenesis) with the absence of the nasal process of the upper jaw;
6. Secondary rhinoseptoplasty in the absence of nasal septum support after using techniques that destroy the integrity of the cartilage.

Conclusions

Extracorporeal septoplasty in patients with various forms of deviated nasal septum is an effective surgical technique that provides optimal functional results.

Declaration

Ethical Approval and Consent to participate

The study was reviewed and approved by Yerevan State Medical University Ethical Committee (Approval number N12, Date 17.11.2021) and in accordance with those of the World Medical Association and the Helsinki Declaration.

Consent for publication

Patients were informed verbally and in writing about the study and gave written informed consent to publish her image in the study

Availability of data and materials

All data generated or analyzed during this study are included in this published article

Competing Interest

The author declares that he has no competing Interest**.** None of the authors have relevant financial relations with a commercial interest.

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ՍԵՊՏՈՊԼԱՍՏԻԿԱՅԻ ԱՐԴՅՈՒՆՔՆԵՐԸ ՔԹԻ ՇԵՂՎԱԾ ՄԻՋՆԱՊԱՏԻ ՏԱՐԲԵՐ ՁԵՎԵՐՈՎ ՀԻՎԱՆԴՆԵՐԻ ՄՈՏ՝ ՕԳՏԱԳՈՐԾԵԼՈՎ ՄԻՋՆԱՊԱՏԻ ԱՐՏԱՄԱՐՄՆԱՅԻՆ ՎԵՐԱՓՈԽՄԱՆ և ՌԵՊԼԱՆՏԱՅԻԱՅԻ ՏԵԽՆԻԿԱՆ

Արայիկ Ղարիբյան[1], Սոնա Գևորգյան [2], Անժելա Չախոյան[3], Արմեն Հարությունյան[4]

[1] Քիթ-կոկորդ-ականջաբան, Առողջապահության ազգային ինստիտուտի գլխի և պարանոցի, էսթետիկ և վերականգնողական վիրաբուժության ամբիոնի դոցենտ, «ԱՐԹՄԵԴ» բժշկական կենտրոնի փոխտնօրեն, Հայաստան

[2] ԵրևանիՄ.Հերացու անվան պետական բժշկական համալսարանի վիրաբուժական ստոմատոլոգիայի և դիմածնոտային վիրաբուժության ամբիոնի դասախոս, Հայաստան
[3] Քիթ-կոկորդ-ականջաբան, Առողջապահության ազգային ինստիտուտի (ԱԱԻ) գլխի և պարանոցի էսթետիկ և վերականգնողական վիրաբուժության ամբիոնի օրդինատոր
[4] Պլաստիկ վիրաբույժ «Աստղիկ» բժշկական կենտրոն, Երևանի անվան պետական բժշկական համալսարանի Մ. Հերացի, Հայաստան

Ամփոփում

Նպատակը. Ներկայացնել արտամարմնային սեպտոպլաստիկայի արդյունքները շեղված միջնապատի տարբեր ձևերով հիվանդների մոտ՝ օգտագործելով միջնապատի ռեպլանտացիայի տեխնիկան և քննարկել առավելություններն ու սահմանափակումները:

Նյութեր և մեթոդներ. Աշխատանքը հիմնված է 2018-ից 2023 թվականներին քթի շեղված միջնապատի 164 հիվանդների կլինիկական դիտարկումների վրա: Բոլոր հիվանդները ենթարկվել են քիթ-կոկորդ-ականջաբանության ստանդարտ հետազոտության, քթի և սինուսների CT՝ կորոնալ և առանցքային պրոեկցիաներում:

Քթի խոռոչի էնդոսկոպիկ հետազոտությունը կատարվել է Karl Storz էնդոսկոպով: Ռնգային շնչառությունը օբյեկտիվորեն գնահատվել է ATMOS PC 300 քթի ռինոմոմետրի միջոցով, որը թույլ է տալիս գրանցել ճնշումը քթի մի կեսում, մինչդեռ հիվանդը շնչում է մյուսով:

Օգտագործվել է մոդիֆիկացված արտամարմնային սեպտոպլաստիկա, որը բաղկացած է դեֆորմացված աճառի ամբողջական մեկուսացումից և ժամանակավոր հեռացումից հետո աճառի ուղղում և ռեպլանտացիա; Վիրահատությունը կատարվել է ընդհանուր անզգայացմամբ՝ նախապես կազմված բերանի ինտուբացիայով:

Արդյունքներ. Վիրահատության ընթացքում բարդություններ չեն նկատվել, հիվանդները գոհ են մնացել սեպտոպլաստիկայի էսթետիկ և ֆունկցիոնալ արդյունքներից: Ուշ հետվիրահատական շրջանում նկատվել են բարդություններ՝ քթի լորձաթաղանթի երկարատև այտուց (քթով մասամբ դժվար շնչառություն), որը դադարեցվել է հակահիստամինների ընդունմամբ՝ 5 հիվանդների մոտ: Բոլոր կլինիկական դեպքերում ձեռք է բերվել քթի միջնապատի աճառային մասի կայուն հենարան և դրա երկրորդական շեղման բացակայություն, ինչը նույնպես ուղղակիորեն ազդում է արտաքին քթի ձևի և քթի ազատ շնչառության ներդաշնակ էսթետիկ արդյունքների վրա:

Ռինոմանոմետրիայի ցուցանիշները ցույց են տվել ռնգային շնչառության զգալի բարելավում և մոտենում են նորմ ընդունված արժեքներին:

Եզրակացություններ. Արտամարմնային սեպտոպլաստիկան քթի շեղված միջնապատի տարբեր ձևերով հիվանդների մոտ արդյունավետ վիրաբուժական տեխնիկա է, որն ապահովում է օպտիմալ ֆունկցիոնալ արդյունքներ:

РЕЗУЛЬТАТЫ СЕПТОПЛАСТИКИ У БОЛЬНЫХ С РАЗЛИЧНЫМИ ФОРМАМИ ИСКРИВЛЕНИЯ НОСОВОЙ ПЕРЕГОРОДКИ С ИСПОЛЬЗОВАНИЕМ ТЕХНИКИ ЭКСТРАКОРПОРАЛЬНОЙ РЕМОДЕЛИРОВАНИЕ И РЕПЛАНТАЦИИ ПЕРЕГОРОДКИ

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Абстракт

Цель: Представить результаты экстракорпоральной септопластики у больных с различными формами искривления носовой перегородки, с использованием техники реплантации перегородки и обсудить преимущества и ограничения.

Материалы и методы: В основу работы положены клинические наблюдения за 164 больными с искривлением носовой перегородки с 2018 по 2023 годы. Всем больным было проведено стандартное оториноларингологическое обследование, спиральная компьютерная томография СТ носа и околоносовых пазух в коронарной и аксиальной проекциях.

Эндоскопическое обследование полости носа проведено эндоскопом фирмы «Karl Storz». Носовое дыхание объективно оценено с помощью прибора риноманометр "PC 300 фирмы "ATMOS" носа, позволяющий регистрировать давление в одной половине носа, пока пациент дышит через другую

Применена модифицированная экстракорпоральная септопластика, заключающаяся в полном выделении и временном изъятии деформированного четырёхугольного хряща с последующей его коррекцией и реимплантацией. Операцию проводили под общим анестезия с предварительно сформированной оральной интубацией.

Результаты: Во время операции осложнение не наблюдались, пациенты были удовлетворены эстетическими и функциональными результатами септопластики. В отдаленном послеоперационном периоде отмечены осложнения: длительный отек слизистой оболочки носа (частично затрудненное носовое дыхание) наблюдено у 5 пациентов, который был купирован приемом антигистаминных средств, Во всех клинических наблюдениях получены стабильная опора хрящевой части перегородки носа и отсутствие его вторичной девиации, что также непосредственно влияет на гармоничные эстетические результаты формы наружного носа и свободное носовое дыхание.

Показатели риноманометри показывали значительное улучшение носового дыхания и приближается к принятым за норму величинам

Выводи: Экстракорпоральная септопластика у больных с различными формами искривления носовой перегородки является эффективной хирургической методикой, дающей оптимальные функциональные результаты.