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RESULTS OF SURGERY IN NASAL CAVITY IN MIXRHINOPATHOLOGIES

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Abstract

Diseases of the nose and paranasal sinuses are the leading pathology of ENT organs, the causes of which are the widespread prevalence of viral respiratory tract injuries, the unfavorable environmental situation in many regions, a decrease in immunity, smoking, and the influence of harmful occupational factors. In addition, congenital or acquired anatomical changes, such as deformation of the nasal septum, hypertrophy of the nasal turbinates, polyps, adenoids, etc., play an important role in the pathogenesis of this pathology. Simultaneous operations (from English "simultaneous" - simultaneously) are complex surgical operations aimed at simultaneous surgical correction of two or more diseases of various organs in one or more anatomical areas. Simultaneous surgeries are particularly important in cases where there is a pathogenetic link between two surgical diseases. In cases where the existing combined pathology is not simultaneously surgically corrected, the disease may worsen in the postoperative period. It should be noted that simultaneous surgical correction has economic efficiency compared to separate operations, which reduces bed-days by 2 or more times, reduces costs for examinations, pre- and postoperative treatment, and anesthetic drugs.

Keywords

Simultaneous operations, medical technologies, postoperative bleeding, surgical operations.

INTRODUCTION

The creation of new medical technologies will allow doctors to perform simultaneous surgical operations in the area of the upper respiratory tract. Joint surgical interventions on ENT organs are frequently performed, however, this problem remains poorly studied and insufficiently illuminated in

otorhinolaryngological practice. There are not many works by domestic authors dedicated specifically to simultaneous operations in rhinology [5,11]. It should be noted that despite the possibilities of modern conservative therapy, there is no decrease in the number of simultaneous surgical interventions for diseases of the nose, paranasal sinuses, and paranasal sinuses [7-10].

Modern advances in medicine allow for the expansion of the scope of simultaneous surgical interventions. Simultaneous (joint, simultaneous) operations allow for the simultaneous elimination of several pathological conditions in the nose and paranasal sinuses. From a tactical standpoint, it is necessary to answer three key questions:

- carrying out operational operations in all interested structures simultaneously or in time or in stages allocated by time;
- the sequence in which surgical operations are performed in relation to various structures;

what method of pain relief is appropriate for the degree of surgical injury [1-3].

Simultaneous operations have many advantages. Simultaneous operations save patients from repeated hospitalizations, anesthetic risk, and associated psychoemotional trauma, significantly reduce the incapacity of patients for temporary work, eliminate unfavorable factors in the postoperative period for patients, and reduce overall economic costs for treatment [1.4].

Furthermore, it is not always possible to carry out surgical treatment in several stages, and this can be due to a number of objective socio-economic reasons, such as patient's disagreement or refusal to repeat surgery, lack of necessary equipment, etc. [5,9].

A single-stage surgical intervention aimed at restoring the aesthetic, respiratory function of the nose and sanitation of the paranasal sinuses does not cause complications and allows achieving a reliable long-term positive outcome of surgical correction in 89.9% of cases.[11]

The disadvantages of simultaneous surgical interventions include: the presence of multiple anatomical structures in the surgical area; increased surgical duration; the need for additional access to the surgical field; increased intraoperative bleeding; a high risk of postoperative bleeding; pronounced reactive changes in the tissues of the surgical area; the risk of developing postoperative atrophic processes in the nose [10].

RESULTS

The nasal septum, consisting of the anterior cartilage and posterior bone parts, occupies a central position in the nasal cavity. The cartilaginous part of the septum consists of a quadrilateral cartilage, consisting of a non-osseous part of the perpendicular plate of the ethmoid bone, and the bone part consists of a perpendicular plate of the ethmoid bone and the vomer.

Numerous scientific studies are dedicated to the issues of the nasal septum and its surgical correction. Its physiological significance is illuminated only in the works of E.Z. Piskunov and S.Z. Piskunov. According to the authors, the nasal septum divides the nasal cavity into two, forming a paired member. These organs (valves of the nose), which are regulated by the nose cycle, periodically rest and work with full load. Occasional rest and work with full load are observed in areas where the nasal septum is steeply flat. Deformation of the nasal septum makes it impossible to create conditions for the full manifestation of the nasal cycle and periodic rest, and ultimately leads to the reconstruction of the anatomical structures of

the lateral wall of the nose, leading to the development of chronic hypertrophic rhinitis, which makes it difficult to breathe even in the previously fully expired half of the nose.[2]

There are several classifications of nasal septum deviation [3-6]. However, from our perspective, the classification of barrier deformations proposed by V.S. Piskunov and Yu. Mezentseva is the most convenient and anatomically justified for practical use.

In the absence of traumatic barrier injuries in the anamnesis, the most common are 5 types of deformation, which are formed in the area where the barrier connects the bone and cartilaginous portions and is in contact with the skull bones:

1) the protrusion of the rectangular cartilage margin from the premaxilla tendon, which leads to the development of varying degrees of nasal valve congestion;

2) Curvature or F-shaped thickening at the border of the perpendicular plate of the rectangular cartilage and ethmoid bone, which leads to congestion or closure of the structures forming the common nasal duct and ostiomeatal complex;

3) edges and spikes at the junction of the perpendicular plate and vomeris;

4) spikes and deviations in the dorsal segments of the nasal septum, where “rostrum sphenoidale” connected to the perpendicular plate of the ethmoid bone;

5) a combination of several variants of deformation.

We observed 120 patients with deformities of the nasal septum, proposed by Mladina (Table 1).

Table 1

Types of nasal septum deformation

Types of deformation	Number of patients
I	15
II	66
III	18
IV	6
V	15
Total	120

Due to changes developing in the nasal cavity during barrier deformities, there is a need to perform a complex of surgical interventions simultaneously in the area of the lateral wall structures of the nasal cavity and natural pores of the paranasal sinuses during its surgical correction.

When the premaxilla of the quadrilateral clavicle protruded from the bone tendon (15 patients), deformation of the columella was observed in 5 patients, and displacement of the external nasal clavicle from the central line was observed in 3 patients (Fig. 1).

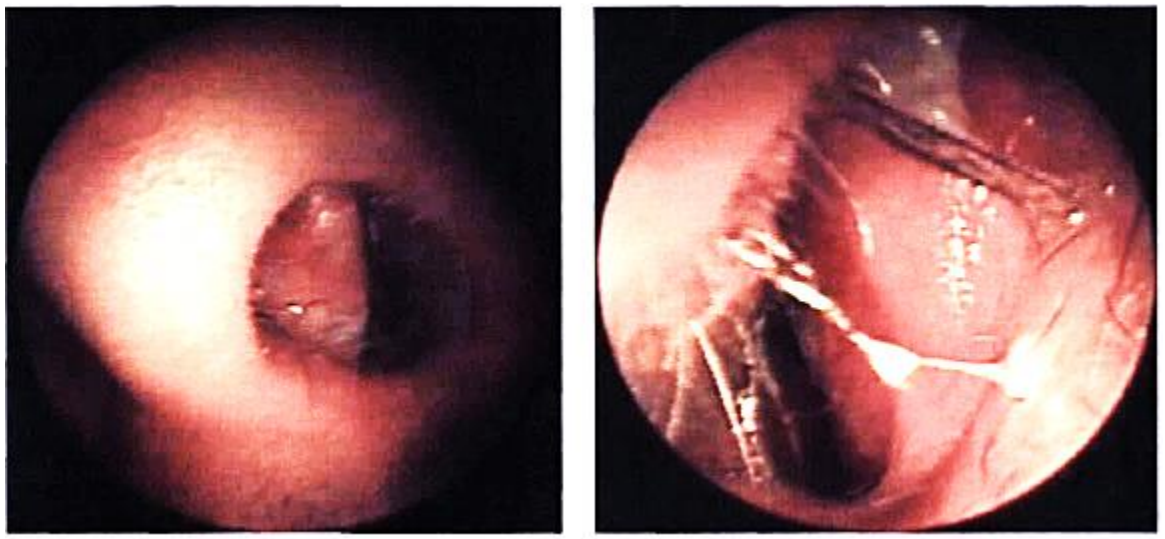

Figure 1. Deformation of the columella at the protrusion of the premaxilla of the quadrilateral cartilage from the tendon: a) left half of the nose, b) right half of the nose

In these cases, we made an incision along the marginal part of the rectangular ridge on the inclined side, on this side, the mucous membrane was separated from the perichondrium to the base of the ridge. Next, a wedge tape with a width of approximately 0.5-0.8 cm was resected from the base of the barrier, and as a result, the lower part of the wedge remained mobile. Then, along the rectangular ridge, 2-3 vertical incisions were made from top to bottom along the entire depth, and an additional ridge was cut along the ridge, leaving a ridge not less than 0.5 cm above the ridge. After that, the horseshoe remained active and easily moved across its wide half, ensuring the opening of its nose valves. Simultaneously, the columella form was corrected.

Deformation of the columella and displacement of the nasal septum from the central line can occur in the area of the nasal valve surface when the caudal edge of the rectangular cartilage protrudes. In the presence of displacement of the external nasal part from the midline (3 patients), the subclavian membrane was separated along the entire inclination to the upper edge of the rectangular cartilage; then the inclined part was separated from the properly located cranial part with the help of a vertical incision, brought to the middle position, fixed with a clasp and tampons.

Therefore, with this careful approach, two goals were achieved simultaneously in the first type of nasal septum deformation: restoring the shape of the nasal valve and nasal breathing.

In the second type of deformation (66 patients), localized at the end of the perpendicular plate of the ethmoid bone and the barrier ossification of the border of the rectangular cartilage, significant changes are observed in the structures of the ostiomeatal complex, primarily in the anterior part of the middle nasal concha. Therefore, this characteristic barrier deformation closes the common nasal passage, the airflow returns from the lateral ostiomeatal complex, influencing the formation of its constituent structures, and provides the development of pathological processes manifested in vasomotor and hypertrophic changes of the mucous membrane in the area of the natural pores of the nasal concha and paranasal sinuses. [12,19,28,43,64].

In cases where the deformation is located in this part of the barrier, we performed limited septoplasty. The method of surgical intervention: before thickening the barrier, a curved incision 1.5-2 cm long is made on the left side, usually immediately cutting off the rectangular cartilage. Under the control of an endoscope, a noticeably expanded deformed cartilage and bone are extracted in this area using Luke's or Bleksley's clamps. After this, the layers of the mucous membrane are brought closer together and the correct location of the barrier, the width of the surface of the common passage through which the main air flow should move, are monitored.

The degree of changes in the lateral wall structures of the nasal cavity depends on the patient's age: the older the patient, the more pronounced these changes develop, and the need arises for a larger volume of combined surgical interventions.

Rhinopneumometric parameters (before surgery): volumetric flow rate, on the right - 91 cm3/s, on the left - 274 cm3/s, resistance, on the right - 1.84 PA/ cm3/s, on the left - 0.59 PA/ cm3/s, UHF - 340 cm3/s, UV - 0.54 PA/ cm3/s.

Rhinopneumometric parameters (after surgery): volumetric flow rate, right - 204 cm3/s, left - 360 cm3/s, resistance, right - 0.74 PA/ cm3/s, left - 0.42 PA/ cm3/s, UHF - 564 cm3/s, UV - 0.27 PA/ cm3/s. The obtained data indicates improved ventilation function of the nasal cavity.

As age increases, the degree of changes in the middle nasal condyles increases, not only their mucous membrane is damaged, but the process of hypertrophy spreads to the bone base.

CONCLUSION

Therefore, for each type of barrier deformation, there are specific features of reconstruction of anatomical structures of the anterior lateral wall. In pathological processes associated with nasal septum deformation, combined endonasal surgeries should begin with the repair of the deformed part of the septum, followed by surgical operations on the structures of the lateral wall and natural pores of the paranasal sinuses.

Following the completion of combined operations on the nasal septum and other endonasal structures, tamponade of the nasal cavity was performed using a 1:5000 solution of furacilin or a narrow nozzle impregnated with vaseline oil. The tamponade was performed under endoscope control. From the point of view of obtaining a strict middle position of the barrier, ensuring the physiologically correct position of the middle nasal condyle without touching the nasal septum or its lateral wall, the tampons are carefully placed.

If the operation was performed to open the lateral cavity of one or another nose, a tampon was inserted into the operated sinus through the surface of the natural opening. Sometimes, the tamponade initially began with the introduction of the tampon into the cavity, and then the general middle nasal passages were filled with the same tampon.

Due to the fact that the operation was limited and performed only in the affected areas of the nasal cavity, it was not accompanied by significant bleeding. Therefore, gentle tamponade of the nasal cavity was performed without a hemostatic goal. The main task of the tamponade was to ensure the proper placement of the cavity structures.

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