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ENDOSCOPIC TRANSNASAL SPHENOTOMY AND RESECTION OF BULLOUS MIDDLE TURBINATE

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ABSTRACT

Sphenoiditis is an inflammatory disease of the mucous membrane of the sphenoid sinus. As a rule, changes in the main sinus are combined with other rhinological pathology, while its isolated lesion accounts for only 1-2% of cases among all inflammatory pathologies of the paranasal sinuses. The anatomical and topographical features of the location of the sphenoid sinus, as well as the nonspecificity of symptoms, lead to late diagnosis of this disease. Among the complaints presented by patients, the most common is headache without clear localization (72%). In second place in terms of frequency of occurrence, visual disturbances are detected in the form of diplopia, progressive unilateral vision loss, and narrowing of the visual fields on the affected side. Visual symptoms account for 21% of patients with isolated sphenoiditis (IS). Rhinological manifestations of the disease include: mucus running down the back of the throat and nosebleeds. Thus, patients are under the supervision of doctors of related specialties for a long time: ophthalmologists, neurologists and other specialists.

KEYWORDS

Sphenoiditis, sphenoid sinus, sphenothmoidal recess.

INTRODUCTION

An isolated lesion of the sphenoid sinus is a rare pathology and its frequency of occurrence does not exceed 1-3% of all inflammatory diseases of the paranasal sinuses [1]. However, the involvement of only one sinus in the pathological process is a nonspecific manifestation of inflammatory changes, much more often it is an indicator of a tumor process [2].

With the development of radiological methods for examining patients, the number of detections of asymptomatic lesions of one or two sphenoid sinuses has increased. Carrying out qualitative and quantitative analysis of computer tomograms of patients, as well as magnetic resonance imaging, allows us to suggest the nature of pathological changes in the sinus [4]. In the case of a tumor process or fungal sphenoiditis, the treatment of choice is a surgical approach, while in case of inflammatory or polypous changes in the mucous membrane of the sphenoid sinus, drug treatment is sufficient [8]. However, at the moment there are no criteria for choosing treatment tactics in this group of patients.

The spectrum of pathologies found in the sphenoid sinus is very variable and includes both neoplasms and inflammatory changes in the mucous membrane. The

variety of diseases is due to the location of the main sinus so that the lesion is associated with both sinus pathology and pathological changes originating from the cranial cavity [1-4]. Among the neoplasms, benign ones are distinguished, such as inverted papilloma, pituitary adenoma, and malignant ones: squamous cell carcinoma, adenocarcinoma, sinonasal low-grade cancer, metastases of other organs [6]. In addition, fungal diseases, antrachoanal and sphenchoanal polyps, cystic formations, mucocoeles, acute and chronic inflammatory changes in the mucous membrane of the sphenoid sinus, fibrous dysplasia, bone osteomas are isolated [5,7,9-13]. Pathologies associated with the cranial cavity include meningocele, encephalocele, meningoencephalocele, sinonasal liquorrhea and vascular aneurysms.

During endoscopic examination, degeneration of the middle turbinate was discovered in 5 patients. Of these, only 3 patients belong to the group of ineffective conservative treatment. Under anesthesia, to provide access to the anterior wall of the sphenoid sinus, in 8% of patients, the bullous middle turbinate was dissected with a scalpel along its anterior surface, followed by removal of the lateral portion (Figure 1).



Figure 1. Removal of the lateral portion of the middle turbinate using Blakesley forceps

This procedure was performed only on the affected side of the sphenoid sinus. Since one patient had bilateral turbinate degeneration, it was decided not to perform surgical correction on the unaffected side. Further, the stages of sphenotomy were similar to those in the previously described method.

The only distinctive feature in this case was the technique of anterior nasal tamponade, when one of the hemostatic tampons was installed directly into the space between part of the middle turbinate and the nasal septum to preserve diastasis. The transseptal approach when opening the sphenoid sinus is most often used in transnasal surgery of the skull base,

namely the pituitary gland. The method provides a minimally invasive approach, as well as the ability to access two sphenoid sinuses simultaneously. In otorhinolaryngological practice, the transseptal approach is used much less frequently, due to the absence of the need to unite the main sinuses with each other.

A clinical example of a patient who underwent transseptal sphenotomy due to the need for simultaneous correction of the nasal septum and removal of a cyst of the sphenoid sinus, closely adjacent to the rostrum zone, Based on computed tomography data, the presence of a mass in the area of

the bottom of the sphenoid sinus, as well as significant differences in the size of the patient's sphenoid sinus,

a decision was made on a transseptal approach (Figure 2).

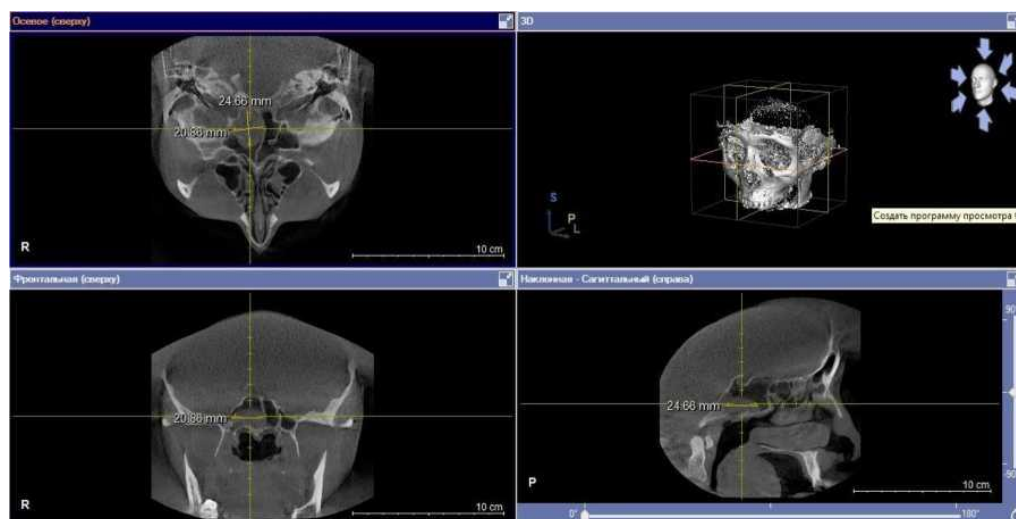


Figure 2. Computed tomography of a patient with a cyst of the right sphenoid sinus

From the classic incision in the vestibule of the nasal cavity on the left, a deformed section of quadrangular cartilage was isolated and removed. Next, using a raster, the mucous membrane with the perichondrium was separated from the bony part of the septum up to the rostrum. Removal of the bone mass of the latter provided good visualization of the cystic formation (Figure 3).

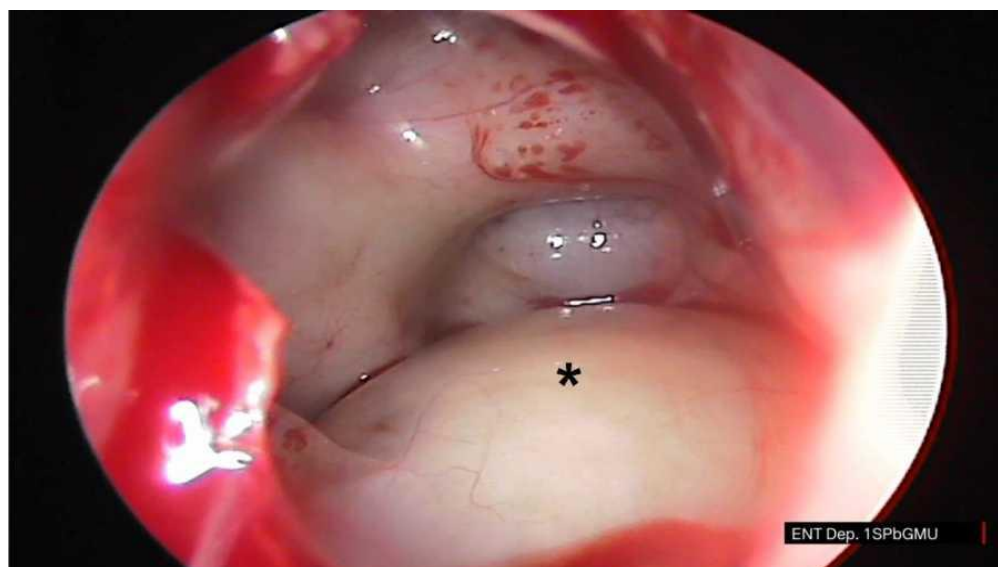


Figure 3. Mucous cyst of the sphenoid sinus

* the tip of the cyst is indicated

Removal of the cyst and aspiration of the contents was complemented by the discovery of a natural anastomosis with the right main sinus and minimal expansion of the latter (sphenotomy type 1) to improve sinus ventilation.

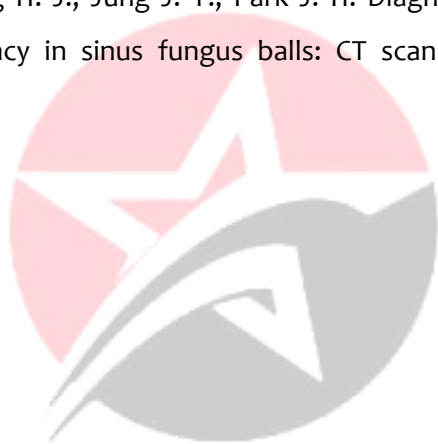
CONCLUSIONS

Thus, a careful study of preoperative computed tomography and individual planning of surgical access to the affected sinus is the key to successful sphenotomy without complications. Endoscopic transseptal access when opening the sphenoid sinus can be used in case of hypopneumatization of the sinus due to deviation of the nasal septum, as well as the presence of Onodi cells in adults and pediatric patients.

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