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PAPILLOMA OF THE NASAL CAVITY AND MAXILLARY SINUS IN A 14-YEAR-OLD PATIENT: A CLINICAL CASE

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Abstract
The maxillary sinus can be directly or indirectly affected by various benign pathologies of soft and hard tissues. These include cysts, tumors, and tumor-like lesions. Although these conditions are benign, many of them are locally destructive or invasive. Furthermore, malignant neoplasms and chronic inflammatory conditions, which can be more serious, often present with similar clinical and radiographic signs and symptoms. Therefore, it is important to understand the distinguishing features of these conditions and establish a definitive diagnosis, even when suspecting a benign lesion.

Keywords sinonasal papilloma, maxillary sinus, clinic, diagnosis and treatment.

Introduction

Benign and malignant tumors of the nose and paranasal sinuses account for 0.2-0.8% of all tumors [26]. Primary benign tumors of the paranasal sinuses are more common than malignant ones [10, 26]. The classification of nasal tumors into benign and malignant is conditional because some types of benign tumors exhibit expansive and ulcerative growth, while others may show malignant characteristics. Benign tumors of the paranasal sinuses are characterized by asymptomatic, slow growth. Clinically, the tumor becomes apparent when it reaches a certain size and starts compressing the surrounding walls, causing dysfunction. It does not stop growing but expands unevenly, pushing apart the surrounding bony walls and may spread to nearby organs and tissues. Its progression can lead to various severe and often life-threatening consequences [5, 11, 12, 22, 25, 27]. Tumors such as papillomas, chondromas, and adenomas exhibit significant growth, and their course may resemble malignant neoplasms.

Benign tumors of the sinuses can be divided into primary and secondary. Primary sinus tumors morphologically include epithelial tumors, soft tissue tumors, bone and cartilage tumors, lymphoid and hematopoietic tissue tumors, mixed tumors, and unclassified tumors (WHO International Histological Classification No. 19). Secondary tumors are those that grow within the nasal cavity and sinuses. They can mimic primary nasal and sinus neoplasms [1, 17, 27]. The most common tumors from adjacent organs penetrating into the nose and paranasal sinuses are epithelial tumors, among which papillomas and adenomas are prominent.

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Sinonasal papillomas are benign epithelial neoplasms arising from Schneiderian mucosa. Three subtypes include exophytic, oncocytic, and inverted (inverted papilloma [IP]), each with distinct histopathological features.

Clinical manifestations of benign tumors in the nasal cavity and paranasal sinuses include initial nasal obstruction due to unilateral growth of the tumor. As the tumor enlarges, nasal obstruction worsens, accompanied by nasal discharge that may progress from mucous to mucopurulent or purulent. With further growth, symptoms such as dull head pressure, nasal obstruction, mucosal atrophy in the nasal cavity and pharynx, olfactory disturbances, and anosmia may develop.

The diagnosis of benign tumors of the paranasal sinuses is conducted using various methods, including examination, anterior and posterior rhinoscopy, oropharyngoscopy, radiography, immunological testing, as well as more modern methods such as angiography, computerized tomography (CT), and magnetic resonance imaging (MRI) [13, 15, 17, 21]. External examination of patients with benign tumors provides only approximate information for determining deformations of the nose and face, which are only evident in cases of extensive tumors [17, 21, 22]. Anterior and posterior rhinoscopy allow for the examination of the nasal cavity and the tumor itself, providing preliminary information about its size. However, it is not possible to determine the extent or nature of the tumor through this method. Radiography is considered an effective diagnostic method for nasal tumors that extend into the sinuses. Radiographic examination includes standard and additional projection techniques. Standard techniques include frontal straight, frontal semiaxial, right and left lateral, axial, and oblique views. Additional projection techniques are used when visualization is aimed at detecting the spread of the tumor in anatomical areas where tumor involvement is suspected during clinical examination but cannot be assessed through standard radiography. Radiography can also be performed after the introduction of contrast material into the sinuses [14, 17]. In cases of tumor involvement, the presence and extent of tumor shadows can only be indirectly determined through radiographic examination using nasal and sinus tomography since clear images of tumor shadows are absent. In such cases, radiography provides information about the presence or absence of opacification in the nose and paranasal sinuses, interruption of a thin line shadow on one or several sinus walls, disruption of the shadow of the main bony wing and outer wall of the maxillary sinus, and soft tissue shadows that can only be identified against an air background in the sinuses and nasopharynx [22, 23, 27]. With the development of optical technologies, endoscopic techniques have become widely used for diagnosing neoplasms in the nasal cavity and sinuses. The advantages of endoscopy include direct visual inspection, simplicity, high resolution, and elimination of "blind spots" [4, 7, 8, 11, 12, 20, 21, 27]. Endoscopic methods are much more effective than traditional methods such as anterior or posterior rhinoscopy. There have been cases where neoplasms that were not effectively diagnosed through anterior rhinoscopy were only identified through endoscopy [5]. Furthermore, endoscopy can be used to obtain material for histological examination. CT scans are widely used in otorhinolaryngological practice [1, 4, 5, 19, 20, 22, 26]. Computed tomography plays a crucial role in examining the nasal cavity, paranasal sinuses, and orbit, offering broad capabilities for assessing volumetric processes in the nasopharyngeal cavity, posterior part of the maxillary sinus, especially in the pterygopalatine and subcondylar fossae. Thanks to computed tomography, it is possible to detect changes in thin bony structures and fasciogenesis that could not be identified with conventional X-rays or tomography.

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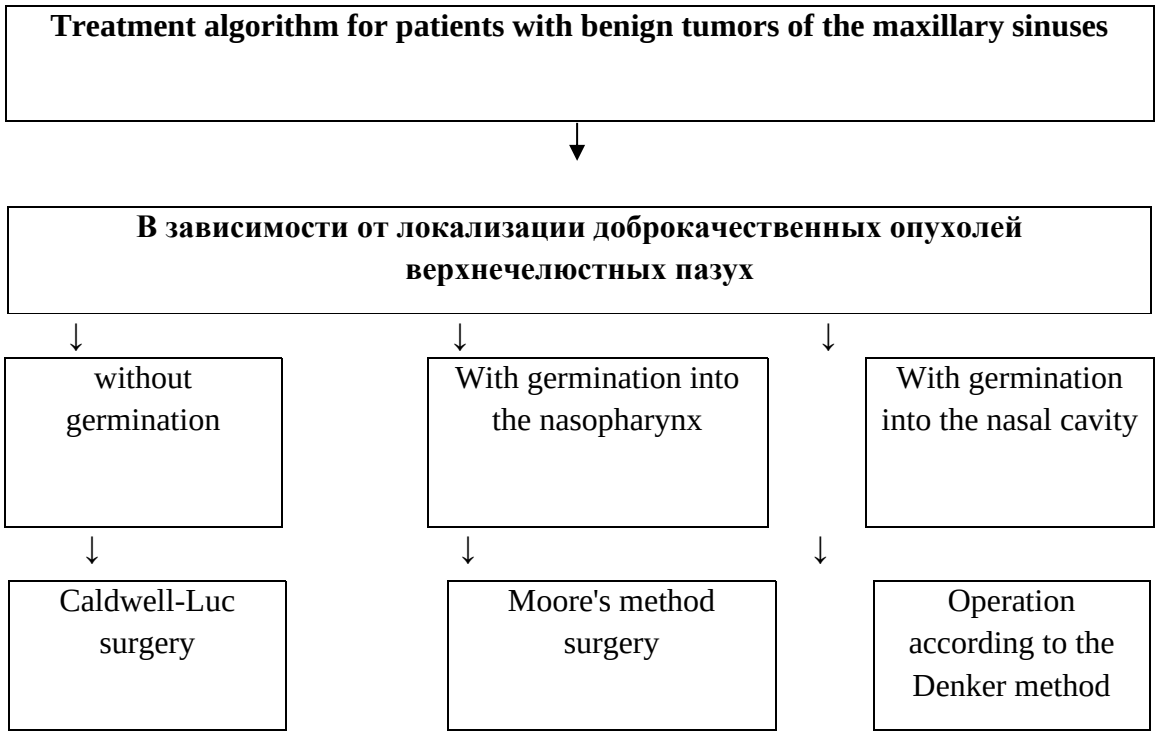
Treatment of benign tumors of the paranasal sinuses. Existing treatment methods for paranasal sinus benign tumors can be divided into three groups: conservative, surgical, and combined.

- Conservative treatment methods include sclerotherapy, radiotherapy, and cryotherapy. Combined treatment methods combine two different types of treatment.
- Surgical treatment methods involve various approaches to the tumor.
- Sclerotherapy is mainly used for vascular tumors of the nasal cavity, accessory sinuses, and nasopharynx, as well as for juvenile nasopharyngeal angiofibroma. Quinine-urethane, alcohol, varicose, 40% dextrose solution, or a combination of 2% novocaine solution, 96% alcohol, and 10% calcium chloride solution are used as sclerosing agents.



Types of surgical interventions depending on the localization of benign tumors:

Caldwell-Luc surgery:

The main idea of the method is to remove pathological contents from the bony defect formed by wide resection of the facial wall of the maxillary sinus in the area of the canine fossa, as well as to create an opposing opening in the nasal cavity in the form of a 2x2 cm hole in the inner wall of the sinus. Subsequent treatment and cleansing of the sinuses are carried out through this access point formed in the nasal cavity under the lower turbinate bone. The Caldwell-Luc operation, like all nasal cavity operations, is performed under local anesthesia.

Denker's Procedure:

It differs from the previous method in that the facial wall of the maxillary sinus is resected up to the pear-shaped rim of the mouth, achieving wide exposure of the sinus. The author believes that this procedure is particularly suitable for removing tumors of the nose and nasopharynx.

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Moore's Procedure:

Allows access to the upper part of the nasal cavity, ethmoid labyrinth, orbit, maxillary and frontal sinuses, and even to the sphenoid sinus.

Clinic Case: Patient U., 14 years old, was admitted to the ENT department of SamMI clinic on 2.12.2023 with complaints of pressure sensation in the projection of the right maxillary sinus, difficulty breathing through the right half of the nasal cavity, nasal discharge, and weakness. From the history: he has been feeling unwell for 1 year, denies trauma. No pathologies were found in other ENT organs. The patient was examined by an ophthalmologist, neurologist, and maxillofacial surgeon. No pathologies were found in the central nervous system or vision organ. Ultrasound examination of abdominal organs, lymph nodes of the neck and thyroid gland, chest X-ray did not reveal any pathologies.During anterior rhinoscopy: The nasal mucosa is pale pink, the lower nasal turbinates are not enlarged, the nasal septum is straight, the right nasal passage is obstructed in the posterior parts by a round, bumpy formation of pink color resembling colored cauliflower.

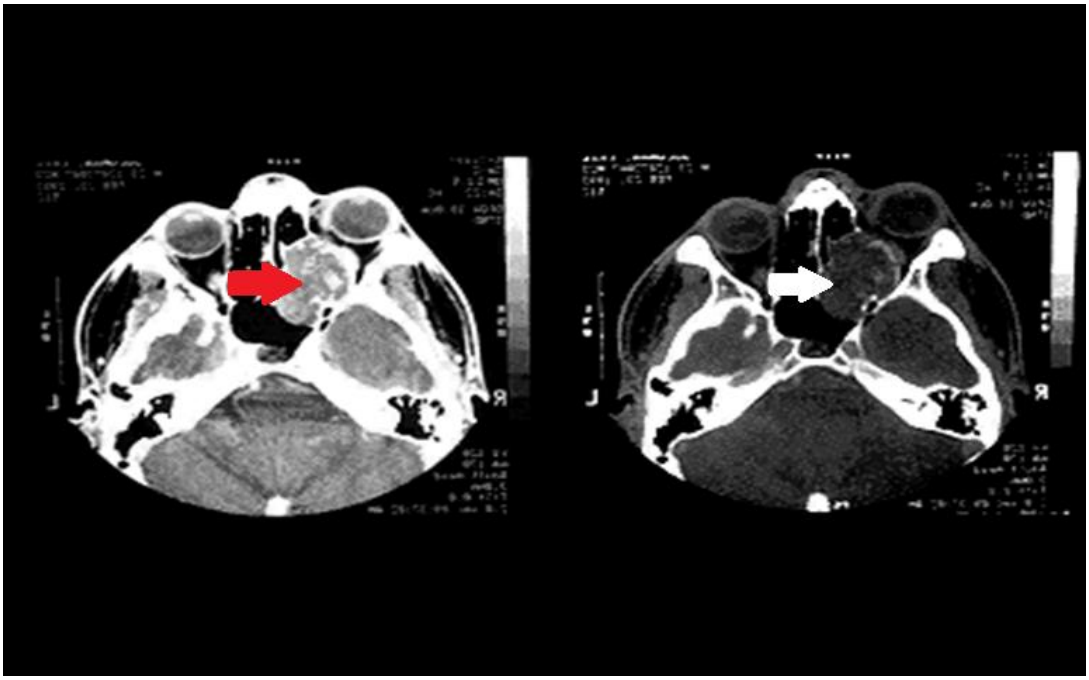

Fig.1 Computed tomography of patient 14 years old. Conclusion: Signs of a space-occupying lesion in the nasal cavity and maxillary sinus on the right.

On computed tomography of the nose and accessory sinuses (Figure 1), a volumetric oval-shaped formation with clear smooth contours, homogeneous structure, completely obstructing the right nasal passage and infiltrating into the ethmoid labyrinth and right maxillary sinus was identified.

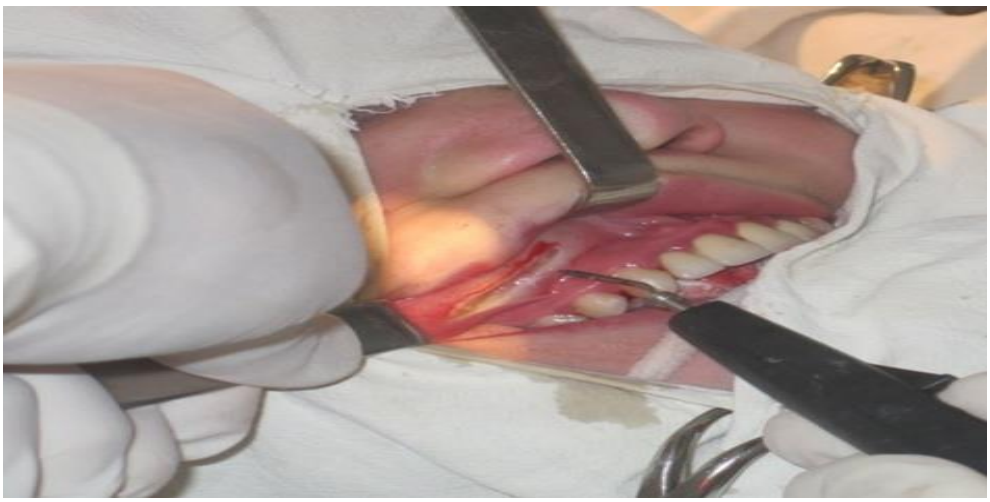

Fig. 2. Patient 14 years old.
Caldwell-Luc surgery.

Clinical diagnosis: Tumor of the maxillary sinus with infiltration into the right nasal cavity. The patient underwent a Caldwell-Luc procedure for tumor removal under general endotracheal anesthesia. The material obtained during the operation was sent for histological examination.

Fig. 3. Macroscopic specimen of patient 14 years old.

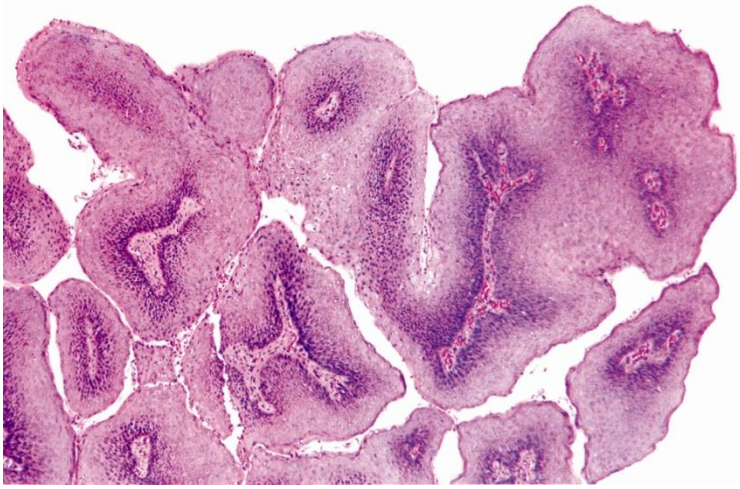

Fig. 4. Histological diagnosis: papilloma of the nasal cavity and maxillary sinus.

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In cases of tumors infiltrating into the nasopharynx and orbit, or with simultaneous localization in the ethmoid labyrinth, nasal cavity, orbit, and nasopharynx, we used the Muhr approach to achieve a wider access and maximal tumor removal.

After tumor removal, wound cleaning, and diathermy coagulation, a nasal pack is placed in the surgical field through the nose, and the skin wound is tightly sutured.

Conclusion:

Most patients seek treatment with various forms of the disease, which is due to the asymptomatic nature of early stages of the condition, as well as the complexity of diagnosing this serious condition and insufficient awareness among general practitioners about this issue. Since the nasal cavity and its sinuses are located in the center of the facial skeleton, tumors can infiltrate surrounding bone tissue and affect neighboring areas, including the brain, leading to various disorders. Initial symptoms are not specific to tumors and are equally characteristic of non-neoplastic, predominantly inflammatory diseases. Recently, MRI has been used alongside traditional diagnostic methods such as sinus X-rays, CT scans of nasal structures, MRI and MSCT of the nasal cavity and ENT region for diagnosing tumors of the upper jaw sinuses. Papilloma of the nasal vestibule should be distinguished from basal cell carcinoma (a type of skin cancer) and squamous cell carcinoma at early stages due to similar symptoms. Nasal papillomas often recur and should be differentiated from early stages of nasal cancer. Treatment for papillomas is mainly surgical. For fungal papillomas of the nasal vestibule, intranasal excision (through the nasal cavity without a facial incision) is recommended, followed by electrocoagulation, cryotherapy, laser therapy, or radiation therapy.

REFERENCES

1. Katori H., Nozawa A., Tsukuda M. Cell proliferation, apoptosis, and apoptosis inhibition in malignant transformation of sinonasal inverted papilloma. //Acta Otolaryngol.- 2007.- V.127.- N 5.- P.540-546.

2. Keles N., Deger K. Endonasal endoscopic surgical treatment of paranasal sinus Inverted papilloma-first experiences. //Rhinology.- 2001.- V.39.-P.156-159.

3. Turfe Z., Ahmad A., Peterson E.I., Craig J.R. Odontogenic sinusitis is a common cause of unilateral sinus disease with maxillary sinus opacification. *Int. Forum Allergy Rhinol.* 2019 doi: 10.1002/alr.22434.

4. Eckhoff A., Cox D., Luk L., Maidman S., Wise S.K., DelGaudio J.M. Unilateral versus bilateral sinonasal disease: Considerations in differential diagnosis and workup. *Laryngoscope.* 2019 doi: 10.1002/lary.28108.

5. Lawson W., Kaufman M.R., Biller H.F. Treatment outcomes in the management of inverted papilloma: An analysis of 160 cases. *Laryngoscope.* 2003;113:1548–1556. doi: 10.1097/00005537-200309000-00026.

6. Mirza S., Bradley P.J., Acharya A., Stacey M., Jones N.S. Sinonasal inverted papillomas: Recurrence, and synchronous and metachronous malignancy. *J. Laryngol. Otol.* 2007;121:857–864. doi: 10.1017/S002221510700624X.

7. Giotakis E., Eleftheriadou A., Ferekidou E., Kandiloros D., Manolopoulos L., Yiotakis I. Clinical outcomes of sinonasal inverted papilloma surgery. A retrospective study of 67 cases. *B-ENT.* 2010;6:111–116.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

8. Lund V.J., Howard D., Wei W.I. *Tumors of the Nose, Sinuses and Nasopharynx.* Thieme; Stuttgart, Germany: New York, NY, USA: 2014.
9. Lund V.J., Stammberger H., Nicolai P., Castelnuovo P., Beal T., Beham A., Bernal-Sprekelsen M., Braun H., Cappabianca P., Carrau R., et al. European position paper on endoscopic management of tumours of the nose, paranasal sinuses and skull base. *Rhinol. Suppl.* 2010;22:1–143.
10. Weber R.K., Hosemann W. Comprehensive review on endonasal endoscopic sinus surgery. *GMS Curr. Top. Otorhinolaryngol. Head Neck Surg.* 2015;14:Doc08. doi: 10.3205/cto000123.
11. Krouse J.H. Endoscopic treatment of inverted papilloma: Safety and efficacy. *Am. J. Otolaryngol.* 2001;22:87–99. doi: 10.1053/ajot.2001.22563.
12. Carta F., Blancal J.P., Verillaud B., Tran H., Sauvaget E., Kania R., Herman P. Surgical management of inverted papilloma: Approaching a new standard for surgery. *Head Neck.* 2013;35:1415–1420. doi: 10.1002/hed.23159.
13. Wang C., Han D., Zhang L. Modified endoscopic maxillary medial sinusotomy for sinonasal inverted papilloma with attachment to the anterior medial wall of maxillary sinus. *ORL J. Otorhinolaryngol. Relat. Spec.* 2012;74:97–101. doi: 10.1159/000336739.
14. Pasquini E., Sciarretta V., Farneti G., Modugno G.C., Ceroni A.R. Inverted papilloma: Report of 89 cases. *Am. J. Otolaryngol.* 2004;25:178–185. doi: 10.1016/j.amjoto.2004.01.004.
15. Eloy P., Mardyla N., Bertrand B., Rombaux P. Endoscopic endonasal medial maxillectomy: Case series. *Indian J. Otolaryngol. Head Neck Surg.* 2010;62:252–257. doi: 10.1007/s12070-010-0076-7.
16. Healy D.Y., Jr., Chhabra N., Metson R., Holbrook E.H., Gray S.T. Surgical risk factors for recurrence of inverted papilloma. *Laryngoscope.* 2016;126:796–801. doi: 10.1002/lary.25663.
17. Landsberg R., Cavel O., Segev Y., Khafif A., Fliss D.M. Attachment-oriented endoscopic surgical strategy for sinonasal inverted papilloma. *Am. J. Rhinol.* 2008;22:629–634. doi: 10.2500/ajr.2008.22.3243.
18. Lombardi D., Tomenzoli D., Butta L., Bizzoni A., Farina D., Sberze F., Karligkiotis A., Castelnuovo P., Nicolai P. Limitations and complications of endoscopic surgery for treatment for sinonasal inverted papilloma: A reassessment after 212 cases. *Head Neck.* 2011;33:1154–1161. doi: 10.1002/hed.21589.
19. Lutfullaev G.U./ “Diagnosis and treatment of benign pharyngeal tumors”. Dis. med.nauk. Tashkent, 2012, S. 65-85
20. Lutfullaev G.U./ “Clinic, diagnosis and modern treatment methods benign tumors of the nasal cavity and paranasal sinuses" Dis. med.nauk/ Tashkent, 2004 -S. 82
21.Kobilova Sh. Sh., Lutfullaev G. U., Valieva N. K., Khamraev F. Kh. Clinical Features of the Course of Exudative Otitis Media in Benign Neoplasms of the Nose, Paranasal Sinuses and Nasopharynx / American Journal of Medicine and Medical Sciences, 2021 11(8), 569-571. (in Russ)
22.Kobilova Sh.Sh., Lutfullaev G.U., Ortikov A.A. Nasal, ear, neurological symptoms and comparative assessment of methods for diagnosing benign tumors of the nasopharynx / Problems of biology and medicine, 2020. No. 5 (122), 60-63 (in Russ)
23. Kraft M., Simmen D., Kaufmann T., Holzmann D. Long-term results of endonasal sinus surgery in sinonasal papillomas. //Laryngoscope.- 2003.-V.113.-N9.- P.1541-1547.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

24. Krouse J.H. Development of a staging system for inverted papilloma. //Laryngoscope.- 2000.- V. 110.- N 6.- P.965-968.
25. Krouse J.H. Endoscopic treatment of inverted papilloma: safety and efficacy. //Am J Otolaryngol.- 2001.- V.22.- N 2.- P.87-99.
26. Landsberg R., Cavel O., Segev Y., Khafif A., Fliss D.M.Attachment-oriented endoscopic surgical strategy for sinonasal inverted papilloma.//Am J Rhinol.-2008.- V.22.- N 6.- P.629-634.
27. Lawson W., Ho B.T., Shan CM., Biller H.F. Inverted papilloma a report of 112 cases. //Laryngoscope.- 2005.- V.105.- P.282-288.

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