Giant Rhinosinusal Inverted Papilloma

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ABSTRACT: Sinonasal papilloma is a benign tumor, derived from Schneiderian sinonasal epithelium. There have been described three histological subtypes: inverted, oncocytic and exophytic. The case presented here is a 66-year-old male patient, which was hospitalized in our Otolaryngology Department for a giant tumor, that was exteriorized from the left nostril, repeated epistaxis, nasal obstruction and anosmia. The computed tomography scan revealed an iodophilic and non-homogeneous tumor, with areas of necrosis, which included the entire left nasal cavity, with extension to the rhinopharynx and the left maxillary sinus. We completely removed the tumor by an endoscopic maxillectomy, with the subsequent histopathological examination revealing an inverted papilloma, with areas of low grade dysplasia and also areas with oncocytic Schneiderian papilloma. At the six-months postoperative control, there was no tumor recurrence. Major issues of this type of tumor is fast invasion capacity and numerous local recurrence. More recent studies have shown that these relapses are often overdue tumors.

KEYWORDS: Inverted papilloma, medial maxillectomy, recurrences, malignancy potential

Introduction

The Schneiderian epithelium of the nose and paranasal sinuses is at the origin of sinonasal papilloma, which is a benign tumor, from the anatomopathological point of view.

It has three histologically distinct subtypes: inverted, oncocytic and exophytic, each having different clinical characteristics, despite some similarities between them [1].

Ward described for the first time the sinonasal papilloma in 1854 [2], followed by Reingertz, in 1935, who establish the first histological description of the inverted papillomas subtype [3].

Over time, there have been used many different terms to describe these three subtypes of papillomas, until 2005, when the World Health Organization established the sinonasal papillomas subtype classification in the form we use today [4,5].

The inverted papilloma is a rare tumor, representing up to 4% of all sinonasal tumors.

Most of the tumor cases reviewed in the medical literature are located unilaterally and have a higher incidence in men, in their 5th decade of life [6].

The etiology of inverted papilloma is still disputed; there are numerous theories incriminating viral infections as human papillomavirus (HPV) or Epstein-Barr virus, smoking, allergies or chronic local inflammation.

The oncocytic papilloma variant is the rarest subtype, with an incidence of only 3-5%, and small potential for malignant transformation [7].

Case report

We present the case of a 67-year-old male patient, which was hospitalized in the Otorhinolaryngology (ENT) Clinic of the Clinical Emergency Hospital of Craiova for a one year history of nasal airway obstruction, mucopurulent rhinorrhea, repeated epistaxis and anosmia.

Symptomatology had an insidious debut and worsened in its evolution, ending with the exteriorization of a polypoid tumor from the left nasal cavity.

Clinical examination revealed an irregular, polypoid tumor, that showed areas of bleeding, covered with mucopurulent secretions, and which completely obstructed the left nasal cavity (Fig.1). Rhinopharyngeal endoscopy revealed that the tumor occupied almost the entire nasopharynx.
Fig.1. Irregular, polypoid tumor, that shows areas of bleeding, covered with mucopurulent secretions, completely obstructing the right nasal cavity

We decided to perform a computed tomography (CT) of the nose and paranasal sinuses, examination that was performed using a Toshiba Astelion Advance, with intravenous administration of contrast medium (iohexol, Omnipaque 350mg). The CT showed an iodophilic and non-homogeneous tumor, with areas of necrosis, which included the entire left nasal cavity, with extension to the rhinopharynx and the left maxillary sinus. No osteolytic changes have been seen in the skull bones, that might have suggested a malignant tumor (Fig.2).

Fig.2. Axial sections, contrast-enhanced-tumor with areas of necrosis, which includes the entire left nasal cavity, with extension to the rhinopharynx and the left maxillary sinus

We completely removed the tumor through an endoscopic medial maxillectomy, under general anesthesia with orotracheal intubation, collecting the fragments for histopathological examination (Fig.3).

The macroscopic description of the tumor mass removed from the nasal cavity was of multiple fragments varying between 0.6cm and 5.2cm, the largest fragment exhibiting a relatively homogeneous, white-yellow appearance.

Fig.3. Tumor specimen after surgery
All the tissue was fixed in 4% neutral buffered formalin and routinely processed for paraffin embedding and sectioning as 4µm thick sections, in the Pathology Department from the Emergency County Hospital Craiova. Sections were processed for Hematoxylin and Eosin staining, dehydrated, cleared, and coverslipped in a xylene-based mounting medium.

Microscopy evaluation revealed upper respiratory mucosa (Fig.4) showing at the level of the lamina propria, a papillary epithelial proliferation with endophytic pattern, consisting of stratified squamous epithelium (Fig.5) with intermixed regions of columnar epithelium (Fig.6).

Also, we noticed small cysts containing polymorphonuclear neutrophils (PMNs) and/or necrotic detritus, disposed on the inner regions of the epithelial tumoral islands (Fig.7).

Some regions exhibited also low grade dysplasia (Fig.8-9).
Taking together these features, histopathological evaluation established a final diagnosis of inverted papilloma, with areas of low grade dysplasia, and also of areas with oncocytic Schneiderian papilloma.

Postoperative evolution was favorable, the patient was released from hospital two days after surgery and received oral antibiotherapy for 7 days, as well as local treatment with saline nasal spray and topical steroids. Six months postoperative control, which consisted in clinical, endoscopic and CT examination, did not reveal any tumor recurrence.

A written informed consent was obtained from the patient regarding his agreement to publish these data.

**Discussions**

The large number of classifications we found for a case of sinonasal papillomas shows that, from the beginning, these tumors were controversial from the point of view of etiology or histological subtypes characteristics [8].

Thus, Hyams et al. classified the nasal papillomas, using histological features that are currently still used, in three classes as (i) inverted, (ii) fungiform, and (iii) with cylindrical cells [7]. Barnes and Bedetti have continued Hyams’ research, insisting on the description of the histological features of the cylindrical cell papilloma, a form which they have reclassified as being oncocytic [5].

The final classification to be considered comes from 2005, being established by the World Health Organization. Despite histological resemblances, it is important to establish a precise diagnosis, because the three subtypes of rhinosinusal papillomas have different clinical and evolutionary characteristics.

Although classified as benign tumors, sinonasal papillomas have potential for malignant transformation, most often associated in the past with inverted papillomas. More recent studies report malignant transformations in the case of oncocytic Schneiderian papillomas [1,9,10].

Major issues with this type of tumor is its fast and aggressive local invasion capacity, and numerous local recurrences, the recurrence rate of inverted papillomas being between 15-20% [10].

In 2006, Roh et al. [11] have demonstrated, based on a study of 54 patients diagnosed with inverted papilloma, that smoking and not human papilloma virus (HPV) infection may be the leading cause of relapses, noting that the smokers group had a ten times higher incidence of relapses than the non-smokers group. The recurrence rate did not showed statistically significant differences between the group of patients with HPV infection and the rest of the patients. Other studies have shown that these relapses are often overdue tumors. The average time of recurrences after surgery for inverted papillomas is of 41 months [10,12,13].

The treatment of choice for inverted papilloma is surgical resection. In choosing the right surgical technique for this tumor, it is necessary to take into account many factors, such as localization, size and extension of the tumor, information we obtain from the endoscopic and imagistic examination. The indications of surgical techniques have suffered a lot of changes in recent years. Twenty years ago, the most commonly used surgical technique was medial maxillectomy with ethmoidectomy through external paralateronasal approach [14].

At present, due to the improvement of instruments and endoscopic techniques, the endoscopic approach is the gold standard for inverted papilloma [15,16].
The benefits of choosing these approach are: reduced morbidity, decreasing the duration of surgery and the hospitalization period, and absence of unaesthetic incisions.

In the present case, the unilateral tumor and the older age of the patient made us eliminate from the beginning nasal polyposis as putative differential diagnosis, directing us to the diagnosis of inverted papilloma or antrochoanal polyp. Also, the repeated epistaxis was suggestive for papilloma.

We perform a CT-scan of the nose and paranasal sinuses, in order to evaluate the insertion and the extension of the tumor and to help us choose the right surgical technique.

Despite the suspicion of an inverted papilloma and the large volume of the tumour, that would have required a classic open approach, we have decided to perform an endoscopic medial maxillectomy, due to the images provided by the CT scan, which gave us the certainty of a complete resection through this approach.

Conclusion

We consider that the prognosis and long-term evolution of this case were favorable, due to the localization of the tumor, which allowed its complete resection, thus reducing the chances of any local relapse.

References