MALIGNIZED SINONASAL INVERTED PAPILLOMA – COMMENTS ON A CLINICAL CASE

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Abstract

Inverted papilloma is a sinonasal benign tumor characterized by the tendency to recurrence and the possibility of malignant transformation. The authors present the case of a malignized inverted papilloma in the form of a squamous cell carcinoma with ethmoidal location and extension towards the sphenoid and the nasal fossa. The loco-regional tumor location and extension imposed the postponement of the surgical intervention, the first therapeutical line being represented by chemotherapy, followed by the total excision, under endoscopic check-up, of the remaining tumor formation.

Keywords: sinonasal inverted papilloma, malignancy, multimodal oncologic treatment

Introduction

Rhino-sinusal papillomas have created controversy ever since they have been described by Ward in 1854 on the name, etiology and pathogenesis [1]. They are found in three forms: exophytic, inverted and cylindrical.

Inverted papilloma is a benign condition, frequently unilateral, defined by 3 clinical features: tendency to recurrence, the capacity to destroy the adjacent structures and the possibility of malignant transformation.

Inverted papilloma has its origin in the ethmoid, most commonly in the lateral nasal wall and the ethmoid infundibulum, with variable extension towards the maxillary, sphenoid or frontal sinus region [2].

The etiology of the inverted papilloma remains uncertain, a number of factors being involved including HPV, Epstein Barr virus, allergens, atmospheric pollution, chronic sinusitis [3]. HPV is a virus with epithelial tropism, involved in premalignant and malignant lesions. In the case of inverted papilloma, there have been identified both low-risk subtypes of malignisation (HPV 11 and 6) and the ones with high risk of malignisation (HPV 16 and 18).

Clinically, inverted papilloma is characterized in particular by unilateral progressive chronic nasal obstruction syndrome, other inconstant symptoms being represented by unilateral rhinorrhea, epistaxis, cephalalgia or epiphora.

Within the ENT clinical examination, the inverted papilloma appears like a unilateral polypoid mass, irregular, friable, that bleeds a little to the touch, of reddish gray color. The extension of the lesion can be assessed by imaging methods (CT or MRI), but the accurate
diagnosis is based on the histopathological and immunohistochemical examination.

The surgical treatment of the inverted papilloma can be performed by endoscopic surgery, classical surgery or combined approach. The contraindications of the endoscopic surgery are represented by the extensions of the inverted papilloma in the lateral part of the frontal sinus, the supraorbital recess, or in the case of the orbital or endocranial extension [4]. IP can be staged after the model of Krouse and, depending on the staging, one can choose the best type of surgical approach.

Case Presentation

The authors present a case of malignized sinonasal inverted papilloma with its clinical and therapeutical features.

NI patient aged 50, known with HTN stage I, is admitted to the Institute of Phonaudiology and Functional ENT Surgery “D. Hociotă”, with a tumor formation localized in the left nasal fossa, biopsied into another ENT service.

From the patient's history we retain that the first biopsy was performed a year before, in an ENT outpatient department, with histopathological results of inverted papilloma. After 9 months, the biopsy of the tumor formation localized in the left nasal fossa was repeated in an ENT ward with collection under endoscopic check-up. The results of the histopathological and immunohistochemical tests established the diagnosis of non-keratinizing squamous cell carcinoma, of papillary type.

At the time of presenting to our clinic, the patient accused left chronic nasal obstruction and left serosanguinolent rhinorrhea. The ENT clinical and endoscopic examination highlights, in the left nasal fossa, a vegetant tumor formation, bleeding to the touch, with soft consistency, pulsating in the left posterior ethmoid and in the left sphenoid sinus.

CT and MRI imaging examinations with contrast enhancing agent revealed a tumor formation having the sizes of 3/3,5/4 cm, extended to the left infratemporal fossa, with a tendency to cerebral invasion, which comes into contact with the left cavernous region and with the left carotid canal (Figure 1).

This malignized inverted papilloma falls into Krouse staging system as being a T4 stage and in TNM staging, as being a T4aN0Mx stage.

Given the loco-regional extension of the tumor formation and a high risk of surgery, specialized oncological treatment is considered. After 3 courses of polychemotherapy with Docetaxel 140 mg and Cisplatin 120 mg, the patient returns to the clinic for clinical and imaging revaluation. CT examination for check-
up shows a significant reduction in the size of the tumor formation, with the starting point to the posterior ethmoid, this being highlighted in the posterior third of the left nasal fossa, with extension in the left sphenoid sinus, on the front, medial and posterior wall, having a maximum size of about 1/1.5/2 cm, irregularly contoured, having direct contact with the nasal septum and with the left inferior nasal concha (Figure 2).

Figure 2 – CT scan showing the significant reduction of the tumor

Under endoscopic check-up, the complete tumor ablation is performed by left posterior ethmoidectomy, by highlighting the sphenoid recess and by sphenoidotomy with drilling towards the lower part of the front sphenoid wall (Figure 3, 4). A sinonasal tumor formation of granulomatous appearance is highlighted, that extends up to the left optical carotid recess that is sent to histopathological examination.

Figure 3 – Drilling the front wall of the left sphenoid sinus

Discussions

In front of a case of rhino-sinusal tumor, initially IP (according to the biopsy in the outpatient department) which subsequently malignized, our therapeutical attitude consisted of chemotherapy treatment initially, with the aim of tumor reduction. The onset of the surgical treatment in this case was burdened by multiple intra and postoperative complications due to the endocranial tumor extension.

After the chemotherapeutic treatment, it was obtained a marked tumor reduction which determined our subsequent therapeutic conduct – surgical ablation. By the endoscopic surgical techniques, we managed to perform the full ablation of the tumor formation.

The histopathological result of the piece of ablation, confirmed also by the immunohistochemical tests, was of non-keratinizing squamous cell carcinoma, of papillary type.

We considered necessary an active directly observed therapy of the patient to 1, 3, 6 months, without ascertaining the tumor remaining or recurrence (Figure 5).

The inverted papilloma, also known as the schneiderian papilloma, transitional cell...
papilloma or Ewing tumor, predominates in white males aged over 50 years, the epidemiological data confirmed also in the present case.

It has not been demonstrated the existence of a connection between the number of recurrences or the recurrence interval and the malignant transformation of the inverted papilloma [5]. In the specialty literature, there are studies that show a relapse rate of 10-80% and a malignisation rate of 5-30%.

Budu et al. reports a relapse rate of IP of 16.04% and a malignisation rate of 7.4%, in a study of 162 cases over a period of 15 years and a follow up period between 1 and 12 years [6].

A multicenter study of 113 patients, conducted over a period of 15 years by Lee CH et al. reports a survival rate to 5 years in patients with malignized IP of 59.5%, with a recurrence rate estimated to 34% [7].

We face a case that started a year before, with a diagnosis of inverted papilloma, waiting 9 months up to a new evaluation, when it was ascertained the evolution in size of the tumor. Thus, it is decided the collection of a new biopsy sample but under endoscopic check-up.

The histopathological appearance of stromal polymorphous inflammatory infiltrate, covered by malpighian epithelium, which invaginates into the underlying stroma, forming sub-epithelial crypts presenting nuclear cell atypia and mitotic activity, pleads for the diagnosis of inverted papilloma. The immunohistochemistry test detects the presence of diffuse positive CK34βE12 in the tumor epithelium, negative p16, diffuse positive p53 and positive Ki67 in the nuclei throughout the thickness of the tumor epithelium (80%), indicating a non-keratinizing squamous cell carcinoma, of papillary type, by the malignant transformation of an inverted papilloma.

First-line treatment for a malignized inverted papilloma consists in the complete surgical endoscopic resection, if the location and extension allow it, followed by radiotherapy and / or chemotherapy [8]. Unfortunately, in our case, there was another delay of three months, in which the tumor has grown, thus at the moment of the presentation, the surgical intervention was contraindicated and for the first line treatment the chemotherapeutic one was chosen.

The surgical course was initially postponed in this case due to the extension and relation to the structures that present a vital risk: the left infratemporal fossa with a tendency to cerebral invasion, the left cavernous region and the left carotid canal. The oncological service where the patient was treated opted for a scheme of polychemotherapy with Docetaxel and Cisplatin. The 3 courses of polychemotherapy had a favorable evolution leading to a considerable decrease of the tumor formation, which allowed the performance of a surgical procedure with ablative and oncological purpose of the remaining tumor. The surgical treatment aims both the complete tumor ablation, of the adjacent mucosa, and the removal of the periosteum, by drilling the neighboring bone areas.

The monthly endoscopic examinations conducted in the first 3 months, as well as the active directly observed therapy of the patient confirmed the absence of the tumor in the left ethmoid-sphenoid, and therefore we considered completed the oncological treatment for the current stage. The active directly observed therapy of the patient shall continue according to our protocol up to 5 years.

Conclusions

In front of a tumor with the diagnosis of premalignant lesion, the treatment should be
instituted immediately. The treatment of a rhino-sinusal tumor – malignized inverted papilloma is usually multimodal: surgical, chemotherapeutic and / or radiotherapeutic.

At the time of the precise diagnosis – malignant tumor, we have decided to start a chemotherapeutic treatment, and after a marked decrease in tumor size, the endoscopic surgery allowed the total ablation of the malignized inverted papilloma.

Our conduct in relation to a malignized inverted papilloma consisted of specialized oncological treatment (chemotherapy, surgery) followed by the active directly observed therapy of the patient.

References