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Adenoid Cystic Carcinoma of the Paranasal Sinuses: A Case Report

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Abstract

Adenoid cystic carcinoma (ACC) is a rare malignant tumor of the salivary glands that may, in exceptional cases, develop within the paranasal sinuses.
We report the case of a patient presenting with unilateral nasal obstruction associated with recurrent epistaxis, in whom investigations led to the diagnosis of an adenoid cystic carcinoma of the maxillary sinus.
Treatment consisted of surgical excision followed by adjuvant radiotherapy.
The outcome after 18 months was favorable, with no local recurrence or metastasis.

Keywords: Adenoid cystic carcinoma, maxillary sinus, sinonasal tumor, endonasal surgery, radiotherapy, recurrence.

Introduction

Adenoid cystic carcinoma (ACC) is a malignant epithelial tumor characterized by slow growth but marked local invasiveness. It predominantly arises in the major salivary glands and, less commonly, in the minor salivary glands of the upper airways.
Sinonasal localization remains exceptional but poses a major diagnostic and therapeutic challenge due to the complex anatomy of the region and the proximity of vital structures such as the orbit and skull base.
We report a case illustrating the multidisciplinary management of this rare localization.

Case Report

A 27-year-old man, with no significant medical history, presented with **right orbital swelling** associated with **ipsilateral nasal obstruction ,** evolving over 10 months , along with episodes of **epistaxis** and **ipsilateral maxillary pain** (figure1)

Figure1: Preoperative clinical photograph swelling right orbital swelling

Endoscopic examination revealed a **friable polypoid mass** filling the middle meatus and extending toward the nasopharynx (figure 2)

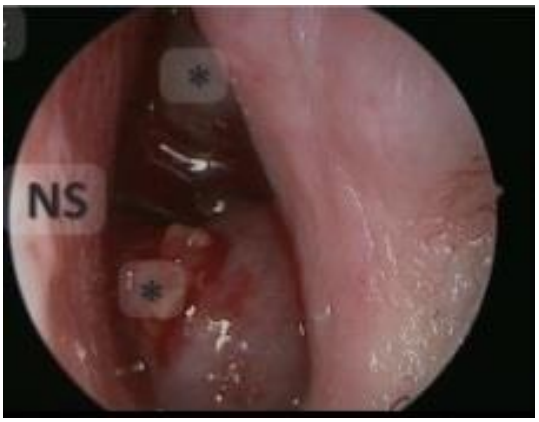
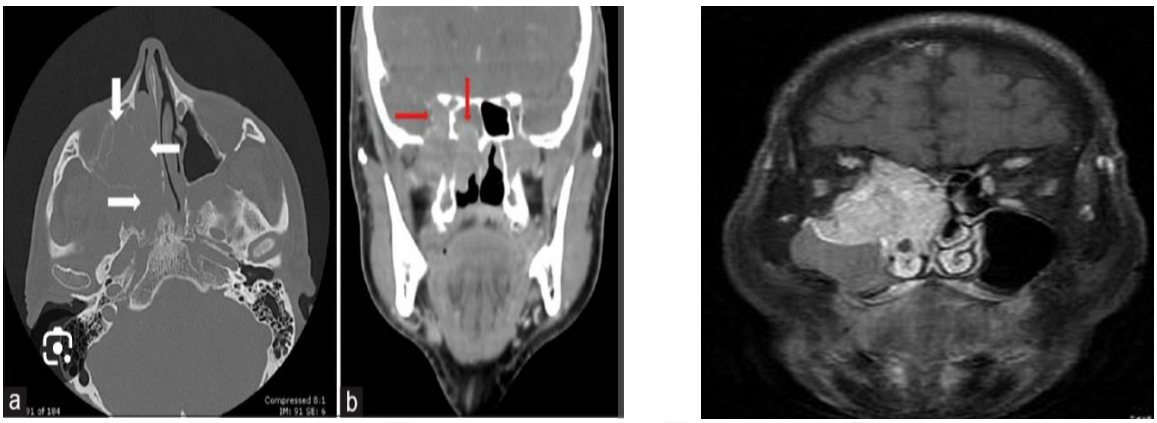


Figure 2 : Endoscopic view showing a friable polypoid mass in the right middle meatus

CT scan of the sinuses showed an aggressive right naso-ethmoidal process with extraorbital extension, involving the right internal carotid artery in its intracavernous portion and extending intracranially to the right fronto-temporal region.

MRI confirmed a malignant right naso-ethmoido-orbital tumor with intracranial extension. (Figure 3 and 4)



“CT scan revealing an aggressive mass in the right maxillary sinus’’
a . “Axial CT image showing tumor invasion of the right maxillary sinus”
b. “coronal CT scan demonstrating tumor extension into adjacent structures”

D . “ MRI showing tumor extension into the right naso-ethmoido-orbital region with intracranial involvement ‘’

An endonasal biopsy revealed a malignant glandular proliferation organized in cribriform and tubular structures, consistent with adenoid cystic carcinoma.

The patient underwent endonasal surgery assisted by image-guided navigation, achieving macroscopic complete excision of the tumor.

Histopathological examination confirmed the diagnosis of adenoid cystic carcinoma of the maxillary sinus, cribriform type, with perineural invasion and close resection margins. (figure 5)

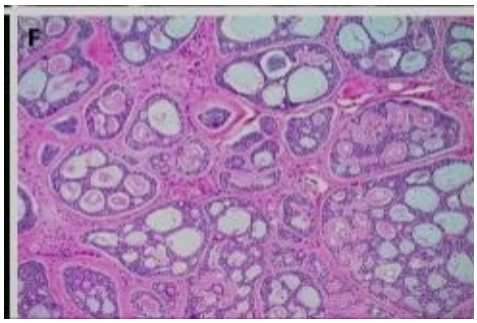


Figure 5 : Histopathological image showing cribriform and tubular patterns consistent with adenoid cystic carcinoma

Adjuvant radiotherapy (66 Gy) was administered. After 18 months of follow-up, no local recurrence or distant metastasis was observed.

Discussion

Malignant tumors of the paranasal sinuses are rare, accounting for less than 1% of all cancers.
Among them, adenoid cystic carcinoma is distinguished by its slow but highly infiltrative growth, which often leads to delayed diagnosis.
Clinical symptoms are nonspecific: nasal obstruction, epistaxis, facial pain, sometimes exophthalmos or facial hypoesthesia due to perineural invasion.
Diagnosis relies on histopathological examination showing the characteristic cribriform or tubular pattern.
Imaging (CT and MRI) is essential for evaluating loco-regional extension and planning surgery.
The mainstay of treatment is surgical excision with tumor-free margins whenever possible. Adjuvant radiotherapy is indicated in cases of close margins, bone invasion, or perineural spread.
Chemotherapy has not shown significant benefit.
Prognosis is dominated by the high risk of local recurrence and late pulmonary metastases, which can occur several years after the initial treatment.
Long-term clinical and radiological follow-up is therefore mandatory.

Conclusion

Adenoid cystic carcinoma of the paranasal sinuses is a rare but highly invasive malignancy.
Diagnosis is based on biopsy and histopathological analysis.
Surgery—ideally performed endonasally with navigation assistance—combined with radiotherapy remains the best therapeutic approach.
Long-term and rigorous follow-up is essential to detect any local or metastatic recurrence.

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