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Sinonasal adenocarcinoma in a patient without exposure to risk factors

Case report and review of the literature

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Sinonasal adenocarcinoma in a patient without exposure to risk factors. Case report and review of the literature

OBJECTIVE: *Sinonasal adenocarcinoma is a tumor typically associated with exposure to occupational carcinogens. The International Agency for Research on Cancer (IARC) published several data in order to classify carcinogenic power of physical-chemical agents as far as sinonasal cancer is concerned.*
MATERIALS AND METHODS: *We report a clinical case of sinonasal adenocarcinoma observed in an 84 years old patient, without clinical history of past exposure to carcinogens, smoke and alcohol.*
RESULTS AND CONCLUSIONS: *A sinonasal adenocarcinoma in a patient without risk factors is extremely rare. It is very important to recognize this cancer at an early stage in order to give better survival rates to the patients.*

KEY WORDS: Carcinogens, Intestinal-type adenocarcinoma, Sinonasal cancer

Introduction

Adenocarcinomas of the nasal cavity and paranasal sinuses are rare tumors that occur sporadically, accounting for 10% to 20% of all primary malignancies of this area[1] and representing less than 1% of all malignancies [2] .They may be primary neoplasms, frequently from salivary glands, or distant metastasis from kidney, lung, gastrointestinal tract, breast, testis and pancreas.

A particular type of primary sinonasal adenocarcinoma is Intestinal Type Adenocarcinoma (ITAC), responsible for less than 4% of total malignancies in this region. It is usually indistinguishable from typical adenocarcinomas of the colon, showing columnar, mucus-producing cells [3,] although the expression of CK7 has been proposed as a possible immunohistochemical marker [4].
The incidence is prevalent in males, with an average age of 55-60 at the time of diagnosis[1], and with a strong expression in patients exposed to occupational risk factors . The International Agency for Research on Cancer (IARC) has included several carcinogens for the development of ITAC: substances used in wood processing and furniture production, manufacture and repair of footwear, production and use of isopropyl alcohol and formaldehyde as well as exposure to chromium and nickel: the time between the first occupational exposure and the development of the disease averages 40 years, and

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the most common sites are the nasal cavity and the ethmoid sinus.
The mechanism by which the carcinogenic substance penetrates into the para-nasal cavities consists in the temporary reversals of the flow of drainage of mucus generated during the acts of forced expiration (for example in blowing the nose).
These reversal of mucous flow would favourite the entry and deposit of carcinogens in the para-nasal cavities, initiating a long process of neoplastic transformation. A recent Spanish systematic review supports a causal association with the occupational exposure to wood dust, showing that it increases the risk of adenocarcinoma of the sinonasal cavity by 900 times [5].
They are clinically aggressive and usually diagnosed in advanced stage, with a mortality rate of about 53% [4]. This can be probably due to the nonspecificity of the symptoms, such as nasal obstruction, epistaxis and rhinorrea, so these cancers may be undetected for long periods before diagnosis. Tumor grade also plays an important role in defining the prognosis: in a paper published from Orvidas et al., age and tumor grade were associated with overall survival, as well tumor grade and intracranial extension were associated with death from disease[2].
Regardless of the degree of the differentiation, all forms of ITAC should be considered locally aggressive [6]. The primary treatment for these patiens remains surgery. A recent analysis over 1826 patients showed that endoscopic nasal resection can be a safe alternative to conventional craniofacial resection in selected cases [7], and a Greek study demonstrated how a specific nasal packing medicated with cortisone and antibiotic can improve the outcomes in terms of haemostasis and inflammation [8].
Residual nests of tumor cells are suspected to be responsible of the high rate of recurrance (50%) [5], that can be limited by adiuvant radiotherapy and photootherapy [9].

Case Report

A 84 years old patient came to our clinic: he was non-smoker and non-drinker, and he had worked in civil service. The patient consulted an otolaryngologist because he had a feeling of "nasal fullness".
Physical examination revealed a pinkish-whitish translucent mass, occupying the left nasal cavity, that did not produce a bad smell.
On specialist advice the patient underwent a CT scan without contrast of the nose and paranasal sinuses, which showed total obliteration of the left nasal cavity and maxillary and ethmoid sinuses ipsilaterally (Fig. 1).
A biopsy was performed, which showed signs of necrosis with presence of eosinophilic cells and neutrophils in the absence of cellular atypia or mitotic figures.

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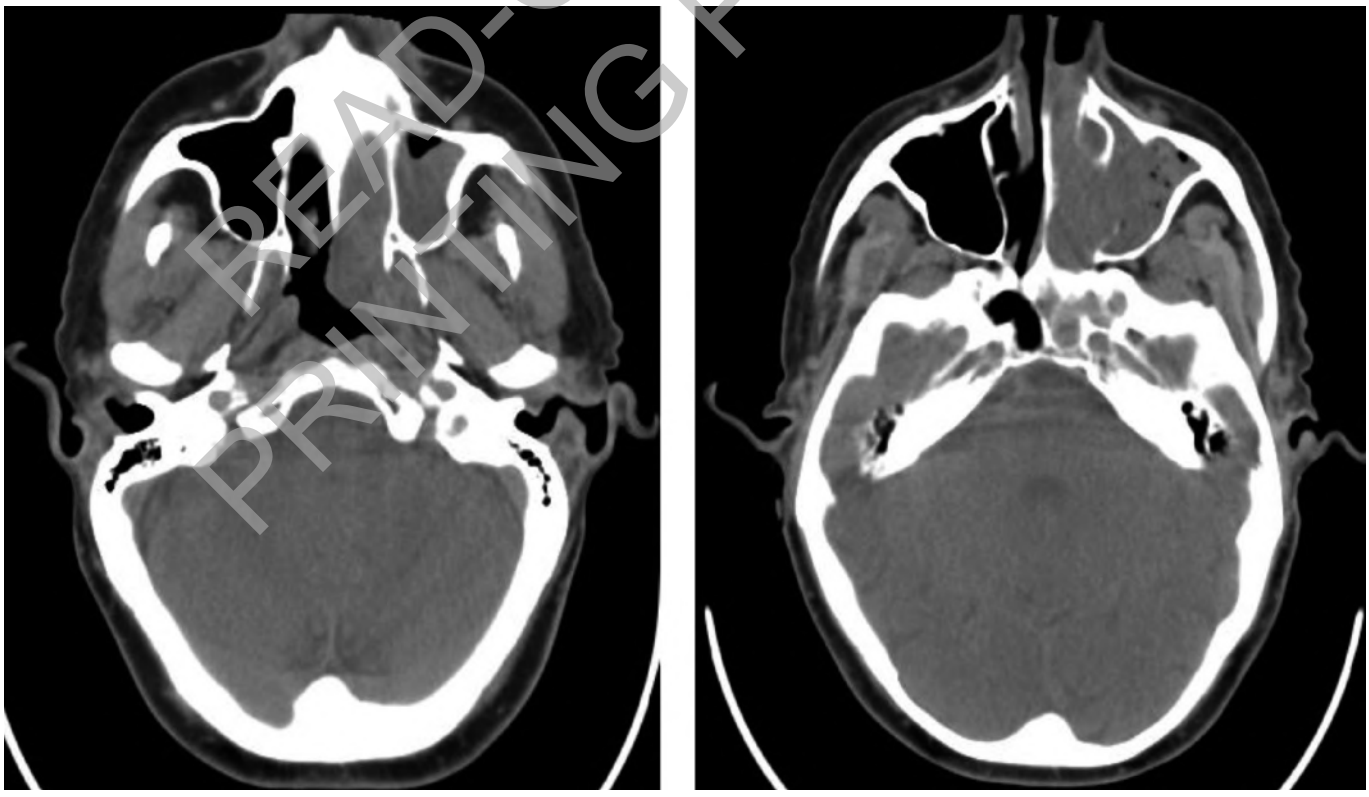

Fig. 1

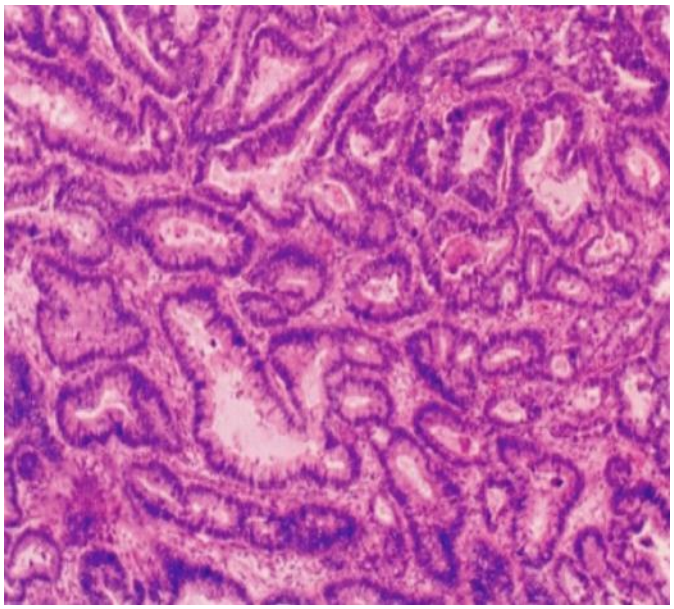

Fig. 2: Sinonasal Adenocarcinoma (H&E X 200).

15 days later a second biopsy was performed, which confirmed the results of the previous one. However, in the execution of the second biopsy, the specialist felt bad smell, not previously present, from the nasal cavity affected by the neoplastic process. For this reason it was prescribed appropriate antibiotics and serial washings of the nasal cavities.
Through a rhino-fiberscope, under local anesthesia, a third biopsy was performed, including the nasal cavity, the middle and inferior turbinates and the ostium of the left maxillary sinus. The outcome of the third biopsy was "adenocarcinoma of intestinal type" (Fig. 2).
A second total body CT scan with contrast was recommended. This defined the extent of the initial tumor to the nasopharynx, not extending through the midline, and not metastatic to other districts.
The subsequent oncology consult proposed, given the advanced age of the patient, instead of a demolitive surgery, a chemio-radio therapy.
After 10 months from the diagnosis, at completion of the cycle of chemotherapy, the tumor mass was significantly reduced in both the CT and endoscopy control.

Discussion and Conclusions

The nasal and paranasal cavities represent the site most affected by sinonasal cancer. Squamous cell carcinoma is the most common histologic type, and the presence of adenocarcinoma, particularly into the paranasal cavity, is very rare.
The localization of this type of neoplasm is mainly observed in patients previously exposed to professional risk for this disease. According to IARC, a previous and constant exposure to certain toxic chemical-physical agents plays a central role in the pathogenesis of this type of cancer.
The present clinical case has revealed the rare occurrence of sinonasal adenocarcinoma in a patient with no previous exposure to risk factors.
The rare finding of these tumors in patients not occupationally exposed, requires greater attention of the specialist in identifying the lesions at an early stage.
The need of differential diagnosis among more frequent inflammatory phenomena of the sinuses is of particular importance to avoid missed diagnosis. In this case the treatment of the neoplasia, in the metastatic phase and in old patients, it's often impractical for the demolitive action that radical surgery should maintain.

Riassunto

OBIETTIVI: L'adenocarcinoma naso sinusale è una neoplasia tipicamente associata all'esposizione di sostanze cancerogene occupazionali. Lo IARC (International Agency for Research on Cancer) ha pubblicato differenti tabelle che classificano, in base a studi e ricerche effettuate, le sostanze fisico-chimiche il base alla loro capacità di sviluppare il cancro nasosinusale. Numerosi ed approfonditi studi attribuiscono a questo tipo di neoplasia, un carattere prevalentemente occupazionale.
MATERIALI E METODI: Nel nostro lavoro, descriviamo un raro caso clinico di adenocarcinoma nasosinusale osservato in un paziente di 84 anni, senza storia clinica di pregressa esposizioni a cancerogeni occupazionali, fumo ed alcool.
RISULTATI E CONCLUSIONI: trovare un adenocarcinoma nasosinusale in un paziente senza fattori di rischio è un'evenienza molto rara. È molto importante riconoscere il cancro, quando questo è ancora in fase iniziale, per poter dare una possibilità di sopravvivenza a questi pazienti.

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