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Nasal Tuberculosis: An Atypical Location

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Abstract **Case Report**

Tuberculosis is still endemic in developing countries. Nasal tuberculosis is a rare chronic infection, it remains a diagnostic challenge. We report the case of a 59-year-old female patient with multifocal tuberculosis (nasal, pulmonary, and lymph nodes). The revealing symptom of her illness was a progressive nasal obstruction with anosmia and intermittent pus discharge through the lacrimal duct. The diagnosis was retained in view of the epidemiological context, chronic crusted and purulent rhinitis that did not improve with antibiotics, presence of granulomatous lesions on nasal biopsy and detection of acid-alcohol resistant bacilli on direct examination of bronchial aspirates. The patient was treated with antituberculosis therapy for 9 months with complete recovery. Given the resurgence of tuberculosis in recent times, it is important that clinicians remain aware of this rare and treatable clinical entity.

Keywords: Nasal tuberculosis, case report, diagnosis challenge.

INTRODUCTION

Tuberculosis is still endemic in developing countries. The lung is the preferred site for tuberculosis. Nasal tuberculosis is a rare chronic infection [1-3], it is usually secondary to other pre-existing foci in the body and rarely primary. This disease remains a diagnostic challenge, it is characterized by a polymorphic and non-specific clinical presentation, often posing a problem of differential diagnosis [3].

We report the case of a 59-year-old female patient with nasal tuberculosis revealed by anosmia, in order to describe the clinical and paraclinical presentation and the therapeutic management of this rare disease.

PATIENT AND OBSERVATION

The patient was 59 years old, with no particular pathological history and had been presenting for 2 years a progressive nasal obstruction with anosmia and intermittent pus discharge through the lacrimal duct, associated with exertional dyspnea, without any other associated respiratory or extra-respiratory signs, all evolving in a context of apyrexia and decline of the general state.

It should be noted that the patient had taken antibiotics repeatedly but without clinical improvement. The pleuropulmonary examination was normal. The rest of the somatic examination did not reveal any abnormalities,

Frontal chest radiography had objectified left basal reticular and micronodular opacities with mediastinal enlargement. Nasal endoscopy showed Inflammatory and bleeding mucous membrane on contact with crusts present. Nasal biopsy was performed twice (a few months apart) and each time it showed a granulomatous reaction with epithelio-giganto-cellular proliferation without caseous necrosis.

The standard biological workup showed a slightly elevated C-reactive protein at 15 mg/l, the blood count showed 86900 elements/mm3 of white blood cells, with a slight lymphopenia (1340 elements/mm3), a Hemoglobin of 13g/dl, and correct platelets (243000 elements/mm3). Diabetes was discovered incidentally by a fasting blood glucose level of 1.37 g/L. A possible systemic disease such as vasculitis or sarcoidosis should be eliminated, so an immunological assessment was performed and came back negative, such us neutrophil anti-cytoplasm antibody (p ANCA, c ANCA), Antic-nuclear antibodies (ANA), Anti native DNA, Rheumatoid factor, Anti-cyclic citrullinated peptides (anti CCP II) and antibodies against soluble nuclear antigens of the SS-A or SS-B type. Blood and urine phosphocalcic levels, as well as angiotensin-converting enzyme levels, were

within normal range, and the salivary gland biopsy noted a non-specific grade I sialadenitis.

A chest CT scan had noted a Ground-glass opacity nodules and micronodules associated with supra- and sub-diaphragmatic lymphadenopathy. Sputum bacteriological samples were negative. On the other hand, bronchoscopy showed a lymphocytic bronchoalveolar lavage with the presence of acid-alcohol resistant bacilli on direct examination of the bronchial aspirates, and a positive geneXpert test (molecular test for tuberculosis).

The diagnosis of multifocal tuberculosis (pulmonary, nasal, and lymph nodes) was established based on the following evidence: epidemiological context, chronic crusted and purulent rhinitis that did not improve with antibiotics, presence of granulomatous lesions on nasal biopsy, negative sarcoidosis assessment, negative immunological evaluation (ANCA), and detection of acid-alcohol resistant bacilli on direct examination of bronchial aspirates.

The patient received a four-drug antituberculosis therapy consisting of isoniazid, rifampin, ethambutol, and pyrazinamide for 2 months, followed by a two-drug therapy consisting of isoniazid and rifampin for 7 months, with a good clinical outcome.

DISCUSSION

Nasal tuberculosis is a rare chronic infection [1, 2], which can be primary through inhalation or secondary to another distant location, as in the case of our patient. In the upper respiratory tract, the nose and paranasal sinuses constitute the anatomical region most resistant to tuberculous invasion, due to their unique epithelial architecture and bactericidal secretions. This explains the rarity of nasal tuberculosis [4]. It represents 2.6% of extrapulmonary locations [5]. Women seem to be more affected than men [1-3], with a median age of 40 years [6]. Nasal tuberculosis is usually unilateral, but in one-third of patients, it can be bilateral. The symptoms are poor and nonspecific. Smell disorders are rarely reported in the literature. Most patients present with obstruction, nasal discharge, epistaxis, crusts, pain, dryness of the nose and throat [7-9]. The lesion can be proliferative, infiltrative, or ulcerative. It usually affects the nasal septum first, followed by the anterior segment of the inferior turbinates, paranasal sinuses, choana, nasopharynx, orbit, and cranial cavity [10].

Radiological signs are not specific. The purpose of imaging is to establish a lesion assessment and monitor the evolution under treatment (Figures 1 & 2).

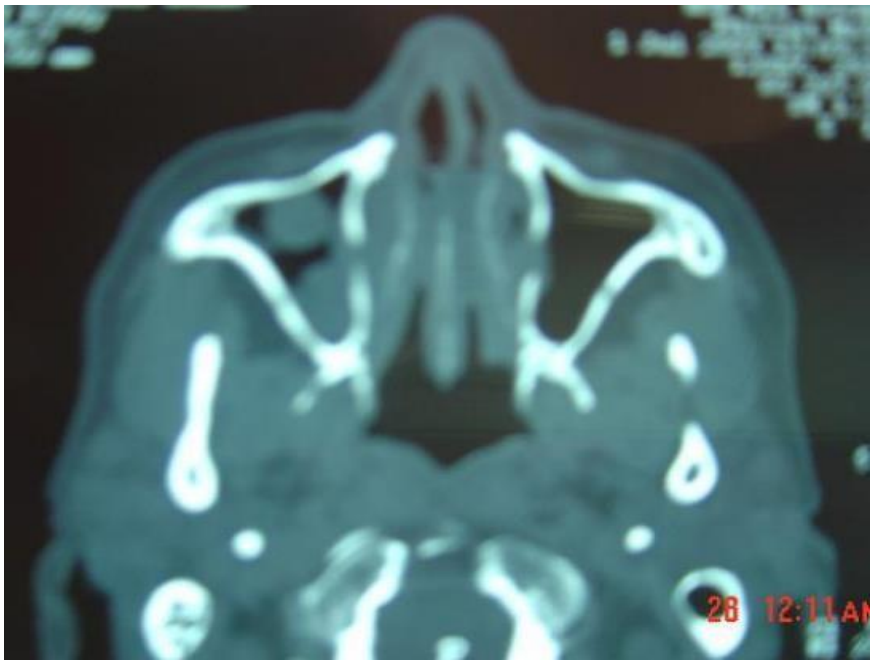

Figure 1: CT scan of the facial mass showing filling of the right maxillary sinus with nasosinus polyps [5]

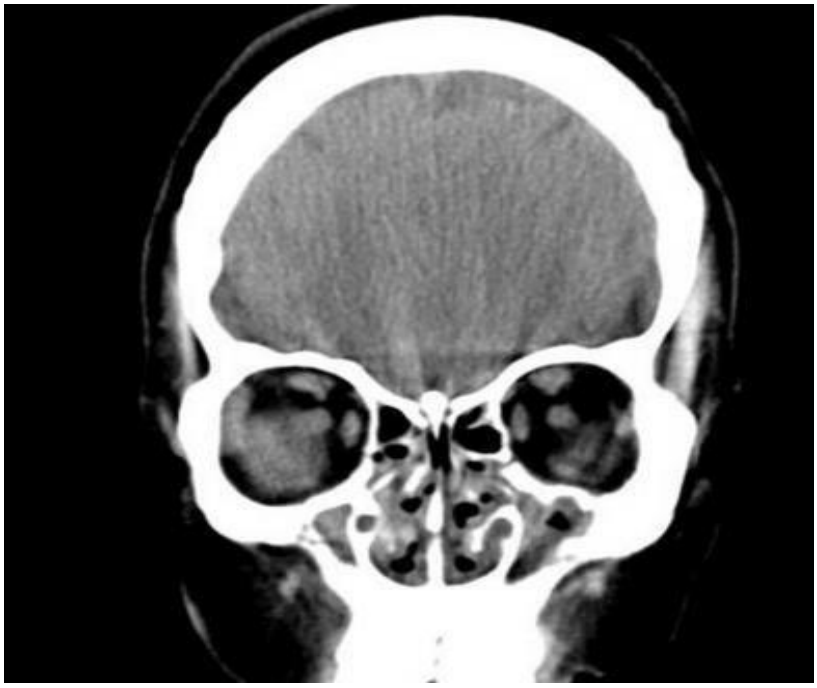

Figure 2: Coronal CT slice showing bilateral pan sinusitis with a mamelon-like appearance at the nasal turbinates [11]

The histological examination of the nasal biopsy reveals an epithelioid and giant cell granuloma with caseous necrosis (Figure 3). It should be noted that granulomas caused by tuberculous bacilli tend to have more giant cells and a greater number of epithelioid cells than those caused by other diseases. In the case presented, the biopsy of a non-caseous granuloma created confusion and contributed to the diagnostic delay. However, it should be noted that these non-caseous granulomas can be precursors to the classic form observed in tuberculosis (TB), and their mention in the pathology report should prompt the clinician to maintain TB on the list of differential diagnoses [12].

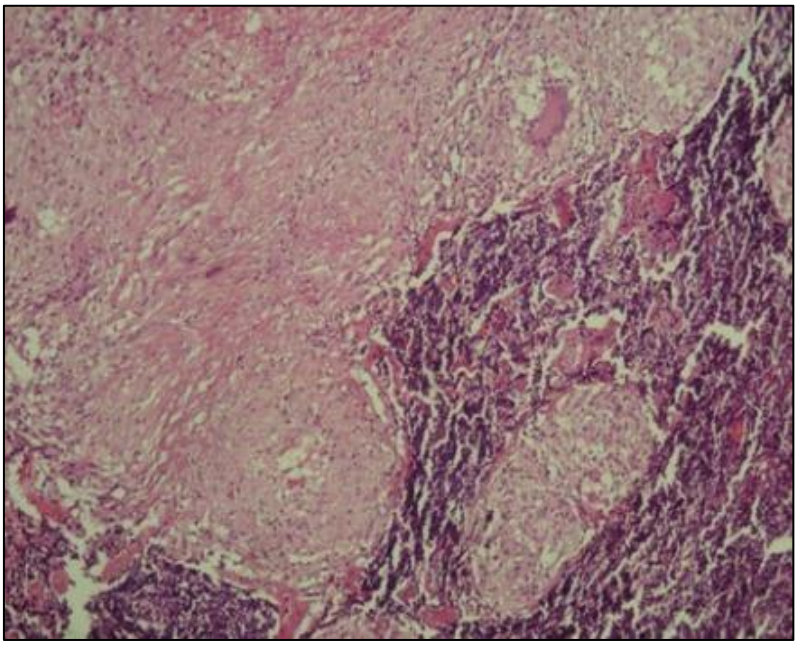

Figure 3: Photomicrograph of surgical specimen showing tubercular caseous necrosis (H&E; X100) [12]

The definitive diagnosis of nasal tuberculosis is based on histology and the detection of Koch's bacillus mainly through cultures on Lowenstein Jensen medium. In case of negative culture, PCR (polymerase chain reaction) offers the possibility of rapidly detecting Mycobacterial DNA [13].

The differential diagnosis includes chronic inflammatory processes such as sarcoidosis, Wegener's granulomatosis, infectious processes (fungal infection, syphilis...) or neoplastic processes [12].

Treatment is mainly medical [14] with antibiotics: isoniazid, rifampicin, pyrazinamide and ethambutol for 6 to 9 months depending on the progression. The prognosis is generally good in the absence of other localizations [11].

CONCLUSION

Nasal tuberculosis is rare. Diagnosis is difficult and should be considered in the presence of any unexplained rhinological signs and resistance to usual treatment. The prognosis is favorable with early and classic antitubercular therapy.

Compliance with ethical standards

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