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CASE REPORT

Pulmonary tuberculosis with rhinosinusal and otic manifestations - diagnostic challenge

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ABSTRACT

BACKGROUND. Unfortunately, tuberculosis is still being diagnosed among patients, independent of their age, gender, provenance or social category. The etiologic agent of tuberculosis is Mycobacterium tuberculosis, which is known to have a period of latency between the initial infection and the clinical manifestation. The most common localization is pulmonary, but it can affect, secondarily, other organs, especially in the ENT regions, mimicking other systemic diseases.

MATERIAL AND METHODS. We are presenting a case of a 51-year-old female patient, who was referred to our ENT Clinic with the suspicion of Behcet's disease with rhinosinusal manifestations. She had a pulmonary assessment in another hospital, as she was known with left lung bronchiectasis, but the sputum samples were negative. The clinical otorhinolaryngologic examination together with the rheumatological assessment and the result of the nasal mucosa biopsy were suggestive for Behcet's disease and the patient received 6 weeks of Prednisolone. The specific immunologic tests (cANCA, pANCA, HLA B51) were negative. The patient returned to our clinic after 2 months, accusing symptomatology reacutization with right otorrhea and bilateral hearing loss aggravation. Nasal and rhinopharyngeal mucosa biopsies were repeated and the anatomopathological result was specific for tuberculosis.

RESULTS. She was referred to the Pneumology Service where she received the diagnosis of pulmonary tuberculosis with rhinosinusal and otic manifestations. Currently, the patient is under tuberculostatic treatment.

CONCLUSION. Extrapulmonary tuberculosis symptoms might be confused with other systemic diseases with rhinosinusal manifestations. Thorough examination and multidisciplinary approach are mandatory in order to establish a correct diagnosis followed by an appropriate treatment.

KEYWORDS: pulmonary tuberculosis, otitis, rhinosinusitis.

INTRODUCTION

Tuberculosis (TB) is considered a multisystemic illness, associated with non-specific symptoms and manifestations, which is able to affect any organs or tissues. In the developing countries, tuberculous infection represents an important health problem. The etiologic agent is Mycobacterium tuberculosis, which determines chronic granulomatous infections, and it may be identified through staining methods, such as classical Ziehl-Neelsen[1].

Tuberculosis is found among the top ten causes of death globally. In the year 2016, there were reported 6.3 million new cases of tuberculosis, whilst in 2017, 10 million persons got a TB infection, with 1.6 million deaths determined by this disease, mostly associated with HIV infection[2]. The development of multidrug-resistant tuberculosis (MDR-TB) represents a public health system crisis. The World Health Organization (WHO) indicated approximately 558.000 new rifampicin-resistant cases, rifampicin being considered the most efficient first-line therapy. WHO estimates a decrease in incidence of almost 2% every year, with the most important decrease inside Europe, with a reported 4.6% difference between the years 2015 and 2016[2,3].

From the data provided by the WHO Regional Office for Europe, Romania is a country with high priority in tuberculosis. According to the TB Mon-

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itoring and Surveillance Report in Europe in 2017, Romania was among the top 18 priority countries in the fight against TB in 2016 and had the highest incidence among the countries of Southeast Europe[4].

Pulmonary involvement is the most frequent form of tuberculosis and the most contagious. Extrapulmonary manifestations represent a health issue, because they are usually rare, in different localizations, but they are difficult to diagnose[5]. The most frequent form of extrapulmonary manifestations is cervical tuberculous lymph nodes involvement. Other common tuberculosis sites are represented by joints tuberculosis, miliary tuberculosis. In the ENT practice, the most common entities are cervical lymphadenopathies, the middle ear, the larynx, the pharynx, the nose and paranasal sinuses, the tonsils and the salivary glands localizations[5]. The symptoms and clinical aspects depend on the localization. Extrapulmonary tuberculosis is reported to occur in approximately 15-20% of all the cases of tuberculosis patients[6].

Tuberculosis of the middle ear and the rhinosinusal mucosa is not very frequent, though it is the second most common manifestation of tuberculosis infection etiology, diagnosed by ENT specialists, and it must be taken into consideration in the patients who develop painless otitis media. Usually, otitis media associated with tuberculosis infection has an insidious onset, with painless otorrhea[7,8]. Generally, the secretions from the ear are, at the onset, thin, odourless, and they become later rather mucoid, thicker. The insidious development of a painless otitis media, which is associated with moderate to severe hearing loss, should lead to a suspicion of tuberculosis involvement, which is the key in managing this disease[9]. Precocious diagnosis is able to initiate the treatment faster, in order to prevent the disease progression and complications.

Tuberculous involvement of the nose and paranasal sinuses is considered the most uncommon form of localized extrapulmonary tuberculosis[10,11]. The co-existence of the manifestations in a healthy adult is very rare and it is revealed in this case report. We are presenting a case of tuberculosis of the nose and paranasal sinuses and of the middle ear in an adult woman, apparently healthy, in order to mark the clinical manifestations of this disease.

CASE REPORT

We present a case of a 51-year-old female, without a past history of tuberculosis, who complained in September 2018 of bilateral hearing loss, more

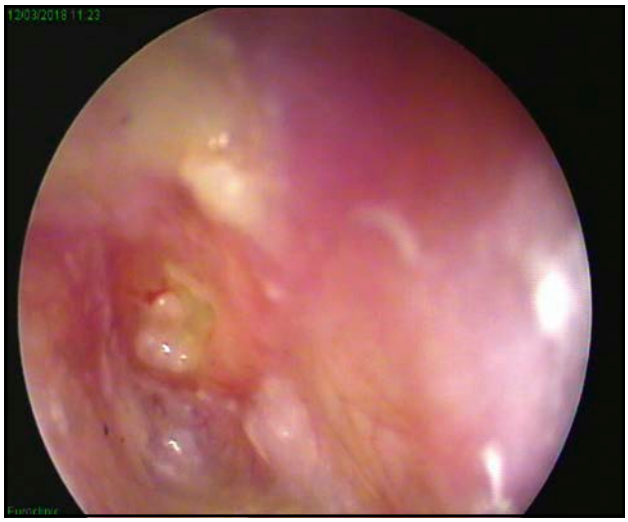

Figure 1 Left external auditory canal with granulation tissue on the superior wall, 0.5 cm anteriorly the tympanic membrane. Whitish, exophytic, round zone of ¾ mm in the antero-superior quadrant.

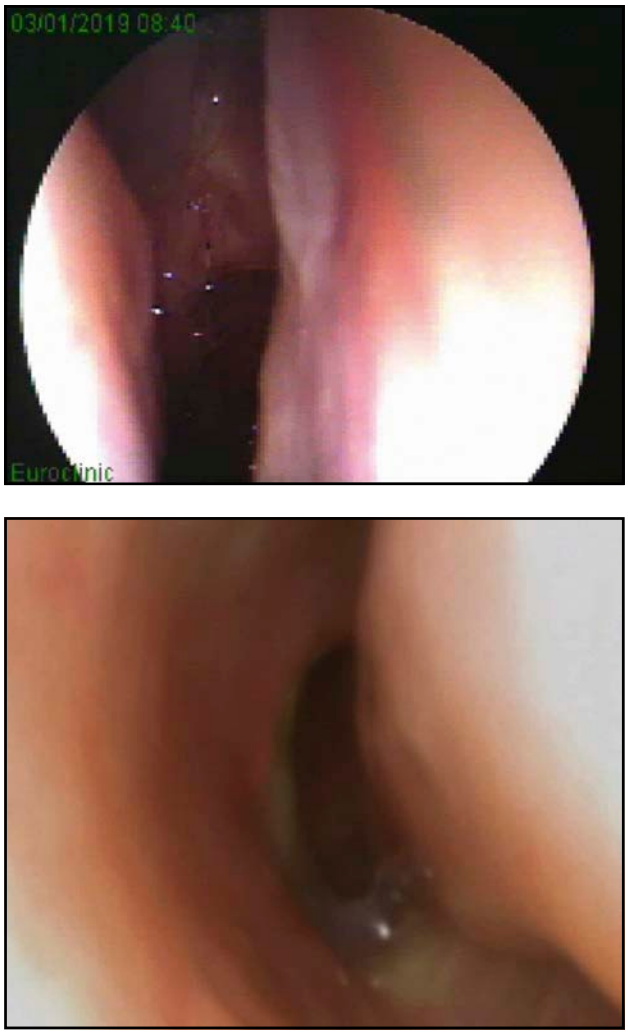

Figure 2 Nasal endoscopy aspect – mucopurulent nasal secretions, meliceric crusts.

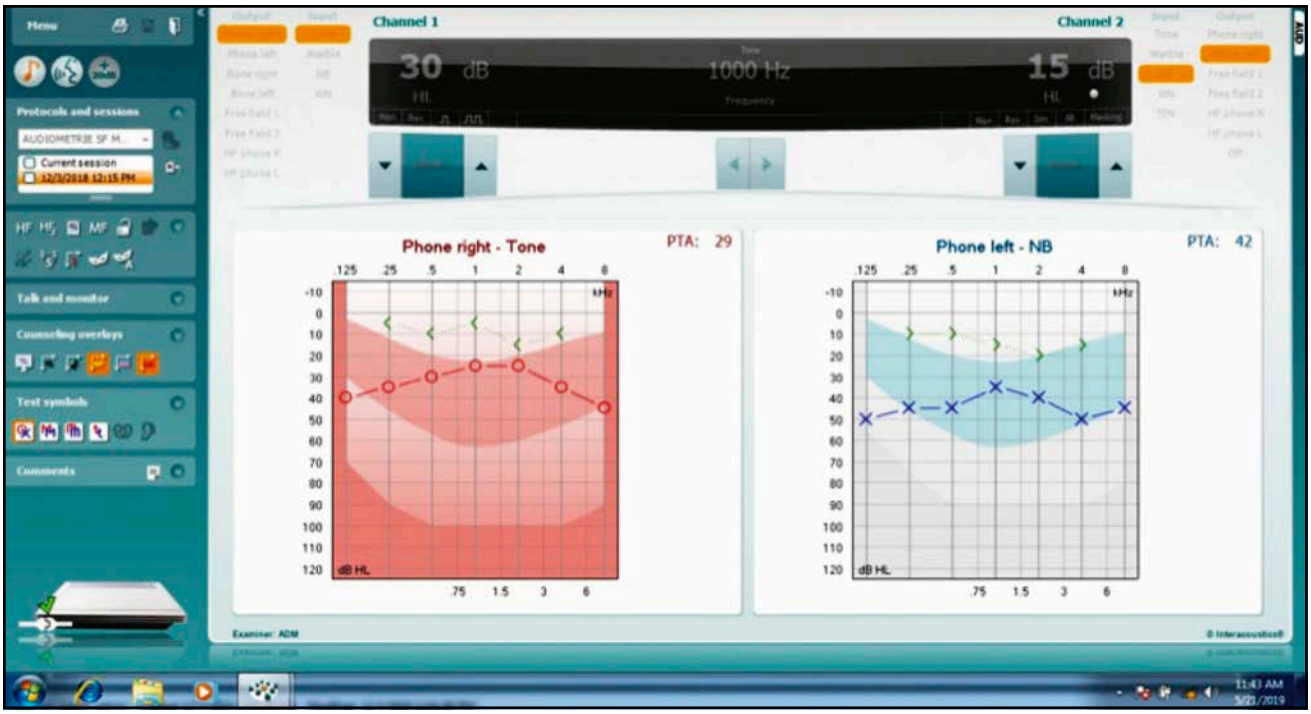

Figure 3 Tonal audiometry – bilateral mild conductive hearing loss.

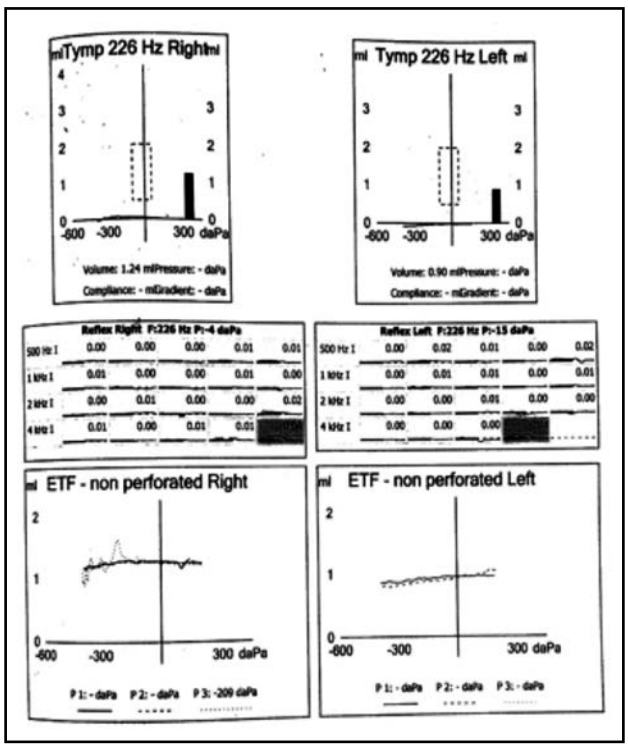

Figure 4 Tympanogram – bilateral B type curve, with severe Eustachian tube dysfunction.

on the left side, and postnasal drip. The diagnosis was recurrent chronic rhinosinusitis, with left chronic otitis and left lung bronchiectasis, the pulmonary condition having been diagnosed three years before. She underwent a treatment with oral antibiotics (macrolides) and oral corticosteroids (methylprednisolone) for 14 days, with slight symptomatic improvement, right after the treatment. Mucopurulent rhinorrhea ceased intermittently but started again after one month.

In December 2018, the patient was suspected of Behcet's disease with rhinosinusal and otic manifestations and she was admitted in our department.

On physical examination, we noticed granulation tissue in the left external auditory canal, on the superior wall, 0.5 cm anteriorly the tympanic membrane, with a whitish, exophytic, round zone of ¾ mm in the antero-superior quadrant of the tympanic membrane (Figure 1). The otic secretion was sampled for mycobacteriological examination, which did not reveal any sign of fungal or bacterial infection. The nasal mucosa presented purulent crusts and an ulcerative lesion of the middle turbinate (Figure 2).

The pure-tone audiometry revealed a mild bilateral conductive hearing loss (Figure 3), while the tympanogram indicated bilateral type B curve (Figure 4).

According to the rheumatology examination performed in our hospital, the specific immunobiological status, through HLA B51, cANCA and pANCA antibodies, was assessed. Nasal mucosa biopsy was also sampled and sent for histological examination. The histopathology of the nasal mucosa samples was: "nasal septum mucosa with par-

tial ulcerated epithelium with underlying fibrinogen necrosis and chronic inflammatory polymorph infiltration with the presence of lymphomonocytes, PMN and eosinophils - the histopathological aspect can be interpreted within the context of a Behcet's disease."

The rheumatological reassessment indicated a treatment with Methylprednisolone Sodium Succinate 250 mg/day, for three days. The evolution was favourable, with the ceasing of the symptoms. After the six-week treatment follow-up, she followed treatment with Prednisone and Colchicine 1 mg/day for 10 days.

In March 2019, the symptoms relapsed and worsened after cessation of Prednisone administration, along with the appearance of the right otorrhea and worsening of the left hypoacusis. Consequently, the results from the biological markers HLA B51, cANCA and pANCA antibodies previously sampled were negative and Behcet's disease was biologically infirmed.

The pulmonary X-ray revealed a fibronodular opacity located in the left infraclavicular area, with micronodular opacities in the left infrahilar region. The contrast-enhanced pulmonary CT scan showed "parenchymal bilateral pulmonary abnormalities, predominantly on the left, with, the most likely, TB infectious substrate". A mucosal sample was prelevated from the nasal and rhinopharyngeal mucosa.

Consequently, she was admitted in "Marius Nasta" Pneumophthisiology Institute from Bucharest. The diagnosis was established as secondary fibro-nodular pulmonary tuberculosis in the superior left pulmonary lobe, with BK direct examination negative; rhinosinusal tuberculosis, confirmed histologically, and left lung bronchiectasis. Consequently, she followed the standard anti-tuberculostatic treatment, which is still ongoing.

DISCUSSIONS

World Health Organization indicates 9 million cases of tuberculosis per year[1]. Extrapulmonary localization can determine the appearance of symptoms which are similar to other systemic diseases, with otic and rhinosinusal manifestations[5]. In order to establish a proper diagnosis, we must follow an extensive clinical and paraclinical examination, along with a multidisciplinary approach.

Tuberculosis is a contagious illness, which is transmitted by infectious droplets[1]. Rhinosinusal tuberculosis is usually transmitted directly in adult patients by infectious droplets from the patients with pulmonary tuberculosis. The most frequent manifestations are nasal discharge or stuffiness, crusting and nasal bleeding. In high-risk TB countries, tuberculosis should be taken into consideration in the patients with epistaxis, ulceration of the nasal fossae and vestibules, persistent nasal obstruction. The clinical examination could reveal exophytic or ulcerative lesions[6].

The entities which could be similar to rhinosinusal tuberculosis are syphilis, fungal infections, midline granuloma, rhinoscleromas and cancers[12]. Ziehl-Nielsen culture and staining are indicated in suspicious cases. The histopathological examinations remain the most important diagnostic methods for otic and rhinosinusal tuberculosis. Recently, polymerase chain reaction (PCR) has been proposed in the diagnostic scheme for tuberculosis, but its specificity remains to be fully determined[13,14].

Otic manifestations within the TB infection are represented by painless otorrhea, with multiple perforations of the tympanic membrane, important granulation tissues, temporal bone necrosis and hearing loss[7]. Usually, we observe conductive hearing loss, but, in case of delayed diagnosis and untreated disease, it may determine the appearance of sensorineural hearing impairment and peripheral facial nerve palsy[15].

The right diagnosis involves a thorough anamnesis, because a past of pulmonary tuberculosis infection is able to orientate the clinician in its therapeutic approach. In case of absence of pulmonary TB nodules and presence of granulomatous lesions, it is hard to establish a diagnosis in a proper manner.

Unfamiliarity with nasal and aural tuberculosis led to the delay in suspecting the etiology agent. The patient's good health was another factor contributing to the failure to consider an extra pulmonary tuberculous process. The symptomatology was atypical, without coughing or nocturnal sweats. The false positive therapeutic response to systemic corticosteroids determined a short diagnostic delay, as well as the personal history of left lung bronchiectasis in the past five years. The treatment in these cases is represented by the management of the underlying disease, typically with antituberculous drugs, such as isoniazid, rifampicin, pyrazinamide and ethambutol.

CONCLUSIONS

The existence of rhinosinusal and otic tuberculosis must be considered in the patients with persistent rhinosinusitis, fungal or bacterial external otitis, who do not respond to regular treatment.

Despite the development of diagnostic methods, rhinosinusal and otic tuberculosis are considered a challenge, because of the difficulties to obtain samples for the cytological and microbiological confirmation of the infection. Precocious diagnosis and correct treatment are able to prevent the otic and rhinosinusal complications, as well as the central nervous system dissemination.

Conflict of interest: The author has no conflict of interest to declare.

Contribution of authors: All authors have equally contributed to this work.

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