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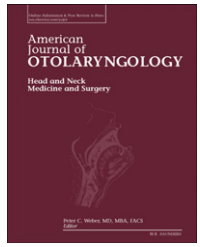

Neuro-otologic manifestations of tuberculosis. "The great imitator"

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ABSTRACT

Objective: To demonstrate the different neuro-otologic clinical presentations of tuberculosis.
Study design: Retrospective clinical analysis.
Result: 83.3% of the cases of ear or central nervous system TB were without concomitant lung disease. 2 cases had primary infection in the central nervous system. The neuro-otologic manifestation was as follows: 85.7% sensorineural hearing loss; 42% polyneuropathy. 71.4% had granulation tissue. 2 had normal otoscopy. In 6 patients the histopathology and Ziehl Neelsen were confirmatory. One case was confirmed by the positive response to treatment with antituberculosis drugs.
Conclusions: Tuberculosis has a wide variety of neurotologic manifestations from chronic otitis media cadres to vestibular, audiological and neurological manifestations as well as a large variability in imaging studies.

1. Introduction

Tuberculosis (TB) is in pulmonary pattern in 75% of the cases and extrapulmonary 25%, 10%–35% which corresponds to head and neck [1,2] affecting in the following order: 95% cervical lymphadenitis, and throat, tonsils, nose, ears, sinuses, salivary glands in 1% [3]. The otic TB Just coexite with pulmonary TB in 10-20% of the cases [4].

The otic TB affects pinna in 1% [5] and is cause of otorrhea in 0.05% to 0.09% [6]. The infection reaches the ear by the primary pathway: direct through the external auditory canal (EAC) and perforation of the tympanic membrane (TM) and Secondary implantation: retrograde aspiration through the Eustachian tube or hematogenous in 79% [7]. The classic features of the otic TB were described by Wallmer in 1953: painless otorrhea, multiple perforations of MT, exuberant

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Table 1 – Neuro-otologic manifestations of tuberculosis. "The great imitator"/ presentation of cases.

Case No.	Sex/ ages	Area affected	Evolution time	Manifestations	Positive findings	Diagnosis	Management
1	M/75	Left ear	2 months	Otorrhea, hearing loss, otalgia VII peripheral paralysis, left neck lymphadenopathy in zone II and III.	Full perforation, granulation tissue	histopathology ZN +.	Radical mastoidectomy + anti-tuberculosis drugs
2	M/18	Left ear	1 month	Otorrhea, otalgia, hearing loss, lymphadenopathy and involvement of cranial nerves II, III, V, VII. VIIII, IX, X, meningeal signs	Total perforation, granulation tissue.	histopathology ZN +.	Biopsy by cortical mastoidectomy + anti-tuberculosis drugs
3	M/26	Left ear	15 days	fever, drowsiness, unsteadiness, lateropulsión right sphincters loss control.	Normal Otoscopy, left Romberg	histopathology ZN +.	Biopsy by cortical mastoidectomy + anti-tuberculosis drugs
4	M/68	Left ear	1 year	Hearing loss, otorrhea, otalgia, tinnitus	15% TM Perforation, granulation tissue.	histopathology ZN +.	anti-tuberculosis drugs
5	M/35	Left ear	1 year	Hearing loss, otorrhea, otalgia, tinnitus, meningoencephalocele, cerebrospinal fluid fistula otic	complete perforation of TM with granulation tissue.	response to medical treatment with anti-tuberculosis drugs	Radical mastoidectomy + anti-tuberculosis drugs
6	M/26	Right ear cerebral abscess in temporal lobe	1 year	Right otorrhea, hearing loss, dizziness. New symptoms: intense, nausea, vomiting, headache.	exuberant granulation tissue occupying middle ear and external ear canal	ZN +	anti-tuberculosis drugs
7	F/36	inferior left Cerebellar peduncle	2 months	Normal Otoscopy, horizontal spontaneous nystagmus, Dix Hallpike: downbeat bilateral nystagmus inexhaustible. Romberg and left lateropulsión Fukuda. hypometric, disdiadocinesias	Normal Otoscopy, horizontal spontaneous nystagmus, Dix Hallpike: downbeat bilateral nystagmus inexhaustible. Romberg and left lateropulsión Fukuda. hypometric, disdiadocinesias	Stereotactic biopsy ZN +	Abscess drainage. Right radical mastoidectomy, lateral semicircular canal plasty

Fig. 1 – Case no. 1: Left ear, destruction of the mastoid air cells.

granulation tissue, hearing loss and bone necrosis. Skolnik et al. reported facial paralysis in 16% of cases and multiple MT perforations only in initial stages [8,9]. The main feature of the otic TB is the formation of granulation tissue in well pneumatized mastoid [10].

Complications include: profound sensorineural hearing loss (HL), cranial nerve palsies, especially facial nerve, abscesses, mastoid internal or external fistulas and intracranial complications. CAE cultivations are positive just in 5%–35% of cases because the presence of other organisms such as *Staphylococcus*, *Pseudomonas*, *Klebsiella*, *Proteus* and *Streptococcus* may interfere with the growth of the bacillus; negative PCR does not exclude the diagnosis [11].

To Weiner et al. TB treatment is not enough. In 2000 Sangeta et al. suggested that medical treatment is sufficient in uncomplicated cases, but in combination with surgery has a better prognosis [12].

2. Objective

To present the diversity of neurotologic manifestations of tuberculosis, one of the diseases more simulative disease of the head and neck.