

CASE REPORT

Tonic Tympanic Tensor Muscle Syndrome: About a Case at the ENT Unit of the Douala General Hospital

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Received: 19 April 2024 Accepted: 30 April 2024 Published: 17 June 2024

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Abstract

Tonic tympanic muscle syndrome is a little-known entity. It has been defined by Westscott et al as “an involuntary anxiety-based condition where the reflex threshold of muscle activity is reduced, causing frequent spasm.” [3] Epidemiologically, a multi-clinical study of 345 patients with hyperacusis found that 81.1% had S.T.M.T.T. [3], there was no gender predominance. Clinically, the major symptoms are painful hyperacusis, non-pulsatile click-type tinnitus, a feeling of fullness of the ear, headaches, dizziness in some cases. We present the case of a 54-year-old patient who presented with left painful hyperacusis and left click tinnitus. The symptoms started 2 years ago as a result of a more or less permanent state of stress. The purpose of this article is to present the originality of the case due to its rarity and the difficulties related to the diagnosis and management of this pathology in our environment.

Keywords: Tensor Tympanic Muscle, Tonic Eardrum Tensor Muscle Syndrome.

1. Introduction

The tensor eardrum muscle is a striated muscle about 20mm long, fixed between the sphenoid bone and the upper part of the hammer bone [1]. Its innervation is provided by the motor branch of the V3 of the trigeminal. It is made up of “slow tonic” fibers responsible for its contractility. Physiologically, in association with the stapedial muscle, its contraction stretches the tympanic membrane to cushion its oscillation amplitudes and exerts pressure on the oval window by pushing the base of the stapes into it. Impaired function of the tensor tympanic muscle (TTM) is the cause of a condition called tonic tympanic muscle syndrome (S.T.M.T.T) Several anatomists and researchers have carried out research

on M.T.T. for several centuries. Klockhoff for the first time, in 1979 associated the phenomena of tonic contraction of M.T.T. with a syndrome. [2] Westscott et al in 2013 defined Tonic Eardrum Tensor Muscle Syndrome as “an involuntary anxiety-based condition where the reflex threshold of muscle activity is reduced, causing frequent spasm.” [3] Although there is limited information regarding the epidemiology of S.T.M.T.T., Westscott et al, in a multi-clinical study of 345 patients with hyperacusis found that 81.1% had S.T.M.T.T. [3] Studies to date have not found a gender predilection, early data indicate that it may occur more frequently in the third decade of life. [4] Several risk factors such as anxiety and stress, anticipation of loud noises, clenching of the facial muscles to noises, stimulation of the ear canals have been implicated in

Citation: MINKA NGOM Esthelle Geneviève Stéphanie, Florent Dimitri Badang, Asmaou Bouba Dalil, *et al.* Tonic Tympanic Tensor Muscle Syndrome: About a Case at the ENT Unit of the Douala General Hospital. Open Journal of Otolaryngology. 2024;5(1):1-3.

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the occurrence of S.T.M.T.T. [5] These different factors are thought to be at the origin of a hypercontraction of the M.T.T. inducing neurogenic inflammation by the release of substance P and CGRP (Yamazaki et al in 2014) [6] leading to vasodilation and degranulation of mast cells [7] This syndrome combines several symptoms: painful hyperacusis, tinnitus that is sometimes throbbing, a feeling of fullness in the ear, headaches, pain around the temporomandibular joint [3]. Diagnosis is based on the observation of abnormal movements of the eardrum, synchronous with tinnitus, or by otoscopic clinical examination with a binocular microscope. Impedancimetry regains tympanic mobility synchronous with tinnitus. The management of patients with S.T.M.T.T varies depending on the severity of the symptoms and the patient's expectations. While there are no definitive guidelines, nor data regarding effectiveness, there are medical and surgical approaches to reduce symptoms. Several drugs have reportedly been used with reduced efficacy over time, including benzodiazepines, carbamazepine, botulinum toxin and orphenadrine citrate with varying mechanisms of action. The role of surgery is more clearly defined; the most common procedures are tenotomy and MTT section (Bhimrao et al). We report through an observation the case of

a tonic syndrome of the tensor tympanic muscle, revealed by painful hyperacusis and tinnitus. The case was treated in an environment with little tools and a good evolution. We will then discuss the case considering the literature.

2. Clinical Observation

This is a 54-year-old patient, married, factory worker, Catholic who consulted for a painful left hyperacusis of high intensity, permanent, aggravated by loud noises, without calming factors, associated with left tinnitus with click-like tinnitus, non-pulsatile evolving for 2 years, treated with analgesics taken in self-medication without favorable evolution. Multiple consultations were carried out without any amendment of the symptoms aroused. The medical history reverts to a long-term state of anxiety. Upon investigation of the systems, we found a sensation of fullness in the left ear, and headaches. Physical examination revealed: Normal otoscopy Conductive hearing loss: a negative rinne on the left and a lateralized Weber on the left with instrumental acoumetry. The rest of the physical examination was unremarkable. Paraclinical examinations were requested: Preliminary tone audiometry revealed left mild conductive hearing loss with an average hearing loss of 30dB.

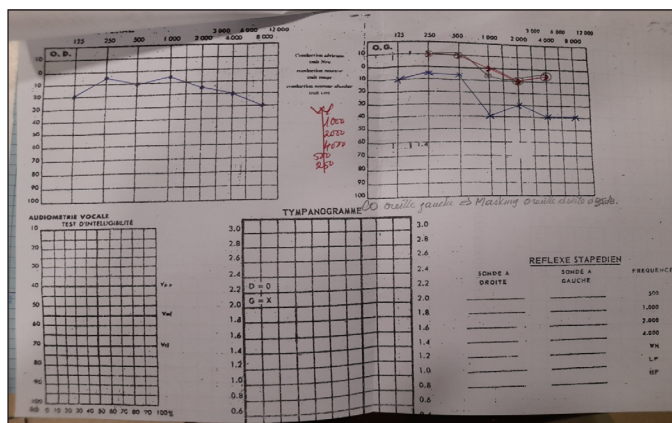


Figure 1. Liminal Tone Audiometry with Mild Left Conductive Hearing Loss

Impedancimetry showed an Ad “Eiffel Tower” curve and stapedial reflexes present on the left

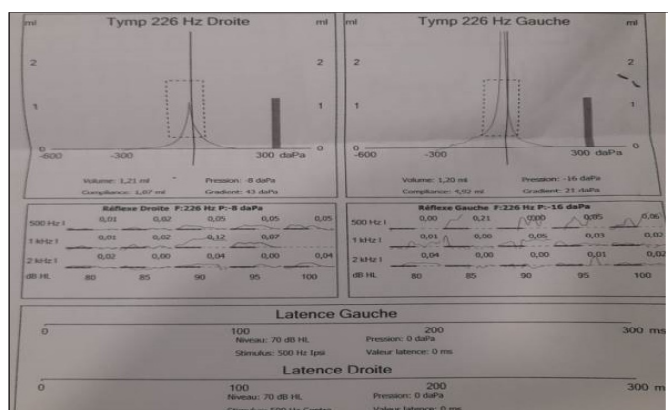


Figure 2. Impedancimetry showing an Ad curve

The CT scan of the rocks was normal. Diagnostic hypothesis: Rupture of the ossicular chain?

Tonic Eardrum Muscle Tonic Syndrome?

The indication for an exploration of the left eardrum case with section of the tensor tympanic muscle was established. Intraoperative findings: mobility of the stape, normal tympano-ossicular system, hypercontractility of the MTT Post-operative treatment: Antibiotic therapy: Ciprofloxacin drops: 06 drops x 2 /day for 10 days Amoxicillin + Clavulanic Acid 1g: 01cp x 2/day for 07 days Analgesics: Paracetamol 1g: 01 cp x 2/day for days Monitoring and post-operative course

7th postoperative day: disappearance of painful hyperacusis Tinnitus regression

14th postoperative day: favorable evolution of tinnitus in the process of regression 21st postoperative day: same Next appointment at 2 months post-operative

3. Discussion

The case presented is unique because of the rarity and difficulty of diagnosing this pathology. As things stand, there is very little epidemiological data.

Westscott et al, in a study looking at the prevalence of symptoms occurring in MTTTS showed 81.1% of patients with hyperacusis had at least one symptom of STMTT. [3] The symptoms in our patient were dominated by painful hyperacusis and non-pulsatile click-type tinnitus, other symptoms such as the feeling of fullness of the ear and headaches were also found, which corroborates the different studies carried out by Klockhoff et al in 1979[2], and Westscott et al in 2014 [3]. Anxiety and stress in our case were the main risk factors responsible for the hypercontractility of M.T.T., which was described by Blumenthal et al. [5] The intraoperative findings in our patient were hypercontractility, the management of our patient, consisted of a section of the M.T.T., which was also described by Bhimrao et al in 2012 [8]; The post-operative effects in our case were favorable.

4. Conclusion

The presentation of our patient's clinical case is unique in the fact that tonic tympanic tensor muscle syndrome is a rare pathology, the diagnosis and management of which remains a challenge. A good questioning, a thorough clinical examination and adequate paraclinical assessments make it possible to make the diagnosis and determine the next course of care.

5. References

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