Research Paper

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Objective Tinnitus as Essential Palatal Tremor, case report

Medical Science

KEYWORDS :

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ABSTRACT

Palatal myoclonus is known to be the most often described tinnitus of a muscular origin. This condition results from spontaneous spasms of the eustachian tube musculature. We are reporting a rare case of palatal myoclonus in a child that can be voluntarily induced, involuntarily continued and voluntarily seized. The aim of this case report is to emphasize that palatal myoclonus can be voluntary. The tinnitus recedes after the contraction of palatal musculature seized by the patient.

Introduction

Palatal myoclonus is a condition distinguished by an Involuntary rhythmic contraction of the palatal musculature secondary to spontaneous spasms of the Eustachian tube musculature. Objective tinnitus secondary to involuntary palatal myoclonusis seldom but yet it is a known condition. We present a case of the same presentation with a voluntary self-induction and self halted.

Case Report

A previously healthy 13-year-old male had complained of a "clicking" sound in both ears for nearly 1 year when his parents first observed that they could also hear the sound. Neonatal history, growth, and development were normal, and he had no history of head trauma, other aural complaints, or other neurologic symptoms. Family history was negative for similar complaint. On clinical examination audible tinnitus in both ears was noticed. No anatomic anomalies were observed. Pure Tone Audiometry and Tympanometry were normal. Neurologic examination was normal except for a high-pitched clicking sound that could easily be heard by the examiner when positioned within 30 cm of either ear of the patient. The sound was not altered with valsalva maneuver, mouth movements, or changes in head position, but remarkably, the sound was reproducible whenever the patient is requested to self induce it. Palatal Myoclonus was evident via oral cavity examination and also by endoscopic nasal examination. Laboratory studies were normal including complete blood count, antinuclear antibody studies, thyroid tests, and urine for homovanillic acid and vanillylmandelic acid. Brain magnetic resonance imaging was normal. During the several-scheduled follow up visits, the child appeared normal and not bothered by the tinnitus and performed well in school. The family was reassured, and no treatment was suggested.

Discussion

Objective tinnitus has been described as tinnitus that is not only heard by the patient but also heard and/or recorded by an observer. (1)

Categorized according to the originator site, mostly if the generator is either muscular or vascular in origin. (2) With the introduction of otoacoustic emissions testing, spontaneous otoacoustic emissions have also been described as a source of tinnitus. (3)

Objective tinnitus has been observed in patients with healthy ears perceiving their own spontaneous otoacoustic emissions. The tinnitus has been recognized by the presence of assessable acoustic signals in the ear canal, resulting from the spontaneous electromotility of a cluster of healthy outer hair cells. (3) Most individuals are unconscious of their own spontaneous otoacoustic emissions, some spontaneous emissions may be audible and may be perceived as objective tinnitus, principally if the spontaneous otoacoustic emissions fluctuates. (4) The occurrence of spontaneous otoacoustic emissions -caused tinnitus is quite low in individuals who report tinnitus, falling below 4% in patients with tinnitus who have normal hearing sensitivity. (5) The prevalence of spontaneous otoacoustic emissions -caused tinnitus was found to increase in subjects with head injuries, which proposes a correlation between physical or acoustic trauma, unusually active outer hair cell function, and tinnitus (6)

Another common source of objective tinnitus is vascular initiator sites. Frequently pulsatile in nature, objective tinnitus from vascular disorders is caused by such miscellaneous mechanisms as vascular neoplasm, arteriovenous malformations (8) glomus jugulare tumors (9), and venous hums.

Objective tinnitus is quite rare. Most tinnitus is subjective, i.e., only the patient perceives the signal. All types of tinnitus are less frequent and much more complicated to record in children than in adults. (10)

Tinnitus in children in general tinnitus studies usually is not reported, and epidemiologic studies of tinnitus often do not report data for younger populations. (11) The prevalence of tinnitus in children with normal hearing ranges from 3% to 36%; in those with hearing difficulties, from 3% to 64% (12).

Myoclonus is defined as sudden, brief, shock-like involuntary movements arising from the central nervous system. (13) Positive myoclonic jerks derive from rapid, active contractions of a muscle or group of muscles. Less common, a brief loss of muscle tone in agonist muscles followed by a compensatory jerk of antagonistic muscle groups produces negative myoclonus. (14)

Tinnitus of muscular origin is higher pitched than vascular sounds, and has a clicking quality. It is postulated that tremors of the soft palate generate secondary movements of the eustachion tube, which results in the clicking sound

Asterixis, as seen in hepatic encephalopathy, and stiff person syndrome are examples of negative myoclonus. (15)

It is essential to distinguish myoclonus from other hyperkinetic movement disorders, including tics, chorea, dystonia and tremor. (15) Tics can frequently be temporarily suppressed, a feature never seen in myoclonus. Tics are usually slower than myoclonus, and are often stereotyped and repetitive. They may be complex, involving multiple different noncontiguous muscle groups. (15)

The two distinct clinical entities, symptomatic palatal myoclonus and essential palatal myoclonus, arise from different pathophysiologic mechanisms. (16)

Symptomatic palatal myoclonus is usually associated with lesions located in the cyclonic triangle (the Guillain–Mollaret triangle). It consists of the red nucleus, inferior olive, contralateral cerebellar dentate nucleus, and the connecting pathways, specifically the central tegmental tract, the inferior cerebellar peduncle, and superior cerebellar peduncle. (17)

Symptomatic palatal myoclonus may be isolated or coupled with movements of the extremities such as tremor, choreoathetosis, and myoclonus (18)

In essential palatal myoclonus, as in our case here, ear clicks are considered as a presenting symptom and a major unique feature from symptomatic palatal myoclonus that is often associated with other manifestations.

Palatal myoclonus causes rhythmic movements of the palate and may be primary (idiopathic) or secondary (due to lesions in the Guillain-Mollaret triangle). Asymptomatic palatal myoclonus does not require treatment. In some reports, injection of botulinum toxin into the levator veli palatini and tensor veli palatini muscle was beneficial (19)

Palatal tremor (also called palatal myoclonus) can be classified as either essential or symptomatic. (20)

No treatment has been demonstrated to be successful although improvement with botulinum injection into the soft palate has been reported to ameliorate symptoms in two cases.

Carbamazepine, L-5-hydroxytryptophan, phenytoin, barbiturates, diazepam and trihexyphenidyl have been used in selected patients.

Conclusion

In this case, uniquely, the patient was able to induce the myouclonus with no obvious motor action but as mentioned by the patient he was able to start it. Our justification is that it could be induced while the patient was stressing the muscles group at the pharyngeal area. We would label it a Voluntarily Induced Palatal Myoclonus and then it would be involuntarily continued and voluntarily seized.

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