

“Please Stop The Music!": Oliver Sacks Syndrome and the Psychopathology of Hearing Loss

Lama Muhammad, M.D. , Pamela Arenella, M.D. , Davin K. Quinn, M.D.

Background

Musical ear syndrome (MES) or more commonly musical hallucinations (MH): have also been labeled Oliver Sacks syndrome, maybe because Dr. Sacks* was very interested in that, and he described in his book "Musicophilia", multiple cases of musical hallucinations.

(MES): is a form of auditory hallucination which involves hearing music when none is being played most common in people with hearing loss.

MES is more common in women. One hypothesis is that when a person's world becomes too quiet, the brain manufactures its own sounds based on auditory memories, to fill the void.

Patients with MH tend to have intact reality testing, and as such, the condition may also be described as musical hallucinosis.

The temporal course of MH is variable, but given that they may improve or remit with time, education on their benign nature is often sufficient. MH also may improve when hearing loss is reversed. (1)

Case Description

The authors describe a case of MH in a patient with bilateral sensorineural hearing loss, review the literature on its prevalence, etiologies, and treatments, and discuss MH in the context of other psychopathologies that frequently affect the hard of hearing (HOH).

A 51-year-old female presented for evaluation of chronic MH, not responsive to antipsychotics. Her MH started 7 years ago after developing hardness of hearing due to bilateral sensorineural hearing loss of unclear etiology. Initially in the course of illness she heard sounds such as buzzing or ringing (tinnitus), which then evolved into more complex voices, and eventually music consisting of hymns and carols. The patient's insight into the nature of the hallucinations remained intact, in that she did not believe they were real. Recent MRI was unremarkable for her age.



Discussion

Auditory hallucinations are subjective auditory experiences without external auditory stimuli, and are categorized as elementary or complex hallucinations. Tinnitus and buzzing are considered elementary hallucinations, while the perception of words, voices, and music are classified as complex hallucinations. (2)

Musical hallucinations occur in individuals with and without mental illness and represent a specific form of auditory hallucinations whereby patients experience formed music without an external source.

Most patients have insight into their condition and perceive the musical hallucinations as intrusive And occasionally unpleasant. (3)

Some authors defend that musical hallucinations may be an auditory form of the Charles Bonnet Syndrome (sensory deprivation leads to "release phenomenon" causing an abnormal activity in the otherwise normal segments of cortical music processing modules.

Oliver Sacks syndrome is not an example of psychotic but of a neurological, so-called "release" hallucinations. Given the deafness, the auditory part of the brain, deprived of its usual input, had started to generate a spontaneous activity of its own, and this took the form of musical hallucinations, mostly musical memories from patient's earlier life. The theory is that the brain needed to stay incessantly active, and if it was not getting its usual stimulation, whether auditory or visual, it would create its own stimulation in the form of hallucinations. There is no "cure" for musical hallucinations, but perhaps we could make them less intrusive. (4)

The pathogenesis of musical ear syndrome is therefore likely to be more complex than just sensory deprivation of the auditory cortex; disruption of inhibitory neural feedback mechanisms originating from the cochlear hair cells may possibly play a role. (5)

There is nono clear reason or cause , however multiple comorbidities have been associated with MES: Chronic hearing abnormalities (hypacusis), psychiatric illness (schizophrenia, depression, obsessive-compulsive disorder), focal brain lesions , multi-infarct dementia, Lyme disease, Listeriosis, Epilepsy, adverse effects of different pharmacological agents (Marijuana, tricyclic antidepressants, opioids, tramadol, benzodiazepines, ketamine, beta-blockers, carbamazepine, phenytoin, cannabinoids, Ranitidine). (6)

There is no curative treatment for musical hallucinations till now . Current treatment approaches are based on either removing potential inciting factors (hearing aids, treating underlying psychiatric disorder, stopping suspected causative medication, treating epileptic seizures, removing focal lesions if possible) or starting one of the medications reported to improve symptoms. (7)

Medications noted to ameliorate musical hallucinations include certain antipsychotics (olanzapine and quetiapine), antidepressants (fluvoxamine and clomipramine), antiepileptic medications (carbamazepine and valproate), and donepezil. (8)

In one study, 22 per cent of cochlear implant (CI)recipients were found to be experiencing symptoms of musical ear syndrome (5). Although the symptoms of musical ear syndrome were improved by CI in some patients, as in one of Dr. Sacks patients (4) , in others they developed only after implantation. (5) .

References

- 1-Colon-Rivera HA, Oldham MA, The mind with a radio of its own: Gen Hosp Psychiatry. 2014 Mar-Apr;36(2):220-4.
 - 2- Cascino GD, Adams RD. Brainstem auditory hallucinosis. Neurology (1986) 36:1042-710.1212/WNL.36.8.1042
 - 3- Vitorovic D, Biller J. Musical hallucinations and forgotten tunes – case report and brief literature review. Front. Neurol. 2013;4:109.
 - 4- Oliver Sacks : Musicophilia: Tales of Music and the Brain: Publisher : Knopf: 1rd ed : 2007
 - 5- W-K Low, C A Tham, V-D D'Souza and S-W Teng: MES in adult cochlear implant patients, The Journal of Laryngology & Otology / Volume 127 / Issue 09/September2013, pp 854-858
 - 6- Prommer E. Musical hallucinations and opioids: a word of caution. J Pain Symptom Manage. 2005;30:305-307.
 - 7- Evers S, Ellger T. The clinical spectrum of musical hallucinations. J Neurol Sci (2004) 227:55-6510.1016/j.jns.2004.08.004.
 - 8- Ukai S, Yamamoto M, Tanaka M, Shinosaki K, Takeda M. Donepezil in the treatment of musical hallucinations. Psychiatry Clin Neurosci (2007) 61:190-210.1111/j.1440-1819.2007.01636.x
- *Oliver Wolf Sacks: (9 July 1933 – 30 August 2015) was a British neurologist, naturalist and author who spent his professional life in the United States. He believed that the brain is the "most incredible thing in the universe" and therefore important to study.

Conclusion

Consultation psychiatrists should be aware of MH as a rare but expectable sequel of hearing loss, and target therapies appropriately to reduce the hallucinations themselves, reduce distress, and mitigate any hearing loss contributing to MH.

However it is clearly demonstrated above that we still do not have clear treatment to stop the music!