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Unilateral auditory hallucinations in a boy with ipsilateral conductive hearing loss

Unilateral auditory hallucinations in adults and adolescents are associated with contralateral CNS lesions and ipsilateral peripheral lesions. One nine year old boy was admitted to the child psychiatry inpatient unit after exhibiting self destructive and aggressive behaviour for two weeks at school. He attempted to burn himself on a radiator and to jab a pen-cil into his brain. He nestled his head, punched one teacher, and threw a chair at another without provocation.

Four years before admission he had tried to set a tree on fire. Two years before admission he had tried to set fire to his own bed on fire. He often shoplifted from the neighbourhood store and often fought siblings and peers. One month before admission his mother’s intoxicated boyfriend hit him hard on the chest, leaving marks.

He was conceived when his father raped his mother. The umbral cord was tightly wrapped around his neck at birth. His Appgar scores were 6 and 8. At birth he had a cleft soft palate, hyperbilirubinaemia, and sepsis with Streptococcus viridans and diphtheroids. At two and a half years of age his left palate was repaired. Platelet and myelogram tubes were placed to treat multiple episodes of otitis media. At four years of age a right hydrocele was repaired. At four and a half years of age audiological examination disclosed a right deafness, a mild deafness in the left ear, and a mild to moderate right conductive hearing loss. Both parents used street drugs. His father is a violent, abusive man who has not been involved in the family for many years. His mother was abandoned by her own mother and was raised in orphans. His mother had psychiatric admissions to hospital beginning in childhood, resulting in treatment with antipsychotic and anti-blocker drugs. No other family member was reported to have a hearing loss.

On mental status examination he had a moderately severe articulation deficit. He heard the voices of devils outside his head at night and during the day telling him to jump off the building and to kill himself. He heard the voices only in his right ear. He saw faces of devils, a rag doll that his mother had given him, Jason, a character in a horror movie, cockroaches that turned into red devils, and hell that looked like a fire surrounded by cockroaches. His right myelogram tubercles were disimncted from the cerumen and was removed. His left myelogram tube was patent and in place. The visual and auditory hallucinations continued unabated. Audiograms showed normal left hearing and a mild right conductive hearing loss at 1 kHz and 4-8 kHz and improved to normal hearing at 1.5-5 kHz. His EEG was normal.

The visual and auditory hallucinations and suicidal and homicidal ideation stopped a few days after starting treatment with the antipsychotic drug molindone (5 mg twice daily). He denied having visual or auditory hallucinations during subsequent treatment with molindone and, later, with haloperidol. His discharge diagnoses were brief reactive psychosis and conduct disorder.

This case report is reminiscent of the occurrence of schizophrenia in elderly people with peripheral auditory disease. Typically, unilateral hearing loss is associated with auditory hallucinations in adults with severe hearing loss. Our present case is novel because the patient is a child with a mild conductive hearing loss affecting only a portion of the acoustic frequencies which are significant in speech perception. The disappearance of auditory hallucinations in our patient coincided with the resolution of his psychosis when he received antipsychotic medication.

The occurrence of hallucinations has been considered to be caused by (1) stimulatory phenomena in the CNS—for example, electrical excitation by electrodes, seizures, and pharmacological agents, or (2) release of inhibitory phenomena on sensory neurons—for example, sensory deprivation, the visual hallucinations in blindness (the Charles Bonnet Syndrome), and the phantom limb hallucinations after damage to peripheral nerves in amputees. We propose that mild conductive hearing loss, even if limited to only a portion of the acoustic frequencies which are significant in speech perception, may predispose vulnerable children to develop ipsilateral auditory hallucinations during psychotic episodes.

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