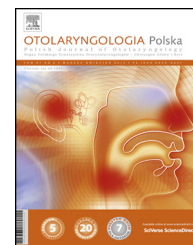


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Case report/Kazuistyka

Radiological quiz. Sudden sensorineural hearing loss due to multiple sclerosis

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ABSTRACT

Objective: A case with sudden sensorineural hearing loss (SSNHL) owing to multiple sclerosis (MS) who had clinical and dramatic radiological improvement just after medical therapy was reported in this article. **Method:** Case report and review of related literature. **Results:** A 22-year-old female patient with MS related SSNHL was presented in this article. Magnetic resonance imaging (MRI) revealed an MS plaque localized at pons extending from right cochlear nucleus to proximal part of the right cochlear nerve. Most dramatic recovery was present in the 5th day control MRI, where the plaque located on pons disappeared completely. On the 10th day control audiogram hearing recovery was observed and pure tone audiogram levels were almost normal. **Conclusion:** Sudden sensorineural hearing loss owing to MS is seen more common than expected. It has good prognosis. Magnetic resonance imaging is also thought to have an important role in diagnosis and treatment efficacy of SSNHL owing to MS.

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Introduction

Sudden sensorineural hearing loss (SSNHL) has more than 100 possible etiologies, apart from the most common ones such as microvascular alterations and viral infections [1, 2]. Multiple sclerosis (MS) is a recurrent neurological disorder with extensive multiple plaque formation consisting of chronic inflammation, demyelination and gliosis [3]. Peripheral nervous system involvement is not so common in MS [4]. SSNHL owing to multiple sclerosis (MS) is seen more common than expected. Although 6% of MS patients have several complaints about hearing loss, 80% of them have been found to have objective hearing

distortions [5, 6]. SSNHL has been detected in 1% of MS patients [7]. A case with SSNHL owing to MS who had clinical and dramatic radiological improvement just after medical therapy was reported in this article, with the help of updated literature.

Case

A 22-year-old young female patient was admitted to our clinic with a 2-week hearing loss and fullness complaint in right ear. She had been followed up by a neurologist with the diagnosis of MS for 7 years. The patient did not have tinnitus or vertigo and there was no sign of any viral

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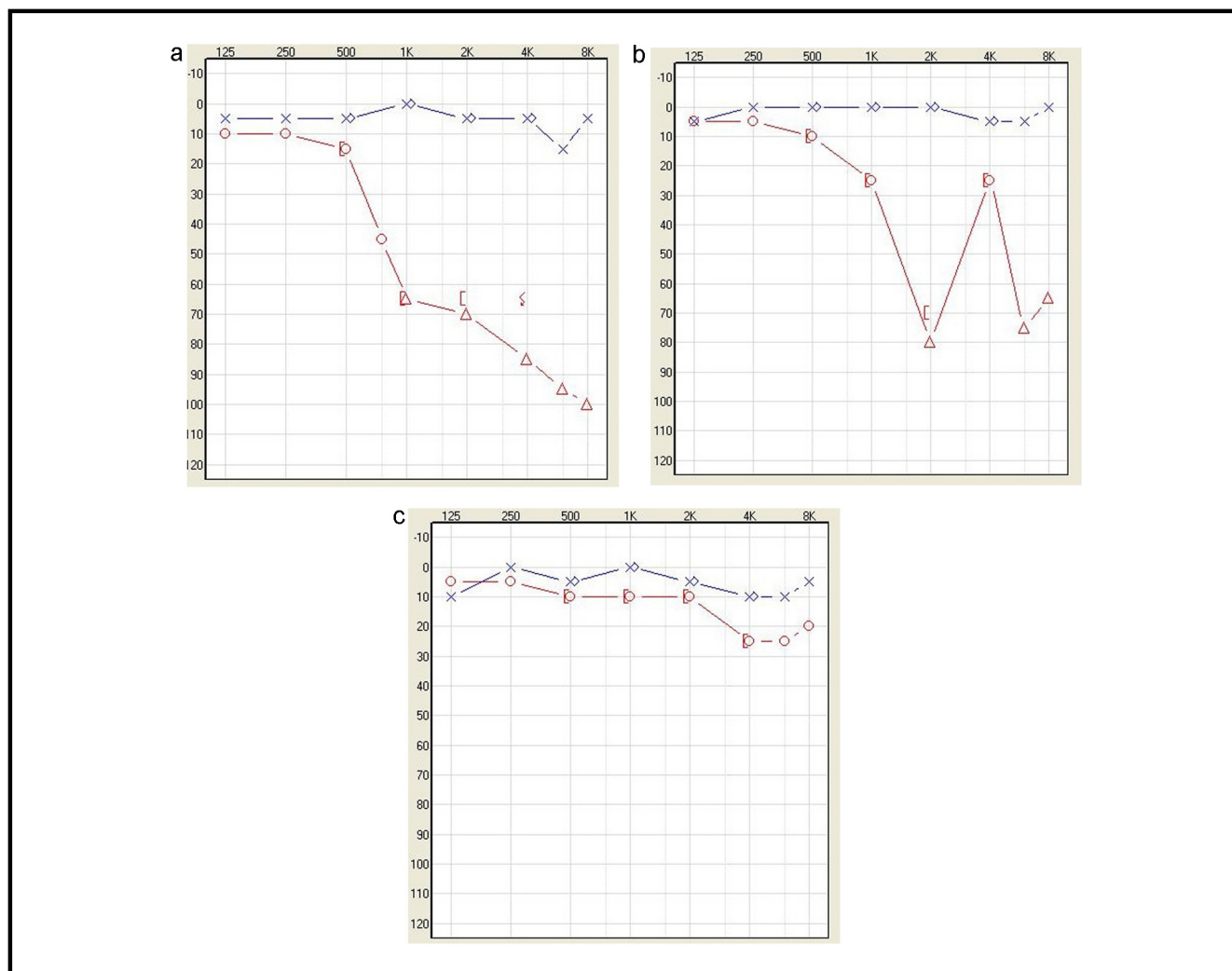


Fig. 1 – Pure tone audiograms of the patient on the first (A), fifth (B) and tenth (C) days

infection. She did not have any head trauma or acoustic trauma prior to hearing loss. On pure tone audiogram (PTA) there was mild to moderate SSNHL after 500 Hz (Fig. 1A). On the brainstem auditory evoked response (BAER) test shortening of right ear's IV and V waves and left ear's V wave was detected. Magnetic resonance imaging (MRI) revealed an MS plaque localized at pons extending from right cochlear nucleus to proximal part of the right cochlear nerve (Fig. 2A–C). The plaque had peripheral contrast enhancement which was compatible with active demyelination. Treatment protocol which was composed of low molecular weight dextrane (5 mg/kg), betahistine (24 mg twice in a day) and asetzolamide (250 mg once in a day) was started. Also methylprednisolone (1000 mg once in a day) for 7 days was added to therapy by Neurology Department. On the 5th day control PTA, there was hearing improvement (Fig. 1B). Most dramatic recovery was present in the control MRI, where the plaque located on pons disappeared completely (Fig. 3A and B). On the 10th day control audiogram hearing recovery was observed and PTA levels were almost normal (Fig. 1C).

Discussion

MS is an acquired neurological disorder which is characterized by demyelination of central nervous system and might cause multiple neurologic deficits. Patients with MS generally are admitted to hospital with paresthesia, neurological weakness, ocular or cerebellar deficits [8]. Our case was admitted to our clinic with hearing loss and fullness in the right ear.

Eighty percent of the MS patients have audiovestibular disorders [2]. Vertigo is seen relatively more common in patients with MS and it is the initial symptom in 10% of cases [3]. SSNHL is detected in about 1% of MS patients in different series [2, 3]. Due to active attacks of MS demyelination could be seen in cochlear nerve and appears as SSNHL [6]. Also SSNHL might be the initial symptom of MS [1]. Recurrent attacks of bilaterally SSNHL can be a warning sign of MS [3].

SSNHL owing to MS is seen due to demyelination at cranial nerve or auditory brainstem. In most cases in the literature demyelination plaque is detected at root of the cochlear nerve, besides lesions through the nerve were also

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