

Sudden sensorineural hearing loss during pregnancy

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Abstract

Important changes take place during pregnancy. Electrolyte imbalance and hormone fluctuations are recognised as triggers for neurological impairment, also commonly found in otorhinolaryngology. After delivery most of these deficits spontaneously remit. Still, due to ethical considerations treatment is mandatory in order to facilitate recovery of the neurological deficit. This case report presents a 33-year pregnant woman suffering from sudden unilateral sensorineural hearing loss and tinnitus in the third trimester. Although Dextrane 40 infusion treatment was successful, with measurable improvement on the pure tone audiogram, pharmacological treatment during pregnancy has to be carefully and individually coordinated. An interdisciplinary approach in diagnostic and therapeutic measures together with gynaecologists appears obligatory.

Keywords: pregnancy, dextrane 40, hearing loss

Introduction

Sudden sensorineural hearing loss (SSNHL) is an emergency, characterised by acute sensorineural hearing loss, most frequently unilateral. Diagnostic of SSNHL is based on history (onset within three days) and pure tone audiometry, which certifies at least 30 dB loss of hearing over 3 consecutive frequencies⁽¹⁾. Appropriate medical attitude includes prompt treatment and a complete workup in order to find the cause⁽²⁾. However, in most cases (75-80%) the exact cause cannot be identified and SSNHL is considered idiopathic, but it is considered that viral cochleitis, microvascular events or autoimmune disorders might be involved in pathogenesis of this disease⁽³⁻⁵⁾. Known etiology of SSNHL might be: a viral (Citomegalovirus, Epstein-Barr virus, HIV) or bacterial (treponema pallidum) infection, head trauma, immunologic disease (Cogan syndrome), collagen vascular disorders (antiphospholipid antibody syndrome, systemic lupus erythematosus, Wegener granulomatosis)^(6,7), toxic causes, ototoxic drugs (aminoglycoside antibiotics), circulatory problems.

Some patients recover completely without medical intervention, often within the first 3 days. This is called a spontaneous recovery. Others get better slowly over a 1 or 2-week period. Although a good to excellent recovery is likely, 15 percent of those with SSHL experience a hearing loss that gets worse over time.

Case report

This is the case of a 33-year-old patient, with a 31-week pregnancy, who woke up one morning with her left ear blocked. She experienced light flue one week in before. The patient was referred to ENT examination. After history taken and otoscopic examination we performed pure tone audiometry (PTA) which revealed a low-frequency mild sensorineural hearing loss (Figure 1). In order to find the etiology of the SSNHL, audiological and blood studies were performed.

From audiological point of view, we considered the SSNHL as a cochlear lesion, since auditory-evoked potentials of short latency (ABR) test was normal (Figure 2), normal latencies of the waves I-V, normal range of latencies between the waves and the sides, and normal morphology and amplitudes.

Vestibular evaluation revealed no vestibular impairment. Blood studies attempt to rule out potentially systemic causes of SSNHL including syphilis, Lyme disease, metabolic, autoimmune and circulatory disorders. Magnetic resonance imaging (MRI) of the brain is recommended to rule out an acoustic neuroma which is reported to be existent up to 15% of patients with sudden hearing loss⁽¹⁾, but we didn't perform this for our patient. We recommended a follow-up audiological evaluation at three month after delivery, with possibility of MRI examination at that moment.

Accepted treatment protocol usually includes systemic or intratympanic steroids, antiviral medications, vasodilators, carbogen therapy either (alone or in combination) or no treatment at all. The no treatment option was based on the high reported rate of spontaneous recovery up to two third of cases⁽⁴⁾.

In this case, due to pregnancy stage, we recommended and patient agreed with intravenous 250 ml Dextran 40 twice a day for two days. After one week, audiometric evaluation revealed normal limit thresholds for all tested frequencies (Figure 3).

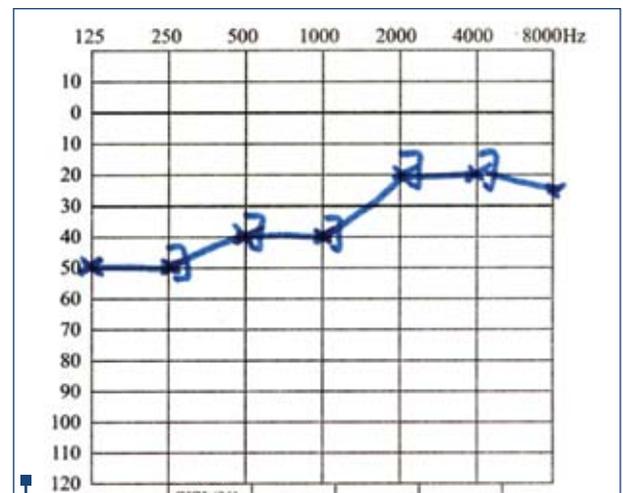


Figure 1. Pure tone audiometry (onset)

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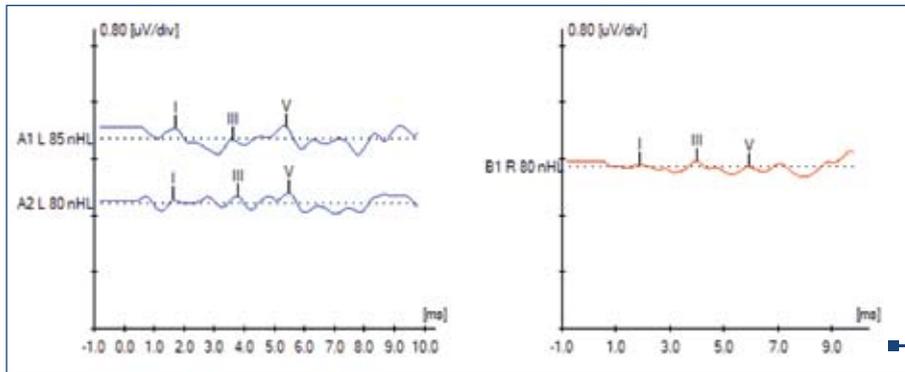


Figure 2. ABR - cochlear hearing loss in left ear

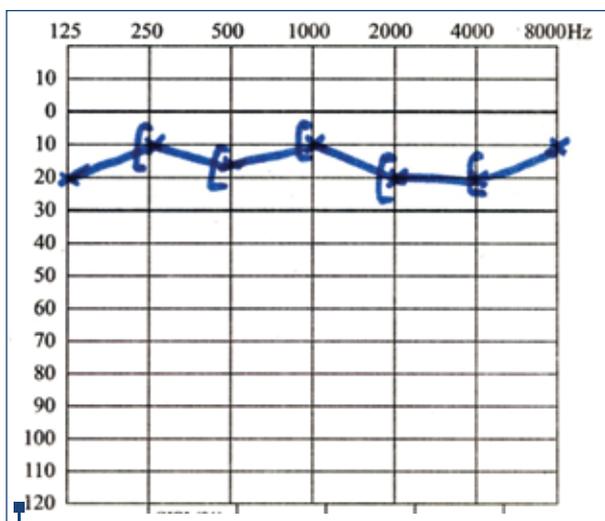


Figure 3. Pure tone audiometry (onset)

Discussion

Sudden sensorineural hearing loss in most cases is idiopathic but can be caused by infectious diseases, neurologic disorders, ototoxic agents, immunologic causes, trauma, and tumours⁽⁷⁾. During pregnancy, electrolyte imbalance in intra- and extracellular compartments, pregnancy-related hormone fluctuations and immune suppression take place. Besides neurological impairment (facial palsy), pathology is also commonly found in otorhinolaryngology: eustachian tube dysfunction, epistaxis, nasal obstruction

and gingivitis^(8,9,10). Inflammation of small vessels on the epineurium or vasa vasorum of the cochlear nerve and diminished blood flow to the cochlea may play an important role in causing hearing loss⁽¹¹⁾. SSNHL is not very frequently met in clinical practice and usually appears in low frequency region.

Standard treatment for SSNHL consists of oral and/or transtympanic administration of glucocorticoids, but other treatments were also suggested: antiviral therapy, hyperbaric oxygen, and free-radical scavenging agents^(12,13). There are few controlled treatment trials and response to therapy is difficult to evaluate⁽¹⁴⁾. Hearing improvement after delivery in majority of cases is suggestive of reversible inner ear process. Part of the SSNHL workup should include continued monitoring of the patient.

Conclusions

The presenting symptom of our pregnant patient was SSNHL. Recognition and proper management of SSNHL in pregnant women is important because emotional status of the patients might impede upon pregnancy development. Appropriate audiological evaluation is mandatory in order to exclude tumoral etiology of SSNHL. Eventhough in majority of cases spontaneous recovery after delivery occurs, emergency treatment is mandatory due to ethical reasons. Pregnancy, especially in the last trimester, limits though the administration of the right treatment in the acute phase (cortisone, vasodilators). This is due to possible consequences of cortisone on both the mother and the foetus, thus reducing the chances for hearing recovery. ■

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