

case report

Post-spinal anesthesia-induced hearing loss: is there a need for increased patient awareness?

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Introduction

Cranial nerve dysfunction following spinal anaesthesia leading to hearing loss has frequently been described but large prospective studies are lacking. Interestingly, patients may suffer from objective disturbances without subjective hearing loss, leading to underreporting of this complication after spinal anaesthesia [1]. Despite this subjectivity, the reported incidence of hearing loss due to vestibulocochlear nerve dysfunction may be up to 42% [2]. Does this demand for more information during preoperative patient education towards the possibility of hearing loss after spinal anaesthesia?

Case report

We treated a 70-year-old male patient who underwent total knee replacement under combined spinal-epidural anaesthesia who developed hearing loss complaints after an unintended spinal puncture at the L2-L3 interspace with an 18G Tuohy needle. On the second postoperative day he reported a buzzing tinnitus in the right ear, which was accompanied by sud-

den, progressive hearing loss in both ears, mainly at the right side. There were no complaints about headache, nausea, vertigo, fever or any signs of meningitis or visual disturbances. Neurological examination showed no abnormalities. Ear-nose-throat (ENT) examination showed a normal aspect of the tympanic membrane and the middle ear. Weber's tuning fork test lateralized to the left and Rinne's test were positive at both sides. Audiometric examination showed severe bilateral perceptive hearing loss for all frequencies, which was more profound in the right ear (fig. 1). Sudden sensorineural hearing loss due to cerebrospinal fluid (CSF) leakage was suspected and subsequently treated by an epidural blood patch of 20 ml of autologous blood at the L2-L3 interspace. Hearing loss recovered completely two hours later, and the patient was discharged in good condition the next day. In summary, our patient suffered from severe hearing loss due to an unintended spinal tap, and was treated successfully with an epidural blood patch.

The aetiology of vestibulocochlear impairment after spinal anaesthesia is not completely understood [3]. Dural puncture may cause a decrease in cerebrospinal fluid pressure, resulting in an endolymphatic hydrops, also depending on the needle size. Twenty-two gauge needles are associated with a higher level of hearing loss in comparison with 26 gauge needles [4]. Usually, in these cases hearing loss is transient without clinical significance, and frequently even without subjective symptoms [1]. Furthermore, patients typically recover spontaneously within days or weeks [5]. The benign course of post-spinal hearing loss may therefore lead to underreporting of this aspect as adverse event, and the incidence of this complication may in fact be much higher than perceived.

Indeed, some studies report an incidence of post-spinal hearing loss of 42% [1], despite the small number of patients developing long lasting subjective hearing loss after a technically uneventful spinal anaesthesia [6]. Therefore, some anaesthesiologists

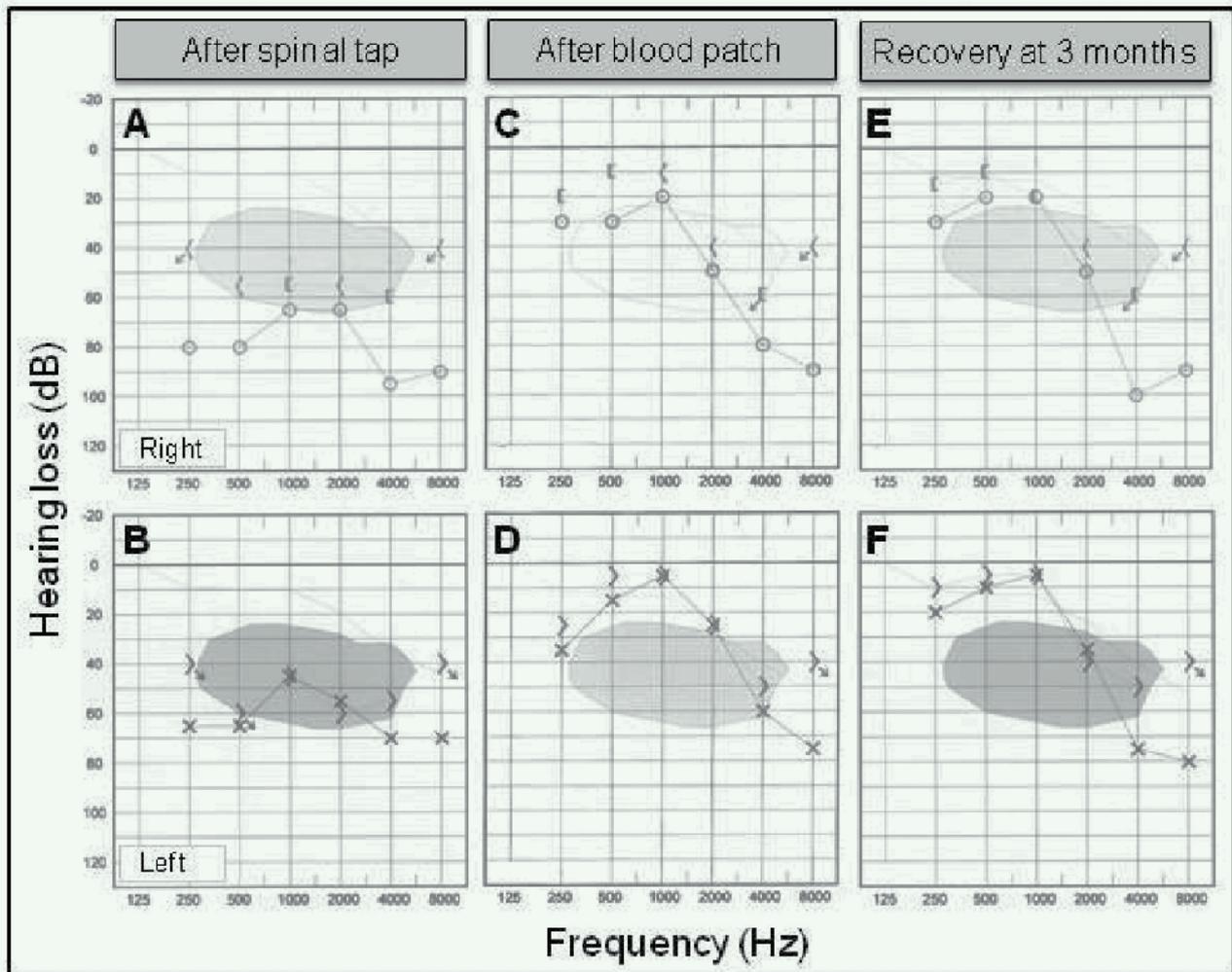


Figure 1. Hearing loss (dB) in the right (upper panels) and left (lower panels) ear after the spinal tap (panel A and B), after the blood patch (panel C and D) and 3 months after surgery (panel E and F). Hearing loss was completely recovered after application of the blood patch.

raised the possibility to include vestibulocochlear function in the health history of patients visiting a preoperative assessment outpatient clinic.

Our case report may support the need for raising awareness among anaesthesiologists and patients for the possibil-

ity of hearing loss after dural puncture. However, since most patients may suffer from objective disturbances without subjective hearing loss, preoperative patient information regarding the risks of spinal anaesthesia may only lead to unwanted anxiety for this technique. We therefore suggest that there

is no need for discussion of this adverse event during the preoperative assessment interview, but warrant for increased alertness of anaesthesiologists for hearing disturbances after spinal puncture to optimize our insight in the actual incidence of this complication.

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