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# Management of Paediatric Sudden Sensorineural Hearing Loss - A Case Study

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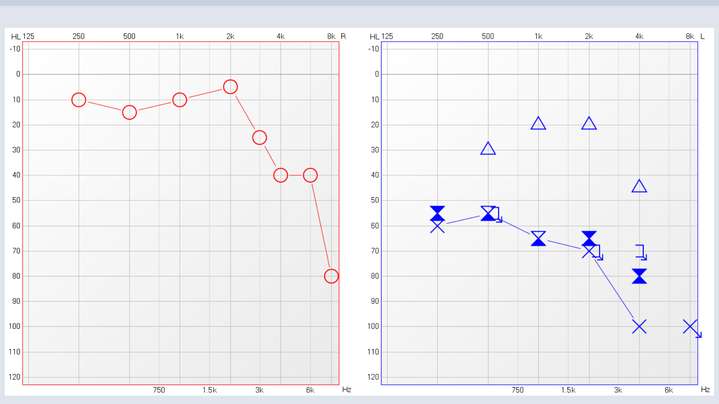
## Introduction

The British Academy of Audiology (1) and the National Institute for Health and Care Excellence (2) have published guidance for audiologists on onward referrals for adults with sudden SNHL (SSNHL). However, there is no national guidance available on action to take when discovering SSNHL in a child.

## Case Notes

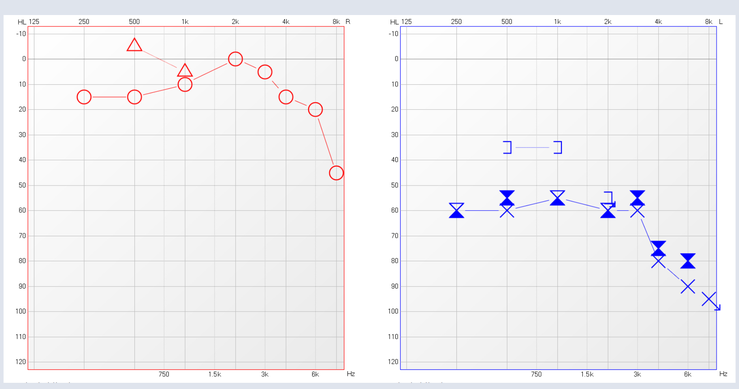
Q is a 15-year-old girl with no history of hearing problems and no family history of childhood hearing loss. She had no underlying health conditions when she contracted meningococcal meningitis (Neisseria meningitidis). Q reported a unilateral hearing loss and associated tinnitus on the day she was admitted to hospital. She was an inpatient for 5 days, and was treated with ceftriaxone, acyclovir, vitamin k and paracetamol.

Q was seen for audiological assessment 12 days after the infection was diagnosed. Both ears were blocked with wax which was removed using microsuction, following which there was no subjective improvement. Otoscopy was unremarkable and tympanometry showed normal peaked traces bilaterally. Q also reported experiencing some imbalance. Pure tone audiometry (AC and BC masking completed) showed the following:

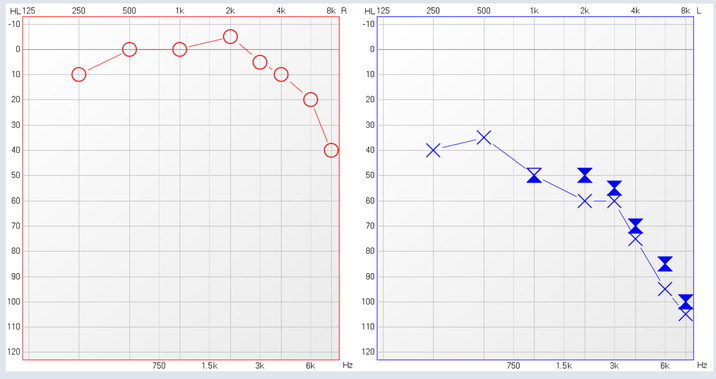



It was discussed with Q and her family that it would be preferable to follow the adult protocol for SSNHL and refer her immediately to ENT. The family asked what the likely treatment option would be, and it was explained they may consider steroid treatment. It was explained that the treatment may not offer benefit, however Q's father asked a very legitimate question: 'what have we got to lose?'. A phone consultation with the ENT team confirmed that they would offer steroids, and treatment with prednisolone was started the same day.

Repeat assessment 22 days after the initial diagnosis showed an improvement in hearing:




Two days later further improvements were noted, and a hearing aid was fitted for the left ear:




## Discussion

SSNHL in children is rare, however it is important that audiologists know what to do when they identify it. It is known that hearing loss following meningitis can change (3), and it is possible that Q's hearing would have recovered without the steroid treatment, however a systematic review and meta-analysis of randomised controlled trials investigating corticosteroids in the treatment of acute bacterial meningitis found that they significantly reduced the risk of hearing loss in children (4).

An article written to help general practitioners in the UK with decision-making in cases of SSNHL (5) suggested that:

*'There are few scenarios where a 1-week short course of oral steroids is contraindicated and the risks associated with this treatment are few. The authors would argue that the potential advantage in restoring the hearing outweighs many concerns and there should be an attitude of 'why should I NOT prescribe steroids?'*

The authors did not indicate whether this applies to children. Clinical practice guidelines on management of adult SSNHL in the United States suggest that it is a reasonable option to offer systemic corticosteroids as initial treatment (6), and an investigation into management trends in paediatric SSNHL found that in practice, this treatment option was being extended into the paediatric population (7). A comparative study between adult and paediatric patients with idiopathic SSNHL concluded that both groups respond well to systemic steroid treatment followed by intratympanic steroids (8); this utilises the steroid treatment protocol for adults in China which is more aggressive than that in the UK. The lack of guidance for paediatric SSNHL internationally is highlighted in a recent systematic review with meta-analysis which also supports the conclusion that steroid treatment should be started early in these patients to improve outcomes (9).

## Conclusion

In the absence of guidelines for the management of paediatric SSNHL, the available evidence suggests that following the guidelines for adults (1,2) is appropriate, and audiologists should refer children with SSNHL to either A&E or an urgent ENT clinic to be seen within 24 hours.

## References

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We have received permission from Q and her family to publish this case study.