

## Author's case study

BEN was 18 months old when he and his mother presented to their family practitioner. Ben had a history of recurrent ear infections throughout his infancy and first year of life, probably related to his full-time day care attendance and his strong family history of allergic disease and middle-ear infections.

He had previously been referred by another family practitioner to an ENT surgeon, who had arranged for insertion of grommets and did not believe that preoperative audiometric testing was necessary.

Ben's mother mentions that the grommets certainly helped prevent recurrent ear infections but she is still concerned about his lack of speech development, with only two words in his vocabulary. The family practitioner sends Ben to a paediatric audiologist, who diagnoses a bilateral mild-to-moderate sensorineural hearing loss.

### Comment

With the advent and increasing use of universal newborn hearing screening testing, Ben's sensorineural hearing loss should have been picked



up at birth, although it is possible that this was a progressive hearing loss from birth.

Any child can have a hearing test at any age and it is important that any child undergoing surgery for middle-ear conditions should have pre- and postoperative

audiometry to rule out underlying permanent hearing loss and to document the improvement after treatment; for example, grommet insertion.

With early referral for hearing and fitting, Ben should have improved speech and language,

although not as much as if the hearing loss was detected earlier, and should be able to attend a mainstream school. This case illustrates that both conductive and sensorineural hearing loss can coexist, and vigilance by the family practitioner may detect hearing problems early.

**Ben had a history of recurrent ear infections throughout his infancy and first year of life.**

## GP's contribution



**DR MARTINE WALKER**  
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### Questions for the author

Is there evidence that early grommet insertion results in improved long-term outcomes in speech and language compared with similarly affected children in whom grommets have not been inserted?

Yes, especially the long-term Dunedin study from New Zealand, which followed children through to age 19, finding significant differences in reading and other parameters between the treated and untreated group.

If 40% of children continue to have middle-ear effusions one month after AOM, how frequently and at what time intervals would you suggest we review children after an episode of AOM? At what point is intervention and referral for formal hearing testing warranted?

I would think that monthly intervention would be worthwhile, particularly if tympanometry is available to monitor progress. After three months of middle-ear effusion and treatment, I would feel that a referral for formal hearing testing would be warranted.

If central auditory processing disorder is suspected, who are the most appropriate professionals to refer this problem to for assessment and treatment?

Paediatric audiologists with an interest in central auditory processing disorder.

You refer to using antibiotics in the attempt to clear OME. Is this following an initial course for AOM? Can you elaborate on this treatment of OME — should it be full-strength treatment? How long should treatment continue?

OME is managed by low-dose (20mg/kg/day) amoxicillin bd for 2-4 weeks.

Evidence of late suggests that not all episodes of AOM require immediate antibiotic treatment and that perhaps only five days of treatment is required. What are your thoughts on this?

Many red ears are not AOM and require symptomatic therapy only. If there is persistent pain and a bulging eardrum after 48

hours of symptomatic treatment, a 5-7-day course of broad-spectrum antibiotics is appropriate.

Around school holidays GPs may be asked 2-3 times a day to check a child's ears to ensure they are fit to fly later that day or the following day. What is the risk of barotrauma associated with flying with middle-ear effusions? How is it best assessed in the general practice setting, where tympanometry is usually not available and time does not permit referral for more formal assessment? How accurate is pneumatic otoscopy in assessing middle-ear effusions? What should we advise parents who present with their children in this situation? Is there any way of speeding up the resolution of an effusion?

The usual complications of flying with middle-ear effusion are otalgia rather than acute otitis media or a perilymph fistula, which is a rare complication. Pneumatic otoscopy is an excellent skill that correlates well with tympanometry. The best management is to

obtain pressure equalising ear plugs, called Earplanes, which were used by the NASA pilots, obtainable from pharmacies for children over one year.

Is investing in a tympanometer reasonable in the general practice setting? What is the approximate cost and how accurate and easy are they to use?

Tympanometry is a very valuable tool for the family practitioner, particularly in a group practice. They vary in cost, from \$4000 to \$7000. The accuracy increases with the amount of money spent. Generally they are easy to use and results easy to interpret.

What impact is it anticipated that childhood pneumococcal vaccination will have on rates of grommet insertion and hearing loss in the non-Aboriginal community?

My belief is that there will be at least a one in six decrease in episodes of otitis media, as well as a reduction in pneumococcal meningitis and associated permanent hearing loss.

## Quiz

**Q:** Which prenatal infections can cause congenital non-genetic hearing loss?

**A:** Organisms of the TORCH group (toxoplasma, rubella, cytomegalovirus, herpes viruses) as well as HIV and syphilis.

**Q:** In which ways may perilymph fistula present?

**A:** Progressive hearing loss, sudden hearing loss with or without vertigo, or meningitis.

**Q:** Which children are at high risk of otitis media with effusion?

**A:** Children in day care, indigenous children, Down syndrome children and children with craniofacial abnormalities.

**Q:** What difficulties occur in children with central auditory processing disorder and what is a common cause of the condition?

**A:** There is difficulty in discriminating and interpreting auditory information in the presence of normal hearing. The condition is frequently associated with longstanding conductive hearing loss.

**Q:** At what age can central auditory processing disorder testing be performed?

**A:** From age five.

**Q:** What two automated tests are commonly used in universal newborn hearing screening?

**A:** Evoked oto-acoustic emission and automated auditory brain response.

**Q:** In which situations may speech be delayed without pathology being present?

**A:** In twins, children from bilingual households and in premature babies.

**Q:** What signs may indicate cholesteatoma?

**A:** Marginal tympanic membrane perforation and otorrhoea resistant to consistent treatment with Betadine ear toilets and topical drops.

**Q:** What level of hearing loss is appropriate to treat with a cochlear implant?

**A:** Severe-to-profound hearing loss.

**Q:** When should consideration be given to inserting grommets in an infant?

**A:** If there are three separate episodes of otitis media in six months, or 5-6 in 12 months, particularly if there are risk factors such as day care attendance, or if there is a persistent underlying OME with hearing loss.

**Q:** What factors can contribute to the risk of otitis media?

**A:** Passive cigarette smoking, prop feeding, early cessation of breastfeeding, use of day care.

### HOW TO TREAT

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### NEXT WEEK

The next How To Treat reviews the management of hyperuricaemia and gout. The author, Professor Bryan Emmerson, is emeritus professor of medicine and honorary research consultant in the southern clinical school of the University of Queensland at the Princess Alexandra Hospital, Brisbane.