

## Hard of hearing (answers on page 43)

### Part one

Ade, a 66-year-old nurse who is continuing to work in the local medical clinic, mentioned during the morning coffee break that he is having trouble hearing – for the first time in his life. It came upon him gradually over the last few months: the first realisation being that he has had to turn the sound up on his radio and TV to a level that his wife and grandchildren couldn't tolerate. He was having trouble, too, hearing conversations when in company; the background noise stopped him from concentrating on what was being said to him. However, he had noted that his deafness had not materially affected his work. For example, he could clearly hear the sounds of the pulse beat when taking blood pressures.

- Q1 What are your first thoughts on hearing this story?**
- It is typical of age-related hearing loss in a man in his sixties. A trial of hearing aids in the first place would be a good start.
  - He doesn't volunteer other symptoms commonly related to hearing loss, such as dizziness or tinnitus, which virtually rules out more complex causes of deafness.
  - His occupation isn't one that suggests an industrial injury-related cause such as exposure to high decibel noise pollution.
  - Still being able to hear low frequency pulse beats suggests a high-frequency deficit that should be checked.
  - He doesn't mention family history of deafness: this is relevant in a man in his sixties?

### Part two

- Q2 When asked leading questions Ade admits that from time-to-time he has had slight ringing in his right ear. When he lies on one side at night he can hear his heartbeat in the same ear, but he has just assumed that it was 'his age'. His father went deaf in his seventies, but he had thought that this, too, was a matter of age. Asked about past history of exposure to noise he admitted that he used to play the drums in a band – as had his father before him. You find that his ears look normal, with no wax, no tympanic inflammation and no old scarring. You order an audiogram. What do you expect to find?**
- A 'ski-slope' pattern for both ears with good hearing at low frequencies, but a steep 'tailing off' of hearing for frequencies above 1000 Hertz.
  - A different curve between the right and left ears, suggesting unilateral hearing loss.
  - A constant loss of hearing throughout the frequency range.
  - Loss at low frequency, rather than high, because of his past noise exposure.
  - Excessive loss of hearing in the right ear alone.

### Part three

- Q3 The 'ski-slope' curve was confirmed for the left ear, but it was asymmetrical, the loss being more pronounced and more widespread across the frequency range in the right. What are your thoughts on this finding?**
- That is normal for age-related deafness (presbycusis): the deterioration is very rarely similar in both ears.
  - Asymmetrical sensorineural hearing loss must always be investigated as it may be caused by an acoustic neuroma, arising at any age.
  - Acoustic neuroma is not a possible diagnosis here because it has arisen at a relatively late age, and other symptoms such as pain, feeling of fullness in the ear, and other signs of intracranial tumour are absent.
  - Meniere's disease is a possibility.
  - A skull X-ray is mandatory.

### Part four

- Q4 If the audiogram had shown symmetry in the pattern of hearing loss in the two ears, what would your next steps have been?**
- Refer for hearing aids.
  - To sign Ade up for hearing therapy, so that he can maximise amplification of the sounds he hears.
  - Discuss with him techniques and habits that might improve his hearing at home and at work.
  - Still to refer him to an ENT specialist for further tests to rule out possible serious disease.
  - Order a skull X-ray anyway.