A 56 year old man was referred by his general practitioner with a 10 year history of progressive hearing loss and tinnitus, mainly in his right ear. He did not describe otalgia or dizziness. After thinking about it more carefully, however, he admitted that he occasionally felt slightly unsteady but had attributed this to tiredness. His medical history was otherwise unremarkable, and there was no family history of deafness.

Clinical examination showed normal tympanic membranes bilaterally, with unremarkable pharynx and nasal cavity. There were no obvious neurological deficits, and clinical balance tests, including Romberg’s test, Unterberger’s test, and head impulse tests, were normal. Audiological assessment confirmed moderate right sensorineural hearing loss in all frequencies and a mild drop in high frequencies in the left ear.

Because of the asymmetry of his symptoms, magnetic resonance imaging (MRI) of the brain and internal auditory canal was performed (figure).

1. What does the MRI scan show?
2. What is the diagnosis?
3. How does this condition usually present?
4. What are the treatment options for this condition?

Submitted by Georgios Kontorinis and John A Crowther

Cite this as: BMJ 2014;348:g3601

PICTURE QUIZ Asymmetric hearing loss and tinnitus

Axial magnetic resonance imaging of the brain and internal auditory canal. (A) T2 weighted image, (B) non-contrast T1 weighted image, (C) post-gadolinium T1 weighted image

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ANATOMY QUIZ

Radiograph of the left foot of a 7 month old infant

Describe the structures labelled A, B, C, D, and E in this radiograph of the left foot of a 7 month old infant.

Submitted by Andreas Shiatis and Nicholas Hwang

Cite this as: BMJ 2014;348:g2809

STATISTICAL QUESTION What are the four phases of clinical research trials?

Children with neurological and developmental disorders often experience chronic sleep disturbances. Melatonin has been commonly prescribed because of its hypnotic properties. However, trials have had conflicting results. Therefore, researchers assessed the effectiveness of melatonin in treating severe sleep problems in children with neurodevelopmental disorders. A randomised double blind placebo controlled multicentre trial study design was used. The intervention was immediate release melatonin capsules given 45 minutes before the child’s bedtime for a period of 12 weeks. Treatment started with a 0.5 mg capsule, and escalated through 2 mg, 6 mg, and 12 mg, depending on the child’s response to treatment.

Participants were 146 children who had a severe sleep problem and had not responded to standardised sleep behaviour advice provided to parents four to six weeks before randomisation. Children were recruited from 19 hospitals across England and Wales. The children were randomised to melatonin (n=70) or placebo (n=76).

The outcome measures included subjective (as assessed from sleep diaries completed by the parents) and objective (as recorded by actigraphy) measures of sleep. The researchers reported that children gained little additional sleep on melatonin compared with placebo. However, the children receiving melatonin fell asleep significantly more quickly and they awoke earlier.

Which one of the following best describes the phase of the above clinical trial?

a) Phase I
b) Phase II
c) Phase III
d) Phase IV

Submitted by Philip Sedgwick

Cite this as: BMJ 2014;348:g3727

The four phases of clinical research trials are:

1. Phase I: Preliminary feasibility trials
2. Phase II: Proof of concept trials
3. Phase III: Randomised controlled trials
4. Phase IV: Post-marketing surveillance