Test Your Knowledge - Clinical Challenge

Question for this month's clinical challenge are based on articles in this issue. The style and scope of questions is in keeping with the MCQ of the College Fellowship exam. The quiz is endorsed by the RACGP Quality Assurance and Continuing Professional Development Program and has been allocated 2 CPD points per issue. Answers to this clinical challenge will be published next month.

Single Completion Items

Directions: Each of the questions or incomplete statements below is follow by five suggested answers or completions. Select the most appropriate statement as your answer.

Questions 1-4 are based on the article 'Childhood ENT disorders - when to refer to specialists' by Claire Harris.

Question 1. With regard to sore throats presenting in general practice which of the following is true?

A. throat complaints are the commonest presenting symptom in general practice
B. in children under three sore throats are bacterial in approximately half of cases
C. antibiotics are usually first line therapy in children aged 4-13 years
D. drooling associated with a sore throat is an indication for urgent referral
E. preschool children rarely have enlarged tonsils without having underlying chronic infection.

Question 2. Billy, aged eight years has had a recurrent sore throat. Which of the following would not be an indicator for him to have a tonsillectomy?

A. persistent enlarged tonsils
B. symptoms have been present for only two years
C. the sore throat episodes have been diagnosed as tonsillitis
D. Billy has already missed two weeks of school this year because of his sore throat
E. each episode has required at least one course of antibiotics.

Question 3. A mother presents with here three year old daughter Melissa, saying the child is febrile and complaining of a very sore left ear. Which of the following is not true?

A. more than four out of five children will have had an episode of acute otitis media by the time they are three
B. a red tympanic membrane does not necessarily indicate infection
C. analgesia and fluids are the first line treatment
D. if Melissa hasn't improved in 48 hours antibiotics should be commenced
E. if there is an acute perforation Melissa should be referred to a specialist immediately.

Question 4. Michael, aged five had an episode of acute otitis media four weeks ago which resolved. You notice he still has middle ear effusion in the affected ear. Which of the following is true?

A one in ten children still have an effusion one month after an episode of acute otitis media

B. persistent effusions are most common in late summer and early autumn

C. persistent effusion is far less likely beyond the age of six

D. mild conductive deafness is present in approximately 80% of similar cases

E. persistent effusion needs to be treated surgically to prevent language impairment.

Questions 5-8 are based on the article 'A hole in the drum' by Paul Fagan.

Increasing hearing Loss

Paul Fagan

(American Family Physician, Vol 31, No 8, August 2002)

A 40-year-old man has been aware of an increasing hearing loss in the right ear. He is no longer able to use the phone on that side. There is a low grade, persistent, high-pitched tinnitus and he has recently noticed a tendency to bump into doors or walls when walking. There is no past history of ear disease.

There is very little to note clinically. The tympanic membranes are normal and air conduction right is clearly less than air conduction left but the Rinne test is positive for both sides, ie, air conduction is better than bone conduction.

The Weber test is heard centrally. When the patient stands with his feet in line and the eyes closed (tandem Romberg's test he tends to fall over.

Question 1. Is the hearing loss sensorineural or conductive?

Question 2. What is the most likely diagnosis?

Question 3. Are this patient's problems with the phone significant?

Question 4. What is the significance of the tandem Romberg's test?

Question 5. Do all patients with this condition require treatment?

Question 6. Does unilateral tinnitus have the same significance as a unilateral sensorineural hearing loss?

Answer 1. The patient's hearing loss is sensorineural. The Weber test gives the best guide to the nature of an asymmetrical hearing loss. It is best carried out with a tuning fork at 512 cycles per second. Lower frequencies transmit vibration rather than sound. If the vibrating tuning fork is placed on the forehead or the top of the skull, it will be heard in the ear with the conductive loss, even when this is very minor. This can be simulated in the observer by repeating

the manoeuvre on oneself, firmly occluding the external ear with a finger.

If the hearing loss is sensorineural, the central tuning fork will be heard in the 'good' ear or in the middle of the head.

When the middle ear is working as it should, air conduction will be heard better than bone conduction, so hearing loss in the test ear in these circumstances is probably in the inner ear (sesorineural). However, because the middle ear mechanism amplifies sound to a significant degree, a conductive loss has to be marked before bone conduction becomes greater than air conduction.

Answer 2. In this patient, there is strong suspicion of an asymmetrical inner ear hearing loss. If this is confirmed by an audiogram, a tumour of the cerebellopontine angle has to be excluded, preferably by magnetic resonance imaging (MRI).

In approximately 80% of patients with asymmetrical hearing loss no cause is found. Ménière's disease is one of the recognisable causes, as is an acoustic tumour. Head trauma will occasionally produce the same effect as will ototoxic drugs applied locally.

This patient is unlikely to have Ménière's disease as he does not have the fluctuating hearing loss that characterises this condition. Also in Ménière's disease the vertigo is of the rotatory type, associated with nausea, vomiting and often prostration.

Magnetic resonance imaging is the gold standard investigation in cases such as these. CT scan cal also be used, however, smaller tumours - those that project less than 1 cm into the cerebellopontine angle - may be missed. Caloric tests, ENG or other audiological tests no longer have much of a role in the diagnosis of cerebello-pontine angle tumours as MRI is so accurate.

Answer 3. Problems with using the phone are significant as tumours of this type result in a loss of ability to understand amplified speech, referred to as the speech discrimination score (SDS). An inability to understand speech on the phone, out of proportion to the degree of hearing loss, is a pointed toward an underlying tumour.

Answer 4. Romberg's and its more severe variant tandem Romberg's, is a nonspecific test which, by narrowing the proprioceptive base (feet together or in line) and closing the eyes, throws the greater part of the responsibility for keeping upright on the labyrinths. It does not tell us which labyrinth is at fault so the direction in which the patient falls has not significance. The test is invalid if there are problems with proprioception, eg, knee or hip disease or if cerebellar function is not normal.

Answer 5. As tumours in the cerebello-pontine angle are nearly all benign histologically (acoustic neuroma or schwannoma, meningioma, epidermoid cyst) many can be followed, having serial imaging at yearly intervals. This is especially so in the elderly or infirm. In younger patients, especially when contact with the brainstem is beginning, surgical treatment is required.

Answer 6. Unilateral tinnitus, which is steady and persistent, should be assessed in the same way as a unilateral inner ear hearing loss.

Tinnitus which is pulsatile (ie, pulse synchronous) has different implications. If a stethoscope on the scalp reveals a bruit, an arterio-venous malformation has to be excluded. A mass in the middle ear in these circumstances would suggest a glomus tumour.

Question 5. While playing basketball, Adrian aged 25, suffered a blow to the right side of his head. This resulted in a sharp pain in his right ear associated with some bleeding from that ear. Which of the following is true?

A. a blow to the side of the head usually with the flat of the hand is the classic mechanism of a traumatic tympanic membrane perforation
B. such perforations are generally a neat slit in the tympanic surface
C. the drum must be visualised in order to make the diagnosis
D. Adrian's ear is likely to become infected
E. the canal should be gently syringed to remove any blood.

Question 6. Traumatic perforations of the tympanic membrane that occur in wet conditions will often:

A. be associated with a purulent discharge
B. be commonly infected with a staphylococcal infection
C. require a short course of oral antibiotics
D. not heal spontaneously
E. require surgical repair.

Question 7. Tympanic membrane perforations for which referral is not mandatory include:

A. continuously discharging central perforations
B. large dry central perforations
C. marginal perforations with discharge
D. those associated with a cholesteatoma
E. perforations that are surrounded by granulation tissue.

Question 7. The aim of surgery for the tympanic membrane is to:

A. restore hearing
B. produce a clean, dry drum to which a hearing aid may be fitted
C. improve the appearance of the drum
D. prevent further perforation
E. restore Eustachian tube function.

Questions 9-12 are based on the article 'Management of epistaxis in general practice' by Dennis Pashen.

Question 9. Cases of epistaxis are unlikely to arise from:

A. injury to turbinates
B. spontaneous bleeding from the Little's area
C. anticoagulation therapy
D. enlarged adenoids
E. nasal fractures.

Question 10. Stephen, aged 18 presents with acute epistaxis. Immediate measures include:

A. applying direct pressure to the lower nose in two minute intervals
B. positioning Stephen so that he is sitting and leaning forward
C. the application of topical local anaesthetic
D. complete nil by mouth
E. nasal packing with gauze.

Question 11. Stephen has a history of recurrent epistaxis. Chemical cautery is suggested. Which statement is untrue of the procedure?

A. before the use of silver nitrate sticks, topical anaesthetic can be applied
B. the procedure can trigger further bleeding
C. only one side of the septum should be cauterised at a time
D. septal perforation is a risk of the procedure
E. silver nitrate may permanently stain the skin of the nostril.

Question 12. Epistaxis is:

A. a common presentation with over 80% of the population suffering from it at some stage in their lives
B. often influenced by environmental conditions
C. attributable to posterior nasal cavity causes in 40% of cases
D. commonly associated with congenital causes of bleeding
E. copious in less than 2% of cases.