1.A 50-year-old right-handed man has presented to a neurologist because

of gradually progressive hearing loss. A vibrating tuning fork is applied to

the center of his forehead. This helps to establish which of the following?

a. Which ear has the wider range of frequency perception

b. Which ear has the larger external auditory meatus

c. Which ear has infection of the external ear canal

d. Which ear has the longer eustachian tube

e. Which ear has conductive or sensorineural hearing loss

The answer is e. (Victor, p 306.) The vibrations from a tuning fork

placed on top of the head are transmitted through the skull to both ears.

Bone conduction of sound through the skull should be equal in both ears.

With sensorineural hearing loss, the patient will hear the midline fork more

loudly in the unaffected ear. Sensorineural hearing loss is the deafness that

develops with injury to the receptor cells in the cochlea or to the cochlear

division of the auditory nerve. In conductive hearing loss, the vibrations of

the tuning fork are perceived as louder in the affected ear. With this type of

hearing loss, the injury is in the system of membranes and ossicles designed

to focus the sound on the cochlea. Impairment of the conductive system

causes the vibrations of the tuning fork to be transmitted to the cochlea

directly through the skull. Much like a person with cotton stuffed into the

external auditory meati, the patient with the conductive hearing loss has

impaired perception of sound coming from around him or her but an

enhanced perception of his or her own voice. This type of tuning fork test is called the Weber test.

2. An 18-year-old boy is brought into the emergency room after a diving

accident. He is awake and alert, has intact cranial nerves, and is able to

move his shoulders, but he cannot move his arms or legs. He is flaccid and

has a sensory level at C5. Appropriate management includes which of the

following?

a. Naloxone hydrochloride

b. Intravenous methylprednisolone

c. Oral dexamethasone

d. Phenytoin 100 mg tid

e. Hyperbaric oxygen therapy

The answer is b. (Victor, pp 1300–1301.) High-dose intravenous

methylprednisolone [30-mg/kg intravenous bolus followed by 5.4 mg/(kgh)

for 23 h] has been shown to have a statistically significant, if clinically modest,

benefit on the outcome after spinal cord injury when given within 8 h

of the injury. Naloxone hydrochloride and other agents, such as GM1 ganglioside,

have not been shown to be of benefit. The role of surgical decompression,

removal of hemorrhage, and correction of bone displacement is

controversial. Most American neurosurgeons do not advocate surgery, and

instead propose external spinal fixation.

3. A 37-year-old woman is noted to have lymphadenopathy on routine

physical exam. Following an extensive evaluation, she is diagnosed with

sarcoid. She has been entirely normal neurologically. Which cranial nerve

is most likely to be injured in this patient?

a. II

b. III

c. V

d. VII

e. VIII

The answer is d. (Bradley, p 2375.) Facial paresis is the neurologic

injury most likely to develop with sarcoidosis. Almost half of patients with

sarcoidosis and neurologic disease have a neurologic sign or symptom as

the first obvious complication of the sarcoidosis. These patients report progressive

weakness of one side of the face with no substantial loss of sensation

over the paretic side. They may feel that there is decreased sensitivity

to touch on the weak side, but this is more commonly from a loss of tone

in the facial muscles than from an injury to the trigeminal nerve. Other cranial

nerves especially susceptible to injury in persons with sarcoidosis

include II, III, IV, VI, and VIII.