



**FIGURE 446-11** Axial section at the level of the inferior pons, depicted schematically on the left, with a corresponding magnetic resonance image on the right. Approximate regions involved in medial and lateral inferior pontine stroke syndromes are shown.

**Signs and symptoms: Structures involved**

1. Medial inferior pontine syndrome (occlusion of paramedian branch of basilar artery)
  - On side of lesion
    - Paralysis of conjugate gaze to side of lesion (preservation of convergence): *Center for conjugate lateral gaze*
    - Nystagmus: *Vestibular nucleus*
    - Ataxia of limbs and gait: Likely *middle cerebellar peduncle*
    - Diplopia on lateral gaze: *Abducens nerve*
  - On side opposite lesion
    - Paralysis of face, arm, and leg: *Corticobulbar and corticospinal tract in lower pons*
    - Impaired tactile and proprioceptive sense over one-half of the body: *Medial lemniscus*
2. Lateral inferior pontine syndrome (occlusion of anterior inferior cerebellar artery)
  - On side of lesion
    - Horizontal and vertical nystagmus, vertigo, nausea, vomiting, oscillopsia: *Vestibular nerve or nucleus*
    - Facial paralysis: *Seventh nerve*
    - Paralysis of conjugate gaze to side of lesion: *Center for conjugate lateral gaze*
    - Deafness, tinnitus: *Auditory nerve or cochlear nucleus*
    - Ataxia: *Middle cerebellar peduncle and cerebellar hemisphere*
    - Impaired sensation over face: *Descending tract and nucleus fifth nerve*
  - On side opposite lesion
    - Impaired pain and thermal sense over one-half the body (may include face): *Spinothalamic tract*

Although atheromatous disease rarely narrows the second and third segments of the vertebral artery, this region is subject to dissection, fibromuscular dysplasia, and, rarely, encroachment by osteophytic spurs within the vertebral foramina.

Embolic occlusion or thrombosis of a V4 segment causes ischemia of the lateral medulla. The constellation of vertigo, numbness of the ipsilateral face and contralateral limbs, diplopia, hoarseness, dysarthria, dysphagia, and ipsilateral Horner's syndrome is called the *lateral medullary (or Wallenberg's) syndrome* (Fig. 446-10). Most cases result from ipsilateral vertebral artery occlusion; in the remainder, PICA occlusion is responsible. Occlusion of the medullary penetrating branches of the vertebral artery or PICA results in partial syndromes. *Hemiparesis is not a feature of vertebral artery occlusion; however, quadriplegia may result from occlusion of the anterior spinal artery.*

Rarely, a *medial medullary syndrome* occurs with infarction of the pyramid and contralateral hemiparesis of the arm and leg, sparing the face. If the medial lemniscus and emerging hypoglossal nerve fibers

are involved, contralateral loss of joint position sense and ipsilateral tongue weakness occur.

Cerebellar infarction with edema can lead to *sudden respiratory arrest* due to raised ICP in the posterior fossa. Drowsiness, Babinski signs, dysarthria, and bifacial weakness may be absent, or present only briefly, before respiratory arrest ensues. Gait unsteadiness, headache, dizziness, nausea, and vomiting may be the only early symptoms and signs and should arouse suspicion of this impending complication, which may require neurosurgical decompression, often with an excellent outcome. Separating these symptoms from those of viral labyrinthitis can be a challenge, but headache, neck stiffness, and unilateral dysmetria favor stroke.

**BASILAR ARTERY** Branches of the basilar artery supply the base of the pons and superior cerebellum and fall into three groups: (1) paramedian, 7–10 in number, which supply a wedge of pons on either side of the midline; (2) short circumferential, 5–7 in number, that supply