

Lesions of the nondominant parietal lobe often result in *hemispatial neglect*: the patient does not attend to stimuli in the contralateral (usually the left) visual field or on the contralateral side of the body. In a milder form of neglect, called *extinction*, patients can attend to stimuli contralateral to the side of the brain with the lesion (and the lesion is usually on the right side), but when presented with bilateral stimuli simultaneously, they respond only on the ipsilateral (right) side. *Anosognosia*, or the lack of awareness of one's deficit, frequently accompanies hemispatial neglect. In severe cases, patients may even deny that the affected limb belongs to them.

### PROSPECTUS FOR THE FUTURE

There have been many advances in neuroimaging technology that allow neuroscientists to study not only the structural and functional anatomy of a particular brain structure but also its metabolic activity. Functional magnetic resonance imaging (fMRI) permits mapping of the metabolic anatomy of subcortical gray and white matter structures, such as the basal ganglia, and their roles in conditions such as dystonia. These modalities allow one to study white matter tracts (tractography) in great detail, using a technique called diffusion tensor imaging.

Similarly, modern MRI technology is now able to discriminate brain tissue that is infarcted from tissue that is ischemic (and therefore potentially still viable) in the setting of acute stroke. Positron emission tomography (PET) and single-photon emission computed tomography (SPECT) are nuclear medicine imaging techniques that are increasingly used in the diagnosis of neurodegenerative disorders. It is likely that these techniques will become increasingly available in the acute hospital setting.

### SUGGESTED READINGS

- Brazis PW, Masdeu JC, Biller J: Localization in clinical neurology, ed 6, Philadelphia, 2011, Lippincott Williams & Wilkins.
- Carota A, Calabrese P: The achromatic “philosophical zombie,” a syndrome of cerebral achromatopsia with color anopsognosia, *Case Rep Neurol* 5:98–103, 2013.
- Goldenberg G: Apraxia in left handers, *Brain* 136:2592–2601, 2013.
- Knopman DS: Regional cerebral dysfunction: higher mental functions, chapter 408. In *Goldman's Cecil Medicine*, ed 24, Philadelphia, 2012, Saunders.
- Mesulam MM: Primary progressive aphasia and the language network, *Neurology* 81:456–462, 2013.

