

13 Dementia

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Case 13.1: Alzheimer's Dementia

History

67-year-old female with cognitive impairment.

Findings

There is bilaterally decreased temporal and posterior parietal cortical activity such that it is less than the cerebellar cortical activity (Fig. 13.1). There is sparing of the motor strips, basal ganglia, and visual. Age-appropriate cortical atrophy is noted. There is no evidence of ischemia or mass lesion.

Impression

Abnormal metabolism consistent with dementia of Alzheimer's type.

Pearls and Pitfalls

Alzheimer's disease (AD) is the most common form of dementia. Association cortices are more severely involved, while the primary somatosensory and motor cortices, the basal ganglia, the thalamus, and the cerebellum are relatively spared.

FDG-PET demonstration of the classic metabolic abnormality associated with pathologically verified AD has a sensitivity of 93 %, a specificity of 63 %, and an accuracy of 82 %.

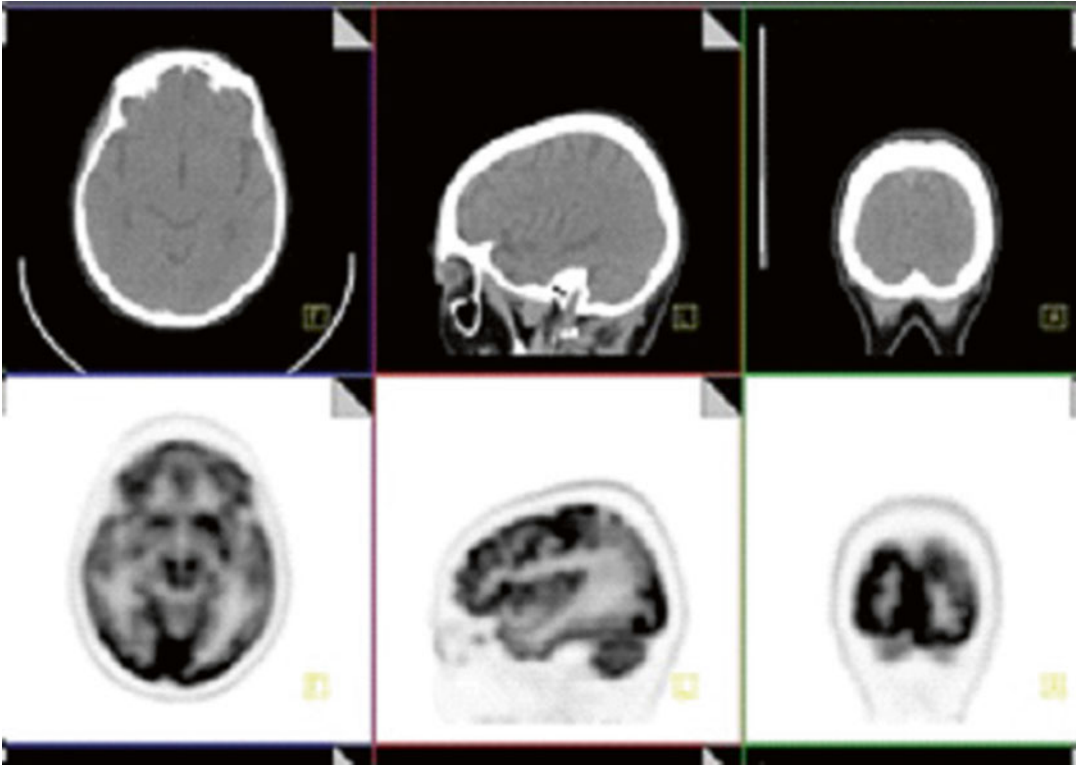


FIG. 13.1

Discussion

It was first described by German psychiatrist and neuropathologist Alois Alzheimer in 1906 and was named after him. Many causes of dementia symptoms exist. Alzheimer's disease is the most common cause of a progressive dementia characterized with gradual decline in cognition and behavior. Accurate early diagnosis of AD is important because early use of medications may improve or delay the cognitive loss that occurs in mild-to-moderate disease. Normal aging of the brain is characterized by a regional decline in the cerebral glucometabolism of the prefrontal cortex (Fig. 13.1).

Case 13.2: Frontotemporal Dementia

History

62-year-old female with 3-year history of progressive decline in cognition accompanied by personality change; with prominent impairment in memory, anomie aphasia, and decreased insight; and with preservation of

visual-spatial. PET/CT is done as part of the investigational workup for neurodegenerative process.

Findings

There is relative symmetric decrease in metabolic activities of the bilateral frontal and temporal regions with sparing of the visual cortex/occipital lobe and deep gray matter activities (Fig. 13.2).

Pearls and Pitfalls

Frontotemporal dementia (FTD) is the most common dementia diagnosed in patients under age 60 and is as common as Alzheimer's disease among patients age 45–64.

Discussion

Cases of elderly patients with progressive language deterioration have been described since Arnold Pick's landmark case report of 1892. FTD

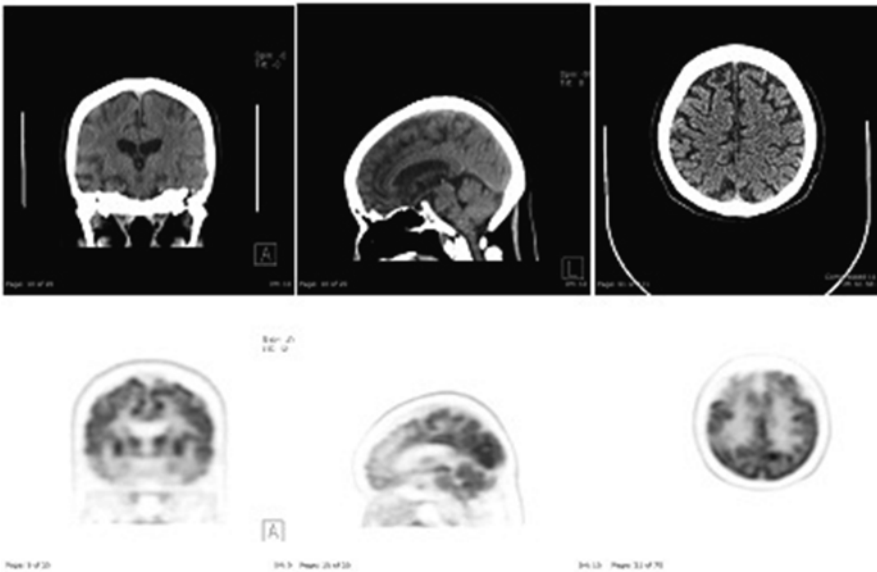


FIG. 13.2

describes a clinical syndrome associated with shrinking of the frontal and temporal anterior lobes of the brain. Originally known as Pick's disease, the name and classification of FTD have been a topic of discussion for over a century. The current designation of the syndrome groups together Pick's disease, primary progressive aphasia, and semantic dementia as FTD (Fig. 13.2).

Case 13.3: Normal Pressure Hydrocephalus

History

75-year-old male with memory loss, incontinence, and history of gait disturbance.

Findings

CT images of the brain demonstrate profound cerebral cortical atrophy and gross ventriculomegaly (Fig. 13.3). There were also calcifications as well as exostoses from posterior sella into the pituitary area.

PET images of the brain demonstrate decrease in metabolic activity appropriate for the cortical atrophy. The deep gray matter structures demonstrated normal and symmetric FDG uptake (not in the images). In the view of relatively normal cortical perfusion, the pattern best fits communicating hydrocephalus.

Pearls and Pitfalls

NPH is treatable cause of dementia.

Discussion

First described by Hakim and Adams in 1965, normal pressure hydrocephalus (NPH) refers to a clinical entity consisting of the triad of gait disturbance, dementia, and incontinence, coupled with the laboratory findings of normal cerebrospinal fluid (CSF) pressures and radiographic findings of ventriculomegaly. Although NPH is a relatively rare cause of dementia, identifying NPH is important because it is one of the few treatable entities. NPH is one of the reasons that all dementia patients should have neuroimaging with either CT scanning or MRI as part of their workup (Fig. 13.3).

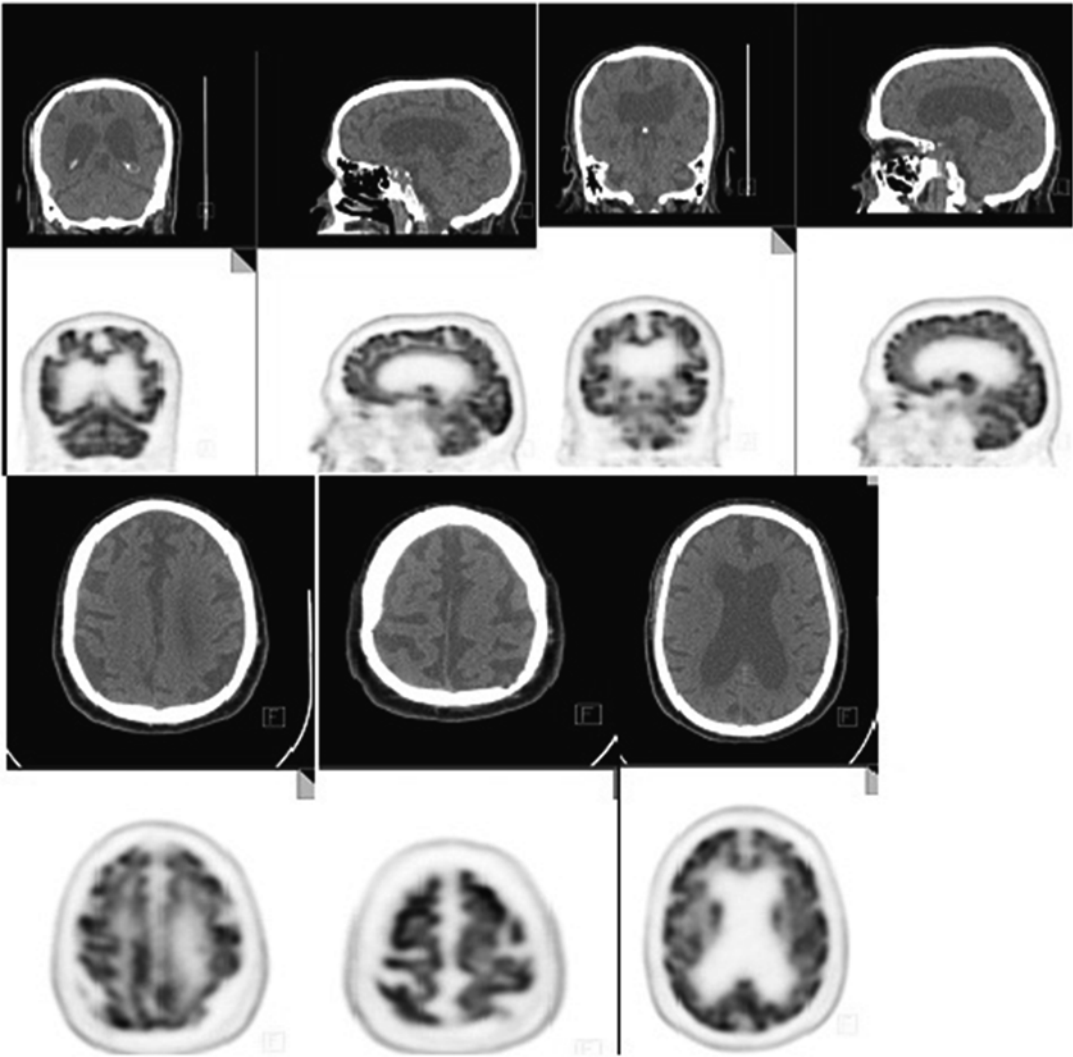


FIG. 13.3

SUGGESTED READING

Hoffman JM, Welsh-Bohmer KA, Hanson M, et al. FDG PET imaging in patients with pathologically verified dementia. *J Nucl Med.* 2000;41:1929–32.

Wilson JA, Islam O. Imaging in normal pressure hydrocephalus. *Medscape*, April 25, 2013.