

Alzheimer 's Disease and Common Co-Morbidities

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Case-Based Questions (please see page 3 for answers)

1.	A 74 year old female with a clinical history of Alzheimer's disease type dementia comes to autopsy. Which of the following corresponds to Braak stage VI?
a.	Diffuse amyloid plaques in cerebellum
b.	High density of neocortical neuritic plaques
c.	Moderate to high density of neocortical Lewy bodies
d.	Neurofibrillary tangles in the visual cortex
e.	Tauopathy involving the brainstem

2.	A 92 year old male with memory difficulties passed away following sequelae of a car accident. Which of the following findings at autopsy supports the diagnosis of "LATE-NC"?
a.	Alpha-synuclein inclusions in neocortical areas
b.	Neurofibrillary tangles in neocortical areas
c.	Neurofibrillary tangles in the amygdala and hippocampus
d.	TDP-43 inclusions in anterior horn cells
e.	TDP-43 inclusions in the amygdala and hippocampus

3.	An 87 year old female passed away with a clinical history of logopenic primary progressive aphasia with difficulties speaking with low speech output, progressing to end stage dementia. What is the suspected underlying neuropathologic change associated with this clinical phenotype?
a.	Aging related tau astroglipathy
b.	Alpha-synuclein aggregates
c.	Amyloid plaques and neurofibrillary tangles
d.	Cerebrovascular disease with numerous infarcts
e.	TDP-43 inclusions.

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Question 1 Correct answer and rationale: **D) Neurofibrillary tangles in the visual cortex**

There are six Braak stages including the most severe stage VI which can be determined by the presence of neurofibrillary tangles involving the primary visual cortex which typically reflects advanced disease.

Question 2 Correct answer and rationale: **E) TDP-43 inclusions in the amygdala and hippocampus**

LATE-NC, or limbic predominant age-related TDP-43 encephalopathy is a disease of the elderly associated with memory deficits. LATE-NC is characterized by TDP-43 inclusions involving the medial temporal lobe (amygdala, hippocampus) which can extend into neocortical regions.

Question 3 Correct answer and rationale: **C) Amyloid plaques and neurofibrillary tangles**

Logopenic variant of primary progressive aphasia (PPA) is a subtype of PPA. PPA is a type of frontotemporal dementia which is often associated with underlying frontotemporal lobar degeneration. However, logopenic variant of PPA is most often associated with underlying Alzheimer's disease neuropathologic change, namely amyloid plaques and neurofibrillary tangles.