Dystrophic neurites are associated with β-amyloid (Aβ) plaques in the brains of Alzheimer's disease (AD) and also found to be common in some specific areas of the normal aged brains. Here, we found that dystrophic neurites increased in CA1 and CA2 regions of the hippocampus and layer II and III regions of entorhinal and piriform cortex of aged mice which are the earliest and major pathologic areas in AD. These dystrophic neurites were positive with amyloid precursor protein (APP) which can be cleaved to Aβ peptides, one of major pathologic constituents in AD. Interestingly, these APP-positive dystrophic neurites were cholinergic nerve terminals since they were also positive with choline acetyltransferase and synaptophysin. These phenomena are thought to be due to disturbances of unfolded protein responses (UPR) and protein aggregation since these were stained with phosphorylated PERK, an UPR marker, and γ-tubulin, an aggresome marker, and cathepsin-D, a lysosomal marker. Thus, aging-associated disturbances of UPR and accumulation of protein aggregates at cholinergic nerve terminals in specific areas of brain regions related with memory could be associated with normal decline of memory in aged people. In addition, these age-related changes might be the most vulnerable factors to pathologic insults to result in neurodegenerative conditions, such as AD.