

Abstract

Alzheimer's disease (AD) is a common form of age-related dementia that mostly affects the aging population. Clinically, it is a disease characterized by impaired memory and progressive cognitive decline. Although the pathological hallmarks of AD have been traditionally described with a general confinement in the brain, recent studies have shown similar pathological changes in the retina, which is a developmental outgrowth of the forebrain. These AD-related neurodegenerative changes in the retina have been implicated to cause early visual problems in AD even before cognitive impairment becomes apparent. With recent advances in research, the commonly held view that AD-related cerebral pathology causes visual dysfunction through disruption of central visual pathways has been re-examined. Currently, several studies have already explored how AD manifests in the retina and the possibility of using the same retina as a window to non-invasively examine AD-related pathology in the brain. Non-invasive screening of AD through the retina has the potential to improve on early detection and management of the disease since the majority of AD cases are usually diagnosed very late. The purpose of this review is to provide evidence on the involvement of the retina in AD and to suggest a possible direction for future research into the non-invasive screening, diagnosis, and monitoring of AD using the retina.