Chronic traumatic encephalopathy neuropathology

Findings include: 1. cerebral and cerebellar atrophy

2. neurofibrillary degeneration of cortical and subcortical areas

3. deposition of β-amyloid protein

a) forming diffuse amyloid plaques

b) in a subset of chronic traumatic encephalopathy patients this involves the vessel walls giving rise to cerebral amyloid angiopathy

Although it shares certain histopathological findings with Alzheimer disease, chronic traumatic encephalopathy has a more specific presentation (hyperphosphorylated tau protein deposited as neurofibrillary tangles, associated with neuropil threads and sometimes with beta-amyloid plaques).

The neuropathological findings in a animal model of repetitive mTBI resemble some of the histopathological hallmarks of CTE, including increased astrogliosis, microglial activation, and hyperphosphorylated tau protein accumulation [1)].

1)
Petraglia AL, Plog BA, Dayawansa S, Dashnaw ML, Czerniecka K, Walker CT, Chen M, Hyrien O, Iliff JJ, Deane R, Huang JH, Nedergaard M. The pathophysiology underlying repetitive mild traumatic brain injury in a novel mouse model of chronic traumatic encephalopathy. Surg Neurol Int. 2014 Dec 23;5:184. doi: 10.4103/2152-7806.147566. eCollection 2014. PubMed PMID: 25593768; PubMed Central PMCID: PMC4287910.