Dementia Pugilistica

Dementia Pugilistica, more commonly known as ‘Punch Drunk Syndrome’, is a degenerative brain disorder resulting from head trauma. Dementia Pugilistica (DP) is typically associated with the sport of boxing; although symptoms of DP may appear immediately after a single traumatic brain injury, they are typically described following the cessation of exposure to chronic brain injury. Although DP has been described primarily in boxers, it may be caused in any manner in which the head is exposed to repetitive trauma [1]. Cases of DP in boxers show a positive correlation between the number of matches and the severity of symptoms; more bouts lead to more trauma, and results in more severe symptoms [2-4]. DP may be categorized as a late-onset disease with many boxers not exhibiting symptoms until years after retirement [2,5,6].

Symptoms of DP may include; gait ataxia, slurred speech, impaired hearing, tremors, disequilibrium, neurobehavioral disturbances, and progressive cognitive decline [2,5]. Further, most cases of DP present with early onset cognitive deficits [2]. Behavioral signs exhibited by patients include; premorbid personality traits, aggression, hypertension, suspiciousness, paranoia, childishness, hypersexuality, depression, and restlessness [1,2,5-8]. The progression of DP leads to more prominent behavioral symptoms such as; difficulty with impulse control, irritability, inappropriateness, and explosive outbursts of aggression [2,5,6]. Studies also indicate that patients with DP display difficulties with: memory, information processing, attention, concentration, sequencing abilities, judgment, reasoning, future planning, organization, and slowed finger tapping speed [2,5-7]. Boxers with DP can also exhibit symptoms resembling other degenerative disorders, including: Parkinsonism, Dementia, Alzheimer’s disease, Wernicke-Korsakoff syndrome, and Kluver-Bucy syndrome [2,5-7].

Neuroimaging and post-mortem examination are used to provide anatomical and physiological evidence for potential causes of the clinical signs exhibited by patients diagnosed with DP. Neuropathological examination of the brain’s of DP patients have revealed neurofibrillary tangle formation, which are indistinguishable to those seen in Alzheimer’s disease. Although Dementia Pugilistica and Alzheimer’s disease do not share similar etiologies, there is considerable overlap in the developmental processes and progression and potentially treatment. © Neuroanatomy. 2010; 9: 5–7.
Alzheimer’s disease is characterized by neurofibrillary tangle (NFT) formation occurring in the absence of amyloid plaques, suggesting chronic traumatic brain injury as the mechanism of NFT formation in both diseases. This suggests that the continued NFT formation experienced in the later stages of DP may be caused by amyloid deposition, suggesting that although DP and Alzheimer’s disease do not share similar etiologies, there is considerable overlap in the developmental processes and progression and potentially treatment.
References


