Vasculitis and dementia: what it is known

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Vasculitis is a rare but recognized cause of cognitive impairment up to overt dementia. Virtually any type of systemic or brain-localized vasculitis can lead to cognitive deterioration of various severity, although some vasculitides appear to affect the brain more often.

Giant cell arteritis (GCA) is the most common vasculitis in the elderly, and ischemic brain damage occurs in close to 5% of affected subjects [1-3]. Both cerebrovascular accidents and multi-infarct dementia are part of the spectrum of neurological complications of GCA. Dementia secondary to GCA usually occurs together with other symptoms and signs of GCA [4]. Involvement of the vertebrobasilar arteries is more common in GCA than in atherosclerosis, since about 50% of GCA-related brain ischemic events occur in the former territory compared to only 15-20% of those attributable to atherosclerosis [4]. In contrast, involvement of intracranial arteries is distinctively uncommon in GCA [5]. Treatment with glucocorticoids (GC) may reverse GCA-related dementia [4].

Adamantiades-Behçet’s disease is complicated by neurological manifestations in about 10-20% of patients [6, 7]. Neuro-Behçet’s disease (NBD) is the usual shorthand designation for neurological manifestations that occur in the context of NBD. MRI typically shows brainstem lesions often extending into the basal ganglia and internal capsule, while cerebrospinal fluid (CSF) analysis often reveals increased proteins, cells, or both. The characteristic picture of NBD is of a brainstem syndrome with pyramidal and cerebellar signs, but cognitive deficiency, psychosis, and dementia have also been described. There is some evidence that patients presenting with chronic progressing cognitive problems may represent a subset of NBD characterized by elevated CSF BAFF levels [8], whereas focal neurological deficit has been mapped to increased CSF IL-6 levels [8, 9]. Effective treatment often reduces BAFF levels [8].
ANCA-associated vasculitis (AAV), particularly granulomatosis with polyangiitis (GPA) can affect the brain in a minority of patients. Central nervous system (CNS) vasculitis often arises when vasculitis is active elsewhere. There is no clear preponderance of gender or of age of onset. Both ANCA-positive and -negative cases of CNS vasculitis are documented. The diagnosis is usually based on clinical CNS manifestations and multiple ischemic (sometimes hemorrhagic) MRI lesions mainly affecting the white matter. Angiography is often negative. Treatment with glucocorticoids and cyclophosphamide, sometimes with adjunctive intravenous immunoglobulins, usually improves clinical features and MRI lesions [10].

Leukocytoclastic vasculitis (LCV), although *per se* a common type of vasculitis, affects only exceptionally the brain. Two cases of progressive dementia on the background of brain LCV have been documented in the medical literature [11].

PCNSV (primary central nervous system vasculitis) is a rare vasculitis with an estimated prevalence of 2.4 cases per million [12]. By definition, PCNSV affects only the CNS, with the vast majority of patients having brain disease and approximately 10% also spinal cord involvement [13]. It is now increasingly recognized that within the spectrum of PCNSV a number of subsets can be identified [12, 14]. In particular, a subgroup of patients present with multiple, diffuse brain ischemic lesions on MRI and multiple stenoses at angiography: these patients have involvement of the larger intracranial vessels and carry a poorer prognosis, although many of them respond to GC and immunosuppressive treatment.

Another subgroup presents with cognitive deficiency and have usually a negative angiography, while MRI can show leptomeningeal enhancement and variable parenchymal lesions. These patients have smaller vessels involvement and usually have a better prognosis [15]. Within this subset, some patients have amyloid A-β4 deposition in the cerebral vessels co-localizing with an inflammatory infiltrate of the arterial walls. This subtype of PCNSV is often referred to as ABRA (A-β4 amyloid related angiitis) [16]. Cognitive impairment and overt dementia are more common in patients with smaller vessel involvement, especially those with ABRA [17, 18]. Treatment can reverse cognitive impairment [17].
In conclusion, although dementia secondary to vasculitis is only a fraction of all cases of dementia, it is important to entertain in the differential diagnosis because it is treatable and often curable.
References


