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Perspective

Systemic Lupus Erythematosus Manifestation Affecting the Brain and Central Nervous System

Peter Brenslin*

Department of Medicine and Health Science, University of Harvard, Cambridge, USA

DESCRIPTION

Cerebral lupus, also known as Central Nervous System (CNS) lupus, is a manifestation of Systemic Lupus Erythematosus (SLE) that affects the brain and central nervous system. SLE is a chronic autoimmune disease characterized by the production of autoantibodies that target various organs and tissues in the body, including the brain. Cerebral lupus can result in a wide range of neurological symptoms, from mild cognitive impairment to severe psychiatric disturbances. This study aims to provide an overview of cerebral and CNS lupus, including its causes, clinical features, diagnosis, and management. The exact cause of cerebral and CNS lupus is not fully understood, but it is believed to involve a combination of genetic, environmental, and hormonal factors. Genetic predisposition plays a role, as certain genes are associated with an increased risk of developing SLE. Environmental triggers, such as infections and exposure to ultraviolet light, can also contribute to disease onset. Hormonal factors are thought to influence the development and progression of lupus, as the disease is more prevalent in women of childbearing age.

In cerebral lupus, autoantibodies produced by the immune system mistakenly target components of the brain and CNS. These autoantibodies can penetrate the blood-brain barrier, leading to inflammation and tissue damage. The exact mechanisms by which autoantibodies cause neurological symptoms are complex and not fully elucidated. However, it is believed that inflammation, impaired blood flow, and immune-mediated damage to neurons and glial cells contribute to the pathophysiology of cerebral lupus. Cerebral lupus can present with a wide range of neurological and psychiatric symptoms, which can vary in severity and progression over time. Common neurological manifestations include headaches, cognitive dysfunction, seizures, movement disorders, and cranial nerve abnormalities. Psychiatric symptoms can range from mild disorders, such as anxiety and depression, to more severe manifestations like psychosis and delirium. Behavioral changes, including irritability and personality alterations, may also occur. One distinctive feature of cerebral lupus is the presence of neuropsychiatric syndromes. These syndromes encompass a variety of neurological and psychiatric manifestations that can occur alone or in combination. Some examples include lupus cerebritis (inflammation of the brain), lupus headache, mood disorders, cognitive dysfunction, and aseptic meningitis. The wide spectrum of symptoms often makes diagnosis challenging, as they can overlap with other neurological conditions.

The diagnosis of cerebral and CNS lupus requires a combination of clinical evaluation, laboratory tests, neuroimaging studies, and exclusion of other potential causes. The American College of Rheumatology has established diagnostic criteria for neuropsychiatric lupus, including cerebral lupus. These criteria require the presence of SLE and the exclusion of other confounding factors that may account for the neurological or psychiatric symptoms. Laboratory tests commonly performed in suspected cases of cerebral lupus include Antinuclear Antibody (ANA) testing, anti-double-stranded DNA (anti-dsDNA) antibody testing, and lupus anticoagulant evaluation. Cerebrospinal fluid analysis may reveal abnormalities such as increased protein levels, lymphocytic pleocytosis, and the presence of autoantibodies. Neuroimaging techniques like Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) scans can help identify structural abnormalities, areas of inflammation, or ischemic changes in the brain. The management of cerebral lupus involves a multidisciplinary approach, with rheumatologists, neurologists.

Correspondence to: Peter Brenslin, Department of Medicine and Health Science, University of Harvard, Cambridge, USA, E-mail: brenslinpeter485@edu.org

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