Relapsing Polychondritis Possibly Caused by Chronic Infection with Borrelia Burgdorferi – Case Report

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Introduction: Relapsing polychondritis has been described by Rudolph von Jaksch Warthenhorst in 1923 under the name of polichondropathy. Although the etiology is unknown, an autoimmune mechanism is likely due to formation of autoantibodies to type II collagen in the extracellular matrix of the cartilage with its consequent destruction.

Case report: We present a case with relapsing polychondritis according to McAdam and Damiani criteria and with positive Western blot reaction for Ac IgG anti Borrelia burgdorferi. Serological reaction became negative and the patient presented favorable evolution at 6 months follow-up after corticosteroid therapy and antibiotics.

Conclusion: Chronic infection with Borrelia burgdorferi may play a role in relapsing polychondritis determinism

Keywords: relapsing polychondritis, Borrelia burgdorferi

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Diagnosis is set on the basis of the clinical picture in most cases. Radiographs and joint histopathology help support the diagnosis. In atypical forms with primary respiratory impairment, it appeals to PET-CT, followed by cartilage biopsy of involved organ [11]. Histopathology shows degeneration and an inflammatory infiltrate composed of lymphocytes, plasma cells and neutrophils. The first diagnostic criteria was established by McAdam and imply the presence of at least three of the following clinical manifestations: bilateral auricular chondritis, nasal chondritis, audio-vestibular affection, sero-negative arthritis, ocular inflammation and airway chondritis [2]. In 1979 Damiani sets new diagnostic criteria, namely the presence of one of the events described by McAdam with relevant histopathology or two clinical symptoms with favorable response to corticosteroid therapy [12]. In our case the diagnosis was supported by this bilateral ear chondritis with sclera inflammation, joint damage and favorable response to prednisone.

There have been cases cited of RP association with other autoimmune or inflammatory disease such as ulcerative colitis, ankylosing spondylitis, Behcet’s disease, myelodysplastic syndromes [13, 14, 15, 16]. There are reported cases of central nervous system affection translated by encephalitis, meningitis, meningoencephalitis [17, 18]. Have been described so far three cases of RP with symptoms of Parkinson’s disease, but the association was demonstrated by Atsushi and his team in 2014 by highlighting the Lewy bodies in a patient who present clinical resemble of Parkinson’s disease and RP [19].

We introduced prednisone in dose of 25 mg/day, followed by gradual decrease when therapeutic response. This represents the treatment of choice, 75% of patients requiring a mean dose of 25 mg/day for the relief of symptoms [2]. It generally calls to prednisone 1 mg/kg/day with gradual decrease after getting control of clinical manifestations. Colchicine may also be used, cyclosporin A or methotrexate [20]. There are reports of biologic therapy benefits for etanercept or tocilizumb [21, 22]. We associated with doxycycline 2x100 mg/day for 21 days due to the presence of IgG anti Borrelia burgdorferi.

Infection with Borrelia burgdorferi is cited in literature coexisting with other autoimmune diseases such as morphea plaque and other localized scleroderma or dermatomyositis [23, 24]. It was reported the association between dermatomyositis and RP due to Borrelia burgdorferi infection [25]. In order to make a direct causal link between infection with Borrelia burgdorferi and some organic disease it is need to be showed the presence of spirochetes in affected tissue by molecular methods such as PCR or FFM [26]. In the case of our patient we could not perform molecular biology, but the history of the tick bite, a chronic migratory erythema, no antibiotic therapy at that time, with positive serology converting in negative subsequent to favorable evolution after antibiotic therapy lead us to claim that chronic infection with Borrelia burgdorferi may play a role in the development of relapsing polychondritis.

**Conclusion**
Relapsing polychondritis has an autoimmune etiology with multiple organs affected and the main target is collagen type II. Diagnosis can be sustain clinically in typical forms but etiology of disease it is still far from being fully clarified. Chronic infection with Borrelia burgdorferi may play some role in the determinism of the disease.
Although Borrelia IgG test can be false positive in autoimmune diseases, the presence of tick bite and chronic migratory erythema associated with remission symptoms, negative serology at 6 months after therapy, allows us to formulate the hypothesis that chronic infection with Borrelia burgdorferi could be involved in the etiopathogenesis of relapsing polychondritis.

References