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Cryoglobulinemic Glomerulonephritis in a Patient with Polymyositis

To the Editor:

Cryoglobulinemic vasculitis is a small-vessel vasculitis that usually involves skin, kidney, joint, and peripheral nerve. The hallmark of the disease is the presence of cryoglobulins, the immunoglobulins that precipitate in vitro at temperature <37°C. Mixed cryoglobulinemic vasculitis is one of its subtypes characterized by the presence of cryoglobulins that are a mixture of monoclonal immunoglobulin (Ig)M + polyclonal IgG or polyclonal IgM + polyclonal IgG.[1] More than 90% of cases of mixed cryoglobulinemic vasculitis are found in association with hepatitis C virus infection and a variety of autoimmune disorders.[2] However, mixed cryoglobulinemic vasculitis is rarely described in patients with polymyositis.

A 51-year-old woman with a history of polymyositis presented to our institute with progressive muscle weakness, rash, and fever. She was diagnosed with polymyositis (PM) 4 years earlier (confirmed by typical muscle histopathology) and was treated with steroids over a course of 1 year. She responded very well to the treatment. However, she was lost to follow-up and had not come to see her physician for 2 years. At this presentation, she reported a history of progressive proximal muscle weakness over the past 6 months accompanied by intermittent low-grade fever. Three weeks before the presentation, she also noticed red rash over her shins. She denied any history of dry eyes or dry mouth. Physical examination revealed a symmetric proximal muscle weakness and palpable purpura on her shins. No lymphadenopathy was detected. Initial laboratory investigation was remarkable for a markedly elevated creatine phosphokinase of 4230 IU/L, an elevated creatinine of 3.4 mg/dL (her creatinine was 1.1 mg/dL 2 years earlier), and an abnormal urinalysis with numerous dysmorphic red blood cells, red blood cell casts, and white blood cells. Computed tomography of the chest and abdomen did not reveal any lymph node enlargement or hydronephrosis. She underwent a renal biopsy, which revealed diffuse endocapillary proliferative glomerulonephritis and intracapillary immune thrombi, as well as endarteritis of the interlobular artery (**Figure**). Additional tests were remarkable for a positive cryoglobulin (monoclonal IgM kappa + polyclonal IgG at 5 g/L), negative anti-Ro/SSA, anti-La/SSB, and anti-hepatitis C virus antibody. She was diagnosed with cryoglobulinemic glomerulonephritis, and emergent plasmapheresis was initiated. She also received pulse intravenous methylprednisolone and cyclophosphamide. Her creatinine went down to baseline after the treatment and she recovered her muscle strength.

Cryoglobulins are generated by the clonal expansion of B cell as a result of lymphoproliferative disorders,

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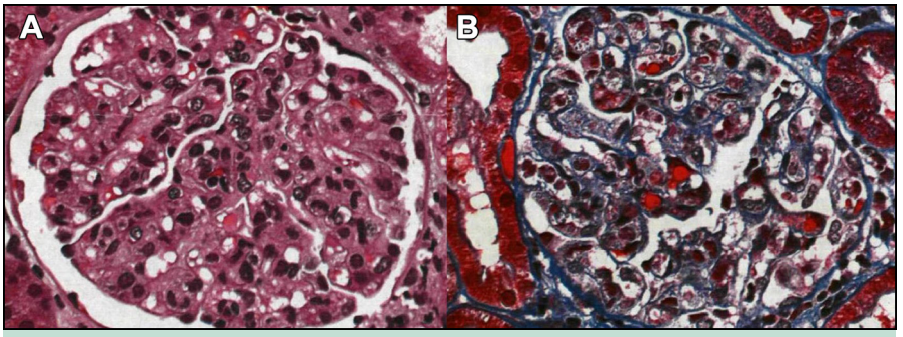

Figure (**A**) Hematoxylin & eosin: diffuse endocapillary proliferative glomerulonephritis with numerous infiltrating macrophages. (**B**) Trichrome stain: many intracapillary immune thrombi as well as segmental small subendothelial deposit.

chronic infection, or autoimmunity. Thus, theoretically, any autoimmune disorders are capable of causing this vasculitic syndrome. However, it is rarely described in association with idiopathic inflammatory myopathy,[3-5] and to the best of our knowledge, this is the first reported case of cryoglobulinemic glomerulonephritis in a patient with PM.

Although without any controlled studies, plasmapheresis in conjunction with an aggressive immunosuppression (typically intravenous methylprednisolone plus cyclophosphamide) is the preferred treatment strategy for patients with acute severe disease as manifested by progressive renal failure, central nervous system involvement, or alveolar hemorrhage, followed by specific treatment for the underlying autoimmune disorder. Our patient received this treatment regimen and responded well to that.

In conclusion, we report the first case of cryoglobulinemic glomerulonephritis in a patient with PM. Although relatively uncommon, physicians should be aware of this association and cryoglobulinemic glomerulonephritis should be in the differential diagnosis of renal insufficiency in patients with PM.

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References

1. Ramos-Casals M, Stone JH, Cid MC, et al. The cryoglobulinaemias. *Lancet*. 2012;379:348-360.
2. Terrier B, Cacoub P. Cryoglobulinemia vasculitis: an update. *Curr Opin Rheumatol*. 2013;25:10-18.
3. Voll C, Ang LC, Sibley J, et al. Polymyositis with plasma cell infiltrate in essential mixed cryoglobulinemia. *J Neurol Neurosurg Psychiatry*. 1993;56:317-318.
4. Rodriguez-Perez N, Rodigruez-Navedo Y, Font YM, Vilá LM. Inflammatory myopathy as the initial presentation of cryoglobulinaemic vasculitis. *BMJ Case Rep*. 2013 Jun 3;2013. http://dx.doi.org/10.1136/bcr-2013-010117.
5. Lambie PB, Quismorio FP Jr. Interstitial lung disease and cryoglobulinemia in polymyositis. *J Rheumatol*. 1991;18(3):468-469.