Digital Ischemia Secondary to Type 1 Cryoglobulinemia in Multiple Myeloma

Gene Schwartz, Carmen Wallace, Marat Gadzhiev
Medical College of Wisconsin, Milwaukee, WI

LEARNING OBJECTIVES
- Enhance clinician awareness of the presentations and complications of cryoglobulinemia.
- Recognize that cryoglobulinemia can be a presentation of a hematologic disease such as multiple myeloma.
- Emphasize the importance of plasmapheresis for severe manifestations of cryoglobulinemia such as digital gangrene.

CLINICAL PRESENTATION
56-year-old man presents with painful and progressively erythematous right big toe and petechial rash on the bilateral feet.
- PMH: hypercholesteremia, hypertension, and a 5-month history of seronegative inflammatory arthritis treated with methotrexate, etanercept and prednisone
- Imaging showed diffuse atherosclerotic disease, and cholesterol emboli were suspected
- Started on ASA, clopidogrel, pain control with opioids, gabapentin, and nitroglycerin ointment
- Cardiolipin antibodies, beta 2 glycoprotein antibodies, and lupus anticoagulant were negative

Bone marrow biopsy showed 6.8% plasma cells which were clonal by flow cytometry and by immunohistochemistry bordering the 10% threshold for myeloma diagnosis. While skeletal survey was negative, due to plasma cell percentage bordering the threshold for myeloma diagnosis and significant light chain production with associated cryoglobulinemia with digital ischemia, the patient was diagnosed with multiple myeloma presenting as type I cryoglobulinemia. Plasmapheresis was initiated with good response.

DISCUSSION
- Cryoglobulins precipitate at T< 37°C and dissolve on rewarming.
- Three types of cryoglobulins: type I, an isolated monoclonal immunoglobulin; type II, a monoclonal and polyclonal immunoglobulin; and type III, with two polyclonal immunoglobulins.
- Types II and III represent mixed cryoglobulinemia.
- Hepatitis C virus infection causes 60-90% of mixed cryoglobulinemias
- Pathology includes small vessel leukocytoclastic vasculitis
- Mixed cryoglobulinemia presentation is often constitutional and nonspecific, e.g. arthralgia, fatigue, myalgia, palpable purpura due to cutaneous vasculitis
- Meltzer’s triad of palpable purpura, arthralgias, and weakness is seen in ~25% of patients

REFERENCES