The antinuclear cytoplasmic antibodies vasculitis associated thrombosis
and necrosis of feet

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The diagnosis of small vessel vasculitis can be difficult, mainly if typical symptoms and the serological markers are not present at the onset of the disease. In severe cases, thrombotic and necrotic changes are driven by the inflammatory etiology of the disease. Aggressive thrombolytic treatment might be ineffective in such cases. The occupational exposure of heavy metals may play a role in disease induction and antinuclear cytoplasmic antibodies (ANCA) stimulation. Studies have reported a possible relationship between metals exposure and the risk of ANCA-associated vasculitis - AAV [1]. In such cases, the differential diagnosis should include microscopic polyangiitis (MPA) or eosinophilic granulomatosis with polyangiitis (EGPA) [2]. ANCA positivity is significantly detected amongst subjects who had histories of asbestos exposure [3]. The patients with AAV should be treated with intravenous glucocorticosteroids, followed by immunosuppressive therapy [4].

A 61-year-old Caucasian male patient with massive necrosis of toes of the feet was admitted to the angiology department. At the onset of the disease, Raynaud phenomenon and mild skin changes were observed (petechiae on the fingertips and toes). The patient was treated with pentoxifylline and acetylsalicylic acid. Letter hemorrhagic and necrotic changes appeared in distal fingertips associated with diffuse, intermittent joint pains in knees, and elbows (Figure 1A and 1B). Doppler ultrasound revealed multilevel calcified atherosclerotic lesions in the arteries of lower extremities. The advanced changes were present in the distal superficial femoral arteries - SFA (40% narrowing of the vessel lumen) and the anterior tibial arteries (trace flow was in the proximal part of the vessel, and lack of blood flow in CD of distal part).
In angiography, acute thrombosis in both anterior tibial arteries and digital arteries was detected.

Thrombolytic treatment was administered three times without the alleviation of the aggressive necrosis process. The biochemistry and serologic results showed leukocytosis, thrombocytosis, high C-reactive protein (CRP), and positive antinuclear antibodies (ANA). The past medical history of the patients was significant for hypertension, 25 years of smoking, and occupational exposure to mercury, asbestos, and lead. Hypertension with advanced atherosclerosis with thrombus formation and prolong smoking is often observed in small vessel vasculitis; however, they might also be related to mercury poisoning.

Since musculoskeletal symptoms and elevated ANA (titer 1/160) were observed, the patient was admitted to the Department of Rheumatology and Internal Diseases for further diagnosis. An elevated p-ANCA (ANCA with perinuclear staining in indirect immunofluorescence) was detected (titer 1/640). Anti-phospholipid antibodies and cryoglobulins were not present. Laboratory investigations showed negative results for hepatitis B and C, HIV, *Chlamydia trachomatis*, and *Yersinia enterocolitica species*. Due to the lack of organ involvement and the presence of p-ANCA, the patient was diagnosed with undifferentiated p-ANCA vasculitis. Since massive necrosis was present, ceftriaxone, intravenous immunoglobulins (IVIG), and methylprednisolone treatment were also initiated. Three weeks later, the patient was hospitalized in the Department of Angiology and Vascular Surgery. Due to the massive necrosis, amputation through the middle part of the foot of the right leg and the third toe of the left foot was performed (Figure 1C and 1D). The histopathological material revealed necrotic vasculitis without granuloma formation. Although the presence of clinical and serological manifestations, in this case, is suggestive of a systemic autoimmune disease, the
classification criteria for a defined connective tissue disease or a specific type of vasculitis were not completely fulfilled. This case shows that the p-ANCA vasculitis limited to the skin without organ involvement might progress very quickly and aggressively, resulting in skin necrosis.
Figure 1 A - necrotic skin changes of undifferentiated antinuclear cytoplasmic antibodies (perinuclear pattern) vasculitis before treatment; B undifferentiated antinuclear cytoplasmic antibodies (perinuclear pattern) vasculitis – state after amputation; C - X-ray of the feet: status after right foot and third left toe amputation; D - X-ray of the right foot after amputation.

References

1. Stratta P, Messuerotti A, Canavese C, et al. The role of metals in autoimmune vasculitis: epidemiological and pathogenic study. Sci Total Environ. 2001; 270: 179-190.

2. Pagnoux C. Updates in ANCA-associated vasculitis. Eur J Rheumatol. 2016; 3: 122-133.
3. Beaudreuil S, Lasfargues G, Lauériere L, et al. Occupational exposure in ANCA-positive patients: a case-control study. Kidney Int. 2005; 67: 1961-1966.

4. Yates M, Watts R. ANCA-associated vasculitis. Clin Med (Lond). 2017; 17: 60-64.