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Rheumatoid vasculitis mimicking cryptococcal infection

Rheumatoid vasculitis (RV) is a severe complication of rheumatoid arthritis (RA), characterized by cutaneous and systemic vasculitis affecting small or medium-sized vessels [1]. Differential diagnoses include other vasculitides and infections due to immunosuppressive treatment for RA. Disseminated cryptococcosis, which occurs primarily in immunocompromised patients, is a life-threatening systemic infection that can present with various skin manifestations, including papules, nodules, purpura, and ulcers [2]. Histological diagnosis of cryptococcosis is based on the identification of encapsulated yeast forms highlighted with periodic acid-Schiff (PAS) and mucicarmine stains. Here, we report an unusual case of RV that clinically and histologically mimicked disseminated cryptococcosis.

An 86-year-old man was admitted for fatigue, weakness, and skin lesions of the extremities. He had been receiving tocilizumab for RA, but this was discontinued two months before admission due to bacterial pneumonia. Physical examination revealed multiple purpuric papules and plaques on the extremities (*figure 1A*). Laboratory test results revealed normal leukocyte counts (4,290; normal range: 3,300-8,600/μL), elevated C-reactive protein levels (12.84; normal range: 0.00-0.14 mg/dL), and decreased C3 complement levels (46.3; normal range: 73-138 mg/dL). The patient was positive for rheumatoid factor (99.8; normal range: 0.0-15.0 IU/mL) and anti-cyclic citrullinated peptide antibody (352.0; normal range: 0.0-4.4 U/mL), and negative for proteinase-3- and myeloperoxidase (MPO)-anti-neutrophil cytoplasmic antibodies (ANCA). Clinically, the lesions were suggestive of RV or septic vasculitis, and treatment with empiric antibiotics (intravenous ampicillin/sulbactam) was initiated. Skin biopsy demonstrated leukocytoclastic vasculitis of the dermal vessels with infiltration of lymphocytes and neutrophils (*figure 1B, C*). Additionally, there were numerous yeast-like pale basophilic bodies surrounded by capsule-like vacuolated spaces in the dermis (*figure 1D*), suggesting cryptococcal yeast forms. However, PAS and mucicarmine staining failed to reveal basophilic bodies or surrounding vacuolated spaces, respectively (*figure 1E*). These cells were diffusely positive for MPO (*figure 1F*). Furthermore, blood and tissue cultures for bacteria and fungi, as well as a serum cryptococcal antigen test, were negative. Based on these findings, the patient was diagnosed with RV mimicking cryptococcal infection. Although additional immunosuppressive therapy was considered, rapid progression of multiple organ failure resulted in the death of the patient on Day 14 of hospitalization.

Histological mimics of cryptococcosis have recently been recognized for two skin diseases: neutrophilic dermatosis and leukocytoclastic vasculitis [3, 4]. The most characteristic feature is pale basophilic bodies with surrounding vacuolated spaces resembling cryptococcal organisms. Although the mimickers are indistinguishable from cryptococcosis on routine haematoxylin-eosin preparations, negative staining with PAS and mucicarmine is helpful for the diagnosis. Neutrophilic dermatoses mimicking cryptococcosis have been more frequently reported, and the term

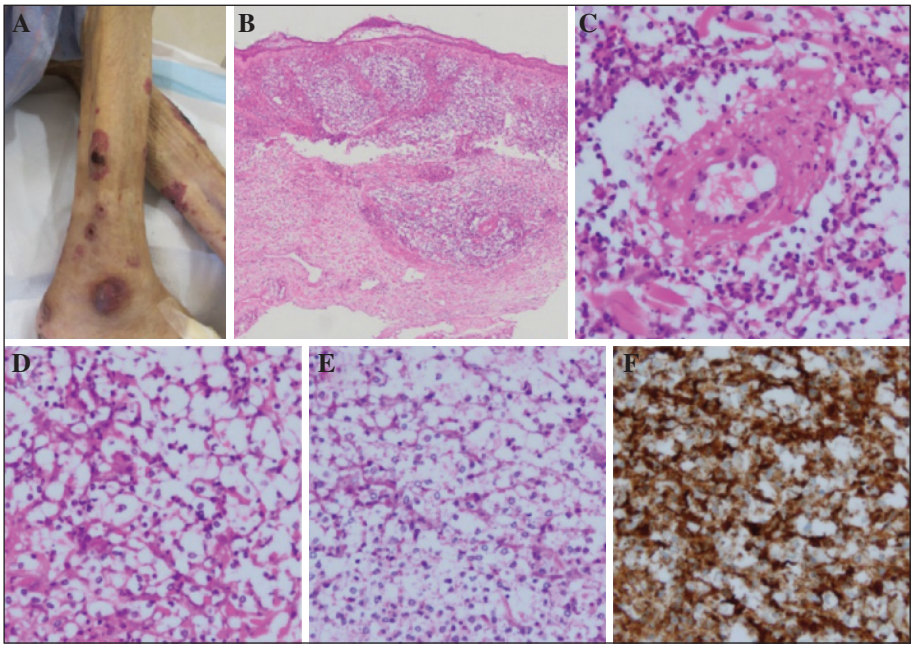

Figure 1. A) Skin lesions on the right lower leg showing purpuric papules and plaques with crusts. **B**, **C**) Leukocytoclastic vasculitis of the dermal vessels with infiltration of lymphocytes and neutrophils (haematoxylin and eosin stain; original magnification: ×40 [**B**], ×400 [**C**]). **D**) Numerous yeast-like pale basophilic bodies surrounded by capsule-like vacuolated spaces (original magnification: ×400). **E**) Negative periodic acid-Schiff staining of the basophilic bodies (original magnification: ×400). **F**) Diffuse immunostaining for myeloperoxidase (original magnification: ×400).

"cryptococcoid Sweet syndrome" has been proposed [5]. In addition, leukocytoclastic vasculitis with cryptococcus-like changes has been described, and these patients had positive serum MPO-ANCA [4]. To the best of our knowledge, this is the first report of RV mimicking cryptococcal infection. Although the aetiology of this morphological change remains unclear, it is speculated that it represents degenerative changes in neutrophils. A previous report using transmission electron microscopy demonstrated that the basophilic bodies and vacuolated spaces were consistent with remnants of degenerating human cells [3]. Immunostaining for MPO was also positive, further supporting the neutrophilic origin of the cells. The treatment for RV includes systemic corticosteroids, while for cryptococcosis, it is important to consider reducing immunosuppression and administering systemic antifungal agents. Therefore, recognition of this histological change is essential to avoid misdiagnosis and inappropriate therapy in patients with RA presenting with cutaneous lesions. ■

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COVID-19 hand hygiene measures for health care workers

As the COVID-19 pandemic is still developing, it is becoming more and more evident that currently recommended hand hygiene measures to limit the spread of the virus should be respected whenever and wherever possible. Different health authorities worldwide recommend frequent hand washing with soap or similar detergents and water, the use of alcohol-based hand sanitizers (ABHS) and wearing of protective gloves and face masks [1-6]. Even though these hygiene measures are recognised as being effective, intensive hand cleansing and disinfection, as well as the use