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CASE REPORT

VASCULITIS AND BACTERAEMIA WITH *YERSINIA ENTEROCOLITICA* IN LATE-ONSET SYSTEMIC LUPUS ERYTHEMATOSUS

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SUMMARY

We report a case of *Yersinia enterocolitica* 0:9 septicaemia complicating systemic lupus erythematosus in an elderly male patient. The infection gave rise to digital vasculitis, fevers and general malaise on top of pre-existing articular symptoms. Features of *Yersinia* septicaemia may mimic some of the signs of lupus.

KEY WORDS: Systemic lupus erythematosus, Male, *Yersinia* infection, Late onset.

SYSTEMIC lupus erythematosus (SLE) commonly affects young women between 20 and 40 yr of age. Nevertheless, many investigators have shown that in 10–20% of cases, onset occurs after the age of 50. In the elderly, the presenting symptoms of lupus are often insidious and diagnosis may be delayed. In this paper, we describe a 75-yr-old patient who presented with lupus whose clinical course was complicated by *Yersinia* septicaemia which gave rise to digital vasculitis. Systemic *Yersinia* infections infrequently give rise to multisystemic chronic inflammatory disorders, some of the clinical features of which may mimic those seen in connective tissue diseases. Awareness of this condition should help to establish a correct diagnosis earlier, especially in the elderly patient who presents with an unexpected vasculitis in the context of an established rheumatological disease.

CASE REPORT

A 75-yr-old Caucasian male presented initially with symmetrical polyarthritis of the wrists and hands, elevated erythrocyte sedimentation rate (ESR) and negative rheumatoid factor. An initial diagnosis of seronegative rheumatoid arthritis was made by a rheumatologist and treatment with i.m. gold salts was begun. This was stopped after a few months because of leucopenia, and he was then managed for the next 2 yr with low-dose corticosteroids (prednisone 5 mg/day) and non-steroidal anti-inflammatory drugs (NSAIDs) with disappointing results.

Two years later, the patient complained of painful palmar erythema accompanied by chills, extreme fatigue and weight loss. A few weeks later, small necrotic ulcerations developed on his fingertips. Other complaints included dry mouth and eyes, reduced strength in the hands, nocturnal pain in the knees, cervical spine and wrists. There was no history of Raynaud's phenomenon, temporal headache, visual disturbances, abdominal pains or bowel disturbances.

On admission, the patient had a low-grade pyrexia at 37.8°C. There was no palpable lymphadenopathy. Palmar erythema and small necrotic lesions were noted on the first to third fingertips of the right hand, and on the first and second finger of the left hand (Fig. 1). Cardiovascular, respiratory and abdominal examinations were normal. Neurological examination revealed generalized weakness of proximal and distal muscle groups due to amyotrophy and peripheral arthritis. Joint examination showed symmetrical synovitis of the PIP and the MCP joints of the second to fifth fingers of both hands. Urine examination was normal.

Laboratory investigations showed a normochromic, normocytic anaemia (Hb was 98 g/l). The white cell count was normal (8.1 g/l) with a relative lymphopenia (lymphocytes 10%). The ESR was elevated at 130 mm/1st h and the C-reactive protein (CRP) was 48 mg/l. Total serum protein was elevated at 85 g/l with increased immunoglobulins (IgG 44.4, IgA 7.1 and IgM 1.6 g/l). Immunoelectrophoresis showed a polyclonal hypergammaglobulinaemia and no monoclonal bands were detected by immunofixation. Cryoglobulins were not detected. Renal and liver function tests were normal apart from a raised serum creatinine of 103 μmol/l. Urine examination did not reveal an active sediment.

Immunological studies showed the absence of rheumatoid factor. The ANA was positive at a titre of 1/640 (normal range $<1/80$) with a homogeneous pattern. Anti-double-stranded (ds) DNA was positive at 1/80 (normal range $<1/10$). Antibodies to extractable nuclear antigens (ENA) were negative. Complement C3 was reduced at 0.39 g/l (normal range 0.5–0.9 g/l) and C4 was 0.08 g/l (normal range 0.10–0.40 g/l). β-2 Microglobulin was strikingly elevated at 8444 (normal values 975–1645). ANCA were not detected.

A bone marrow aspiration and biopsy showed reactive plasmocytosis and small lymphocytes infiltrating the normal marrow. Blood cultures were performed because of a suspicion of bacterial endocarditis. This surprisingly revealed *Yersinia enterocolitica*. Serological examination showed positive agglutinating and complement-fixing antibodies to *Y. enterocolitica* 0:9 subtype at 1/640 and 1/128, respectively (normal $<1/20$ and $<1/8$). In an attempt to determine the source of infection, a colonoscopy was performed which showed multiple erosions involving the caecum to the sigmoid colon. Histological examination showed non-specific subacute inflammation with ulcerations of the colonic mucosa. Immunofluorescence examination of the biopsies was negative for cytomegalovirus. Stool cultures were negative for *Y. enterocolitica*.

Radiological examinations, including a chest X-ray, an abdominal ultrasound and a thoracoabdominal CT scan, did not reveal evidence of a neoplasm. X-rays of the hands

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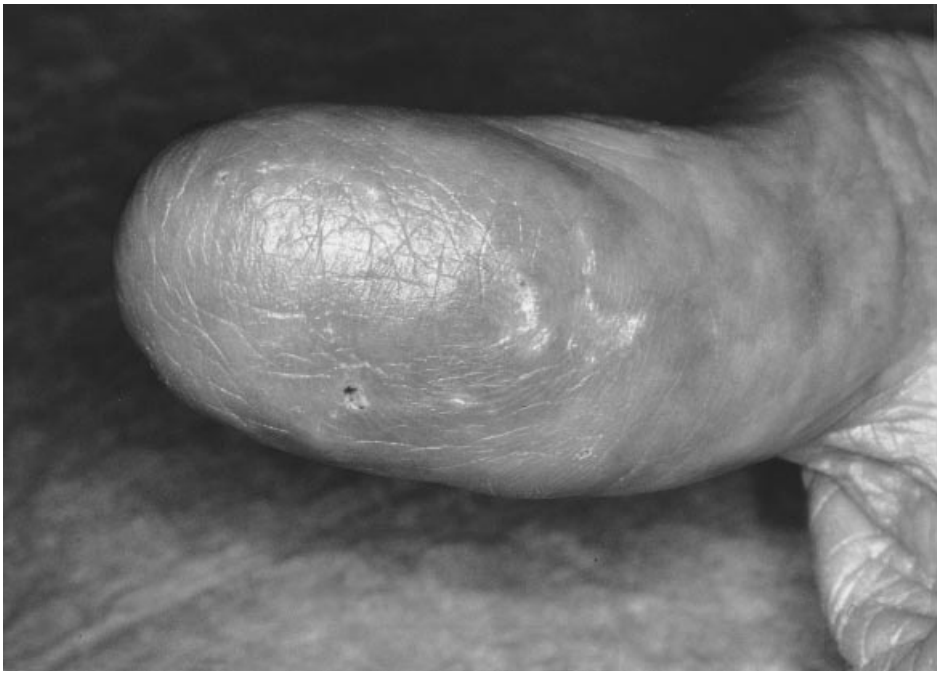

FIG. 1.—Pulp vasculitic lesions on the right thumb.

showed changes of osteoarthritis, but no erosive articular changes.

The patient was commenced on treatment with ceftriaxone 2 g/day i.v. for 3 weeks. After the first week of therapy, prednisone was also started at a dose of 40 mg daily. There was a rapid improvement in general well-being and regression of synovitis. Subsequent blood cultures were all negative. When reviewed 10 weeks later, the patient was much improved, with resolution of the signs of digital vasculitis. The Hb was 100 g/l and the ESR had decreased to 55 mm/h. The WBC was 3.3 g/l and the lymphopenia persisted. Three months later, immunological tests revealed the persistence of ANA at a titre of 1/2560 and dsDNA antibodies at 1/10 (normal $< 1/10$) were detected. Both C3 and C4 levels returned to the normal range.

DISCUSSION

This case illustrates the insidious and atypical presentation of late-onset SLE, the initial manifestations and clinical course of which appear to be different in the elderly, and often resemble those of drug-induced SLE, primary Sjögren's syndrome or polymyalgia rheumatica [1]. In addition, his SLE was complicated by *Yersinia* septicaemia, which gave rise to unusual manifestations which resembled SLE in some aspects.

Late-onset SLE is more frequent than generally thought. Indeed, various studies showed that 6–16% of SLE patients presented over the age of 50 yr [1–4] and 3.4–11% of patients over the age of 60 yr [4, 5]. There is often a delay in diagnosis, especially in comparison with younger-onset patients. In our patient, the initial diagnosis was seronegative rheumatoid arthritis, and it was only 2 yr after the onset of articular symptoms that the diagnosis of SLE was established. Delay in diagnosis may have been compounded by the fact that he was male, although published studies showed that elderly-onset SLE had the same sex distribution as SLE of younger age of onset [5, 6]. Many investigators have reported that the clinical disease pattern is different in the elderly SLE patient. It tends to be insidious, with less cutaneous, renal and central nervous system involvement. Globally, two major patterns of presentation in late-onset SLE have been described: (a) arthritis followed by cutaneous involvement with pleuritis and pericarditis [2]; (b) myalgia, weight loss and fatigue [5]. When present, arthritis is more likely to affect the hands, wrist and knees, most often without deformities or bony erosions. Dermatological manifestations most often encountered were photosensitivity, malar rash and cutaneous vasculitis [4, 5, 7].

In our patient, a systemic presentation associated with lymphopenia raised the suspicion of SLE, which was confirmed serologically. His illness was, however, complicated by *Y. enterocolitica* septicaemia, which was identified as the *Y. enterocolitica* 0:9 subtype by serological analyses. The portal of entry is likely to be intestinal, as colonoscopic examination revealed multiple superficial ulcerations, which are a well-recognized histological feature of *Yersinia* infection.

Yersinia enterocolitica is an aerobic Gram-negative bacillus which causes predominantly enteric infection. The origin of the disease is often unclear, although the portal of entry is mainly the gastrointestinal tract, and outbreaks traced to contaminated food and water have been reported. Underlying diseases such as diabetes and malignancy predispose to infection, and iron overload is recognized as a particular contributory factor. In our patient, low-dose steroid therapy was the only factor which may have contributed to his infection.

Apart from their enteric effects, *Yersinia* infections

have been incriminated in reactive arthritis, and more rarely in chronic inflammatory diseases of the liver and kidneys [8] and in vasculitis. Infection may provoke the formation of autoantibodies such as antithyroid antibodies [9, 10]. We were unable to find any previous reports of ANA or dsDNA antibodies induced by *Yersinia* infection, and therefore do not think that the lupus serology in our patient was directly attributable to the infection. He remained ANA positive (1/2560) and dsDNA positive 3 months after treatment with antibiotics, and ANA persisted at the same titre 9 months after his illness.

Systemic *Yersinia* infections have been reported to cause vasculitis. Polyarteritis was reported in a case of *Y. enterocolitica* 0:3 infection [11], and leucocytoclastic vasculitis in association with *Y. enterocolitica* infection [12]. A number of different skin lesions have been described, ranging from erythema nodosum, erythema multiforme and necrotizing vasculitis involving small, medium or large-sized arteries [13]. In one report, vascular deposition of immune complexes containing bacterial antigen was demonstrated in a patient with polyarteritis [11]. Our patient developed digital vasculitis at the same time that he had *Y. enterocolitica* 0:9 septicaemia, and the vasculitis and systemic symptoms responded promptly to a combination of antibiotic and corticosteroid treatment, suggesting that the vasculitis was in part due to the *Yersinia* infection.

This case illustrates the atypical and insidious onset of SLE in the older age group, and the need to be aware of concomitant infections which may mimic the systemic manifestations of SLE. To our knowledge, this is the first report of *Y. enterocolitica* infection in this setting, leading to the development of digital vasculitis. Bacteriological and serological studies for *Yersinia* infection may be indicated in patients presenting with unexpected vasculitis in a rheumatological setting.

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