cells, or her B-cell subset. Like autoinflammatory diseases, our case strongly suggests that neutrophils and monocytes play important roles in the development of BD. Our case may help to explain the pathogenesis of BD.

Rheumatology key message

• BD might be caused by primary dysfunction of innate immunity like autoinflammatory diseases.

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Therapeutic effect of tocilizumab on two patients with polymyositis

Sir, PM is one of the inflammatory myopathies with the clinical features of progressive symmetrical muscle weakness and mononuclear inflammatory cell infiltrates in muscle tissue [1]. For the treatment of PM, CS with or without immunosuppressive drugs is recommended as the first-line treatment [2]. However, our two patients with PM had been refractory to both CS and immunosuppressive drugs and treatment with a humanized anti-IL-6 receptor antibody, tocilizumab [3] was initiated.

A 40-year-old male was diagnosed with probable PM [4] in 2000 because of symmetrical muscle pain and weakness in proximal muscle groups, an increase in creatine phosphokinase (CK), a myogenic pattern on EMG and positivity for anti-Jo-1 antibody. Treatment with prednisolone at a dose of 1 mg/kg/day was started, and in 2001 AZA was introduced at 100 mg/day. When prednisolone was tapered to 7–15 mg/day, CK level repeatedly became elevated, accompanied by muscle pain. Due to these recurrent relapses, other immunosuppressive drugs such as MTX, MMF, ciclosporin or CYC were considered, and upon informed consent, treatment with ciclosporin (100–150 mg/day) was initiated in March 2008, and subsequently the prednisolone dose could be tapered to 7 mg/day. However, in August 2009, the disease flared up together with CK elevation (488 U/l), and prednisolone dose was increased stepwise from 7 to 20 mg/day, but CK did not become normal (Fig. 1A).

Informed consent by the patient and approval by the Ethics Committee of Osaka University Hospital were obtained for the injection of tocilizumab at 8 mg/kg every 4 weeks as outpatient treatment with prednisolone and ciclosporin (100 mg/day) from December 2009. The patient presented with mild muscle pain in the proximal lower extremities. Laboratory test findings before tocilizumab injection were: aspartate transaminase (AST), 51 U/l; alanine transaminase (ALT), 74 U/l; CK, 871 U/l (normal range 54–286 U/l); aldorase, 21 U/l (normal range 0–11 U/l). The first administration of tocilizumab caused a decrease in CK level and the second injection normalized CK and muscle pain disappeared. Continued treatment with tocilizumab stabilized the disease activity so that prednisolone could be tapered to 6 mg/day. There were no adverse events except for an elevation of serum concentration of low-density lipoprotein cholesterol from 146 to 172 mg/dl.
A 31-year-old male was diagnosed with PM in June 2005 because of muscle weakness and pain in the proximal upper and lower extremities, marked elevation of CK (7962 U/l), the presence of anti-Jo-1 Ab, myogenic pattern on EMG and the presence of endomysial infiltrates surrounding and invading muscle fibres in the histological examination. Treatment of prednisolone at 1 mg/kg/day was started but when prednisolone was tapered to 20 mg/day, the disease flared up. AZA followed by cyclosporin was added, but these immunosuppressive drugs did not show a steroid-sparing effect. In May 2009, he was treated with MTX at an initial dose of 8 mg/week with prednisolone, resulting in the disappearance of muscle pain and normalization of CK. But when prednisolone was reduced to 12.5 mg/day, CK became elevated again (Fig. 1A). T2-weighted MRI showed marked high-intensity zones in the bilateral thigh muscles (Fig. 1B). Informed consent by the patient and approval by the Ethics Committee of Osaka University Hospital were obtained for the injection of tocilizumab at 8 mg/kg every 4 weeks as outpatient treatment from February 2010 with prednisolone (12.5 mg/day) and MTX (12 mg/week). Laboratory test findings before injection were: AST 99 U/l; ALT 59 U/l; CK 1572 U/l; aldorase 34 U/l. The administration of tocilizumab every 4 weeks did not completely normalize CRP and so the administrative interval was changed from 4 to 3 weeks. Successive treatments with tocilizumab caused the CK value to decrease gradually and to become normal after 12 injections and led to the disappearance of the high-intensity zones in the thigh muscles on magnetic resonance (MR) images (Fig. 1B). There were no adverse events during the tocilizumab treatment.

To the best of our knowledge, this is the first report to evince the efficacy of tocilizumab for refractory PM. IL-6 appears to make a significant contribution to the development of PM. First, IL-6 has been found to be expressed excessively in the sera and infiltrating mononuclear cells in the muscles of patients [5–7]. Secondly, in the case of PM, infiltrating cytotoxic T cells are thought to be involved in muscle fibre damage and IL-6 reportedly functions as a killer helper factor in the induction of cytotoxic T cells [8]. Thirdly, in models of myosin-induced experimental myositis or C protein-induced myositis, it was shown that IL-6 blockade through gene knockout or anti-IL-6 receptor antibody could ameliorate the severity of myositis [9, 10]. These findings and our report give rise to the possibility that IL-6 blockade is a new approach to the treatment of refractory PM. Further clinical trials are required, however, to verify the effectiveness of tocilizumab.

**Rheumatology key message**

- This case report highlights the potential value of anti-IL-6 receptor treatment for PM.
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References


Letters to the Editor

Acute sarcoidosis as parotid fever in rheumatoid arthritis under anti-tumor necrosis factor-α therapy

Sir, Sarcoidosis is a multi-systemic disease of unknown aetiology characterized by non-caseating granulomatous infiltration, primarily of the lungs and the lymphatic system [1]. We describe a case of acute sarcoidosis presenting as fever, bilateral parotid enlargement and lymphadenopathies of the neck in a patient with RA treated with adalimumab (ADA).

A 48-year-old woman was referred to our rheumatology department with a 20-day history of low grade fever, facial swelling and left cervical lymphadenopathies. She had been diagnosed in February 2009 with seropositive RA without any other medical condition. She was initially treated with prednisone and methotrexate (MTX) with good response during the first 8 months. In October 2009, the patient’s disease activity increased (DAS-28ESR 4.17) and treatment with ADA (40 mg every other week) was added to MTX with subsequent remission of disease activity (DAS-28ESR < 2.4). After 11 months of therapy with ADA, the patient developed fever, facial swelling and neck lumps. ADA was discontinued and the patient was admitted to our hospital. Physical examination showed a painless bilateral parotid enlargement and left posterior cervical lymphadenopathies. Otherwise, the examination was unremarkable. Laboratory tests showed a nearly normal ESR (12 mm/h; normal < 10 mm/h) and CRP (1.1 mg/dl; normal < 0.8 mg/dl). A complete blood cell count was normal. A chest X-ray and a CT scan of chest and abdomen were normal. Studies for tuberculosis, fungal infections and paraproteinaemias were negative. Serological tests for mumps virus, CMV, EBV and Parvovirus B19 were also negative. A fine-needle aspiration biopsy (FNAB) of one of the neck lymphadenopathies was performed and histopathological examination showed small lymphocytes, Langerhan’s foreign body cell type and non-caseating granulomas with multi-nucleated giant cells, suggestive of sarcoidosis.

Serological tests for mumps virus, CMV, EBV and Parvovirus B19 were also negative. A fine-needle aspiration biopsy (FNAB) of one of the neck lymphadenopathies was performed and histopathological examination showed small lymphocytes, Langerhan’s foreign body cell type and non-caseating granulomas with multi-nucleated giant cells, suggestive of sarcoidosis. The flow cytometry of the FNAB showed lymphocytes 62%, granulocytes 32%, T-lymphocytes 80%, NK 4%, CD4 60%, CD8 13% and B-lymphocytes 15% without phenotypic alterations or oligoclonality. Four weeks after discontinuation of ADA, fever and parotid swelling disappeared. At a follow-up visit 2 months later, she was...