Elderly Onset Rheumatoid Arthritis Complicated by Polymyalgia Rheumatica

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Abstract

We report herein the case of a 70-year-old patient with elderly onset rheumatoid arthritis associated with severe muscle pain in shoulder and pelvic girdle. The patient revealed erosive polyarthritis with high titers of rheumatoid factor. Muscle pain started one month after the onset of rheumatoid arthritis followed by muscle weakness and muscle atrophy. Synovial effusion and edema in the soft tissue outside of the articular capsule in the knee joint were confirmed ultrasonographically. Administration of prednisolone at 20 mg/day dramatically abolished the muscular manifestations. The coexistence of an early stage of elderly onset rheumatoid arthritis and polymyalgia rheumatica was considered due to the presence of seropositive erosive arthritis and severe muscle manifestations at the same time. (Internal Medicine 41: 657–660, 2002)

Key words: early stage RA, elderly onset RA, myalgia, rheumatoid factor, ultrasonography

Introduction

Polymyalgia rheumatica (PMR) is a relatively common disorder among the elderly. The diagnosis of PMR is generally decided clinically based on proximal muscle involvement, characterized by marked aching in the muscles of the shoulder and pelvic girdle (1, 2). The confirmation of temporal artery involvement is specific but not sensitive enough for the diagnosis of PMR, because of its low frequency of as low as 12% (1). Around one-third of PMR cases are reportedly accompanied by involvement of the distal joints and tenosynovium, which are demonstrated by magnetic resonance imaging (MRI) (3) or ultrasonography (4). Rheumatoid arthritis (RA) primarily involves the synovial tissue of the joints and is occasionally complicated by muscular involvement (5), especially in elderly onset RA (EORA). Therefore, the differentiation of peripheral arthritis of PMR from RA with proximal muscle in-

volvement (6–11) or muscular manifestation of RA from PMR with articular involvement (12) is sometimes difficult. We report herein a case of early stage seropositive EORA with erosive arthritis accompanied by PMR. The difference between PMR with arthritis and EORA with muscle involvement is discussed.

For editorial comment, see p 605.

Case Report

A 70-year-old man had been suffering from polyarthralgia in bilateral wrists, knees, shoulders, and metacarpophalangeal (MCP) and proximal interphalangeal (PIP) joints since late January 2000. In late February, he experienced in a few days muscle pain in the shoulder girdle and pelvic girdle that was so severe he was unable to change his body position in bed. The patient was admitted to the Division of Rheumatology at Ohta Nishinouchi Hospital on April 3. The swelling and local heat was noted in the bilateral shoulders, knees, wrists, MCP, and PIP joints (Fig. 1). Edematous swelling was observed in his feet but no edema or sclerosis was observed in his hands or fingers. Morning stiffness was noted in the extremities lasting for 3 hours. Tenderness was present in bilateral shoulders, upper arms, thighs, and back, but he had no headache. Muscle power was reduced to 1–2/5 at extremities by manual muscle test. Muscle weakness and muscle atrophy was noted in bilateral shoulders, upper arms, and thighs. Lymphadenopathy or struma was not recognized. No abnormal findings were noted in the chest or abdomen. He had poor appetite with constipation and lost 6 kg body weight in 5 months. No findings of rash, pigmentation or ulcer were noted on his skin. He had a slightly retarded intelligence with a depressed mood.

The main laboratory data of the patient obtained upon admission were as follows: normal value of white blood cells 8,400/mm³, hemoglobin 13.3 g/dl, platelet 36.2×10⁴/mm³; elevated value of erythrocyte sedimentation rate (ESR) at 79 mm/h, C reactive protein (CRP) at 14.1 mg/ml (less than 0.2 mg/ml), rheumatoid factor (RF) at 622 IU/ml (less than 5 IU/

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Figure 1. Photograph of the hands of the patient taken on May 6. Typical spindle-form swelling was noted in the PIP joints of the 2nd and 3rd fingers of both sides.

ml), and CH50 at 56.7 U/ml (between 30–40 U/ml); a slightly elevated level of aspartate aminotransferase (AST) at 53 IU/l, alanine aminotransferase (ALT) at 49 IU/l, ALP at 481 IU/l, ferritin at 210 ng/ml (between 10–140 ng/ml), haptoglobin at 320 mg/dl, and γ -globulin at 1.58 g/dl. However, the serum levels of creatine kinase (37 IU/l), lactate dehydrogenase (180 IU/l), myoglobin (23 ng/ml) and aldolase (3.8 IU/l) were within the normal ranges. Tests for the presence of autoantibodies including anti-dsDNA, anti-U1RNP, anti-Jo1, anti-CL β 2GP1, and anti-myeloperoxidase antibody were negative, with the exception of RF. The urinalysis was normal. The endoscopic examination of upper intestine and colon revealed no abnormality.

A roentgenologic examination of the hands and fingers showed a narrowing of the joint spaces in the intracarpal, MCP and PIP joints associated with bilateral erosions in the 1st carpo-metacarpal joint (Fig. 2). Ultrasonographic examination of the knee joints using a 12 MHz linear transducer attached to a Logiq 500 MD (Toshiba, Tokyo) revealed a large amount of synovial effusion accompanied by edema in the pericapsular region of both knees (Fig. 3A). The patient's arthritis was diagnosed as classical RA on the basis of symmetric polyarthritis, erosive joint destruction and high titer of RF according to the 1987 revised ARA criteria (13). In addition, severe muscle pain, muscle weakness and mild muscle atrophy in the shoulders and pelvic girdle strongly indicated the coexistence of PMR. These muscular symptoms satisfied all of 7 criteria of Bird et al (1): 1) bilateral shoulder pain and stiffness: positive, 2) onset of illness within 2 weeks: positive, 3) elevated ESR >40 mm/h (79 mm/h in this case), 4) morning stiffness more than 1 hour (3 hours), 5) age >65 (70), 6) weight loss (6 kg in 5 months), 7) bilateral upper arm tenderness: positive. Administration of 20 mg/day of prednisolone (PSL) started on April 11, 8th days after admission, immediately abolished the muscle pain followed by reduced values of CRP 0.85 mg/dl and ESR 40 mg/h measured on May 5.

The patient experienced a recurrence of arthralgia concomi-

A
B

Figure 2. Roentgenogram of the wrists of both sides taken on May 4. Erosive lesion was noticed at the 1st carpo-metacarpal joint in both sides (A). Schema of the erosive lesions (B).

Figure 3. A and B: Ultrasonograph scanned longitudinally medial to the outside of the left knee taken on June 1 (A) and June 8 (B). A large amount of synovial effusion (EF) 7.6 mm in the thickness and edema in the pericapsular region (ED) outside of the articular capsule (A) were recognized; these were reduced to a moderate amount of synovial effusion 6.6 mm in thickness along with reduction of the pericapsular edema (B). F: femur.

tant with bilateral joint swelling in the knees and wrists but not muscle manifestations once the dose of PSL was reduced to 10 mg/day on the 48th day of PSL treatment. Then the dose of prednisolone was increased to 20 mg/day, which again improved arthralgia and swelling in the knee joints. Ultrasonography taken at two times with an interval period of 7 days during the following improving period revealed a reduction in the amount of synovial effusion in the left knee joint from 7.6 mm to 6.6 mm

in thickness accompanied by reduction of the pericapsular edema (Fig. 3A and B).

Discussion

Arthritis occurs in around one-third of PMR patients and is generally presumed to result from severe muscle involvement. The characteristic features of arthritis in PMR patients are that it is asymmetric, non-progressive and self-limited. Therefore, the destructive joint involvement observed bilaterally in the wrists of the present patient was quite different from that usually found in PMR. An absence of RF is recognized as one criterion in the diagnosis of PMR. However, PMR patients with positive RF have been occasionally reported (14). On the other hand, muscular involvement manifests less frequently in RA. Miro et al (5) reported that weakness and atrophy of the proximal muscles of the arms and legs were observed in a small group (21 of 350, 6%) of RA patients who had a longer history of disease. However, muscle weakness and pain were much less apparent in RA patients compared to arthralgia patients. Elderly-onset rheumatoid arthritis (EORA), defined as RA that occurs in patients over 60 years of age, presents with slightly different features from earlier-onset RA. EORA has a near-equal gender distribution, occurs more frequently in an acute form in association with higher disease activity and has more frequent manifestation of muscles, especially in the shoulders and/or pelvic girdle but shows a low incidence of RF (15–17). Therefore, muscular and articular manifestations in patients with EORA or PMR are sometimes difficult to distinguish. Hantzscheil et al reported a clinical comparison between PMR and RA, in which bilateral upper arm tenderness was considered to be the most valuable feature for distinguishing PMR from RA in elderly patients (10). The muscle pain and weakness which manifested with upper arm tenderness in the present patient was so severe that it seemed to suggest a diagnosis other than EORA. The muscle weakness, however, is not such a common symptom in PMR. Therefore, it might be caused by both myalgia due to PMR and by disuse due to arthralgia of RA. Furthermore, the response to prednisolone in PMR patients is known to be rapid and complete in the majority of cases (8) as in the case of the present patient.

Recently, Salvarani et al (3) stressed a significance of the periarticular inflammation in the peripheral arthritis of PMR patients which revealed the prominent fluid collection or edema in the synovial sheath or around the tendons demonstrated in magnetic resonance images (MRI). Similar findings were demonstrated by ultrasonography by Lange et al (4). They demonstrated an effusion in the biceps tendon sheath in the shoulder joint of both PMR and EORA patients. Lange et al (18) further reported a ultrasonographic difference between PMR and EORA in saying that unilateral effusion of the biceps tendon sheath is common in PMR, whereas symmetric effusion of biceps tendon sheath is common in EORA. Although we did not examine the effusion of biceps tendon sheath, the Lange's findings correspond to the ultrasonographic findings demonstrated in the present patient to be the pericapsular edema outside of

the articular capsule. The rapid reduction after PSL administration in the intensity of the synovial effusion and pericapsular edema demonstrated in the present patient on ultrasonography in the knee joints corresponded well to the improvement of muscle pain and arthralgia of the patient. The PSL at lower doses of 7.5 mg/day, reported by his home doctor, showed no recurrence of arthralgia in the patient.

The ultrasonographic findings presented by Lange et al and in the present study indicate that ultrasonography can be a useful method for evaluating pericapsular edema, which often occurs in patients with PMR. These fluid collection edema in the synovial sheath or tendon sheath outside of the articular capsule of the joint in the PMR patients demonstrated by MRI or ultrasonography might become one of the items for diagnosing PMR. Caroit (19) reported three forms of EORA, one of which involves initially the shoulders and hips with an incidence of 25% in EORA. This particular form, therefore, resembles EORA cases in which PMR coexists. Given these reported findings, it appears that EORA and PMR can occur simultaneously. The present case is a case of a patient with early EORA having higher RF titers simultaneously complicated by PMR.

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