

LETTER

Dramatic radiographic repair by tocilizumab in a very elderly patient with rheumatoid arthritis

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To the Editor,

Bone erosion is the most important radiographic feature of rheumatoid arthritis (RA) and has been considered as almost irreversible. Although biologics has improved the clinical outcomes of RA, radiographic repair of bone erosions is still limited [1]. Tocilizumab (TCZ), an anti-interleukin-6-receptor antibody, has been shown to be highly efficacious in the treatment of RA, regardless of the age of patients, and to inhibit progression of joint damage [2–4]. Here we present the case of a very elderly patient with RA who showed dramatic radiographic repair by TCZ.

An 80-year-old woman was referred to Hikarigaoka Spellman Hospital for treatment of active RA. She had been diagnosed with RA 4 years earlier (rheumatoid factor, 182 IU/ml) and had been treated with methotrexate (6 mg/week) and salazosulfapyridine. The patient had a swollen joint count (SJC) of 6 and tender joint count (TJC) of 6. The patient global assessment using a visual analogue scale was 79 mm. Erythrocyte sedimentation rate (ESR) was 29 mm/h and anti-cyclic citrullinated peptide (CCP) antibody was above 100 U/ml. The 28-joint disease activity score using ESR (DAS28-ESR) was 5.52. Steinbrocker functional class was II and stage was IV. After administration of TCZ (8 mg/kg every 4 weeks) as monotherapy, she achieved DAS28-ESR remission by 16 weeks and Boolean remission by 34 weeks. Since then, she has been in remission for 3 years with no serious adverse events except for one incidence of acute pneumonia caused by *Chlamydia pneumoniae*. Follow-up X-rays for 3 years showed dramatic repair of bone erosion (Figure 1a–h). The scale of erosions had decreased and a smooth cortex had been generated on the surface of the erosions. The van der Heijde-modified total Sharp score (mTSS), which was scored by two trained readers in a blinded manner, also improved year by year (Figure 1i).

Radiographic repair does occur, but it is observed almost exclusively in joints with no signs of swelling [5]. van der Linden et al. reported that radiographic repair was observed in 18 out of 250 patients (7.2%), and patients who showed radiographic repair had a high prevalence of autoantibodies such as rheumatoid factor and anti-CCP antibody [6]. It has also been shown in an animal model that when synovitis resolves, osteoblasts migrate to the surfaces of eroded bone, resulting in new bone formation [7]. These studies indicate that complete resolution of inflammation at the sites of erosions is essential in repair of bone erosions.

The characteristics of elderly onset RA (EORA) that is diagnosed at above 60 years of age differ from young onset RA (YORA) by a more equal sex distribution, a higher disease activity and a higher frequency of large joint involvements [8]. In the cases of seropositive patients, more radiographic damage and functional decline have been observed in EORA patients than in YORA patients [9]. In EORA patients, age-associated factors, such as comorbidities and decreased drug metabolism capacity, often limit the treatment options and worsen their prognosis [10, 11].

We previously reported that no significant difference in efficacy or safety profile of TCZ was found between the groups of elderly (over 65 years old) and nonelderly (below 65 years old) patients and that SJC < 1 was achieved by 67% of patients after 6 months of TCZ use [4, 12]. TCZ enables both rapid reduction of joint swelling and long-term complete remission irrespective of age, leading to repair of bone erosions. In fact, this case indicates that bone repair can occur even in a very elderly patient with RA during long-term complete remission with TCZ.

Conflict of interest

Y.H. and T. I. have received speaker's honoraria, and H.H. has received a research grant from Chugai Pharmaceutical Co., Japan. None: R.W. and H.O.

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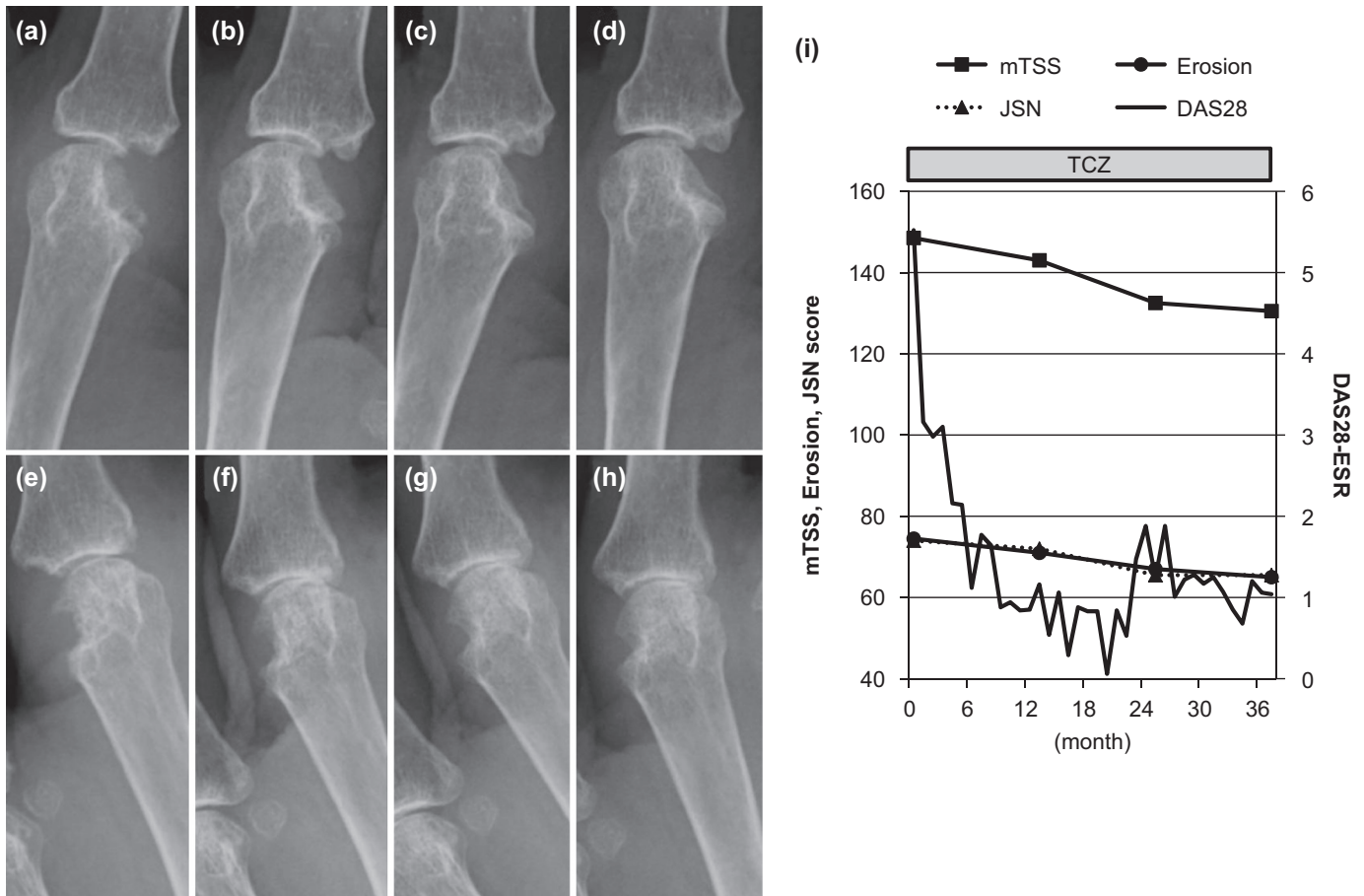


Figure 1. Metacarpophalangeal (MCP) joint of left index finger at first visit (a) and after 1 year (b), 2 years (c) and 3 years (d). The swelling of the joint disappeared by 3 weeks after administration of TCZ. MCP joint of right index finger at first visit (e) and after 1 year (f), 2 years (g) and 3 years (h). The swelling of the joint disappeared by 8 weeks after administration of TCZ. (i) Clinical course of the patient. JSN: Joint Space Narrowing, mTSS; modified Total Sharp Score.

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