CASE REPORT

A 65-year-old female was diagnosed with rheumatoid arthritis about 10 years. She had experienced continuous severe knee pain from the last six months in her right knee. She had undergone treatment with methotrexate (MTX) 6–8 mg/week as the sole regimen over the last eight years. At this time, the patient was walking with the aid of crutches, and her Knee Society Knee Score and Functional Score [1] were 47 points and 5 points, respectively. Severe joint space narrowing was evident on upright anteroposterior radiography (Figure 1A), which is an indication for total knee arthroplasty. Due to persistent disease activity (DAS28 = 4.1), the patient was started on MTX 8 mg/week plus intravenous abatacept 500 mg/month. After 18 months of this treatment, there was improvement of symptoms, mostly in the right knee. The patient’s Knee Society Knee Score and Functional Score had increased to 80 points and 60 points, respectively. She was able to walk independently without crutches, and upright anteroposterior radiography showed widening of the narrow knee joint space (Figure 1B).

DISCUSSION

To date, abatacept has been known as an agent that reduces the progression of radiographic structural damage in rheumatoid arthritis patients with an inadequate response to MTX [2–4]. However, this case showed widening of the narrow knee joint space after the introduction of abatacept treatment. We believe that our case is the first to demonstrate this knee joint space widening, which is expected to be extended with longer-term observations of this rheumatoid knee. As both the Knee Society Knee Score and Functional Score were also improved, it is likely that the impaired cartilage tissue within the right knee joint was being substituted by cartilage-like tissue through some as yet unclarified mechanisms. This change likely occurred because combined methotrexate and abatacept therapy has a strong effect on the chemical environment and cartilage regeneration within the rheumatoid knee joint.
CONCLUSION

This case showed widening of the narrow rheumatoid knee joint space associated with combination therapy with methotrexate plus abatacept. In addition, both the Knee Society Knee Score and functional score were also improved after the introduction of this combination therapy. Additional work is required for understanding the rheumatology underlying this case.

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Keywords: Abatacept, Knee joint space, Methotrexate, Rheumatoid arthritis

Author Contributions
Hitoshi Imamura – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Katsunori Ikari – Substantial contributions to conception and design, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor of Submission
The corresponding author is the guarantor of submission.

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None

Consent Statement
Written informed consent was obtained from the patient for publication of this case report.

Conflict of Interest
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