Ultrasonographic Assessment of Synovitis with Lessor Toe Deformity Due to Rheumatoid Arthritis
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Category: Lesser Toes

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Introduction/Purpose: [Introduction] In recent years, joint ultrasonography has been widely used for the diagnosis and treatment of rheumatoid arthritis (RA), allowing visualization of synovitis. Its clinical usefulness in early diagnosis and evaluation of disease activity has been reported. Continuous inflammation, osteochondral destruction, and soft tissue destruction due to synovitis in toe joints result in various clinical pictures of the foot. In the lateral toes in the forefoot, subluxation or luxation of the metatarsophalangeal (MTP) joints may occur, leading to painful callus and resultant disturbance in activities of daily living. Few reports have addressed toe deformity and joint ultrasonographic findings of synovitis in the forefoot. In this study, lateral MTP joints were assessed using joint ultrasonography in RA patients to examine the correlation with deformity.

Methods: [Subjects] Seventy feet of 61 RA patients were examined in the outpatient clinic of our hospital. Patients who underwent surgery were excluded. The mean age of the patients was 66 years (24 to 92 years), and the mean duration of disease was 12 years and 9 months (1 month to 40 years). Biologic products were used for 23 feet. Joint ultrasonography was performed by the same examiner, using the same room and apparatus. Synovitis was defined as Grade 1 or more as determined by the power Doppler method. Based on foot radiographs in upright position obtained before and after ultrasonography, patients with luxation, subluxation, and joint fissure narrowing were classified into the deformity group, those with bone erosion and geode formation into the bone erosion group, and lack of abnormal findings into the normal group.

Results: [Results] Synovitis was found in MTP joints in 41 (14.6%) of 280 toes. The incidence rates of synovitis in the deformity group, the bone erosion group, and the normal group were 27.3%, 13.1%, and 6.7%, respectively. Synovitis was found in 21.7% of patients on therapy with biologic products and in 38.3% of those without such therapy. There were no significant differences in the mean duration of the disease, visual analogue scale score, erythrocyte sedimentation rate, matrix metalloproteinase 3 level, or health assessment questionnaire score among the 3 groups.

Conclusion: [Discussion] Synovitis was also found in patients who showed no changes on imaging of the toes. Synovitis persisted in some patients even after establishment of toe deformity. Drug therapy, intensification of conservative therapy, and synovectomy should be considered to prevent further deformation.

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