Letter to the Editor

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Aromatase Inhibitor-Related Lower Limb Tendinopathies: Ultrasound is on the Agenda

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Dear Editor,

A 60-year-old woman was seen for chronic bilateral ankle pain which had persisted for almost one year and gradually worsened in the last months. She also had bilateral knee pain, more prominent on the left side. She described that the pain was aggravated with movements and relieved at rest. She denied any trauma or other symptoms. Her past medical history was unremarkable except for breast cancer (mastectomy three years previously) after which she had been placed on aromatase inhibitor (AI) therapy (letrozole 2.5 mg/day). She did not benefit from non-steroidal anti-inflammatory drugs (NSAID), switching the AI or physical therapy.

Physical examination revealed tenderness in entheseal sites, including the bilateral tibial and calcaneal tuberosities. Ultrasound (US) examination revealed bilateral Achilles tendinitis (Figure 1A, 1B), bilateral patellar enthesopathy/tendinitis. Sono-palpation was also positive on bilateral Achilles tendons. Doppler activity was not detected. Serologic tests and magnetic resonance imaging of the sacroiliac joints were non-contributory in terms of inflammatory arthritis. As the patient had not benefited from conservative treatment, US-guided corticosteroid and local anesthetic injections were performed for both retrocalcaneal bursae (Video 1). At the second-week follow-up visit, although the US examination showed no significant morphological changes in the tendons, her ankle and knee pain had significantly improved. At the time of writing, the patient is still under follow-up.

AIs have been used for the long-term treatment of breast cancer. Recently, physiatrists have encountered musculoskeletal side effects associated with them, known as AI-associated musculoskeletal syndrome. The scenario is that of arthralgia, myalgia, joint stiffness, bone loss/osteoporosis, fractures, and rarely, tendon disorders (1, 2). Tendon problems include tendinitis, tear/rupture, and tenosynovitis (3), affecting various tendons, mostly in the hand/wrist and, less frequently, the ankle (4). It has been suggested that the pathogenic mechanism may be associated with disruption of collagen production. AIs inactivate the aromatase enzyme which converts androgens to estrogens, thereby reducing plasma estrogen levels. However, estrogen increases collagen synthesis in tendons and reduces their stiffness. Therefore, decreased estrogen levels may have negative impact on tendons and can lead to tendon pathologies (5, 6).

Treatment for AI-related tendinopathies is mainly conservative, including NSAIDs and/or physical therapy, in addition to drug discontinuation or change. If needed, a therapeutic injection may also be performed. In the presented patient, a steroid injection was used, deep to the Achilles tendon and also targeting the retrocalcaneal bursa, as we believed it would be more effective for Achilles tendinitis (7). Treating her ankle pain may have alleviated her knee pain by mitigating biomechanical overload associated with altered kinetic chains due to ankle dysfunction. Moreover, we hypothesize that the localized steroid injections might have distributed systemically, thereby contributing to the resolution of knee pain. To the best of our knowledge, although

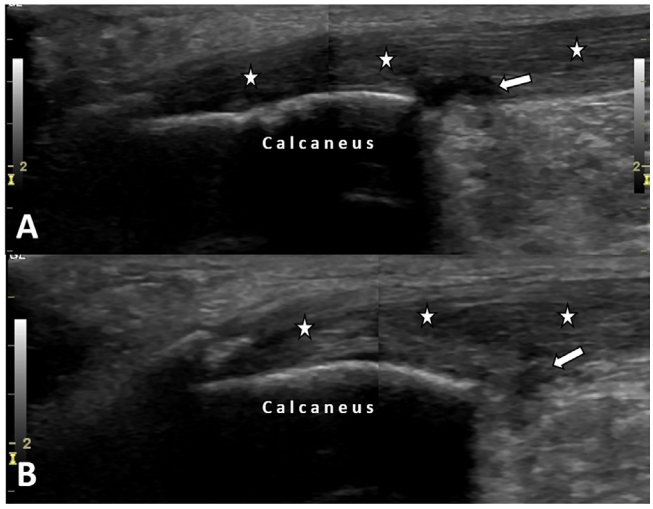

Figure 1. Longitudinal ultrasound imaging demonstrates the swollen, hypoechoic right **(A)** and left **(B)** Achilles tendons (*stars*) and the retrocalcaneal bursae (*arrows*)

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several cases involving tendons of the upper extremities have been reported, bilateral Achilles and patellar tendinitis associated with AI use has not been reported. As demonstrated by our case, US is beneficial for diagnosis, medical decision-making, interventional procedures and follow up monitoring in relevant cases.

Footnotes

Authorship Contributions

Concept: S.A., M.K., L.Ö.; Design: S.A., M.K., L.Ö.; Literature Search: B.Y., A.F.Ç.; Writing: B.Y., A.F.Ç. S.A., M.K., L.Ö.

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Video 1. Ultrasound-guided (direct in-plane) injection deep to the Achilles tendon (*star*) inside the retrocalcaneal bursa. *Arrowhead*; needle, *asterisk*; injectate