Reumatol Clin. 2018;14(4):236–238

Sociedad Española de Reumatología - Colegio Mexicano de Reumatología

Reumatología Clínica

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Images in Clinical Rheumatology

Ultrasound and Radiographic Abnormalities in a Patient With Chronic Severe Acromegaly

Los hallazgos ecográficos y radiográficos en una paciente con acromegalia crónica severa

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ARTICLE INFO

Article history:
Received 1 August 2016
Accepted 9 January 2017
Available online 14 February 2017

Acromegaly is a rare endocrinopathy caused by hypersecretion of growth hormone (GH). Acromegalic arthropathy, is a common complication, responsible for important morbility.[1] At the beginning, GH and IGF-1 levels induce cartilage and soft tissue hypertrophy (ligaments, tendons, nerves, sub-cutaneous fat) that is documented with conventional radiographs as joint space widening. Later on, as the disease evolves, distal tufting of the phalanges, narrowing of joint spaces and osteophytosis develop.[1] Common peri-articular regional disorders are carpal tunnel syndrome, enthesopathy and trigger fingers. In addition, rheumatoid arthritis is more prevalent then in general population.[1]

Ultrasound (US) can identify sub-clinical synovitis, enthesopathy, tendon lesions and osteophytes but its role in this rare syndrome has not been sufficiently studied. Herein we report the radiographic and US images (using a General Electric Logiq9 ultrasound machine and multifrequency linear array transducers 9–18 MHz) of a 41-year-old woman with longstanding acromegaly complaining of mechanical symmetric metacarpophalangeal (MCP), knee, and heel pain as well as bilateral paraesthesia in 1–3 fingers. Musculoskeletal examination revealed diffuse thickening of soft tissue, acral enlargement (Fig. 1), knee crepitus, positive Phalen and tinel signs and pain in right heel footpad.

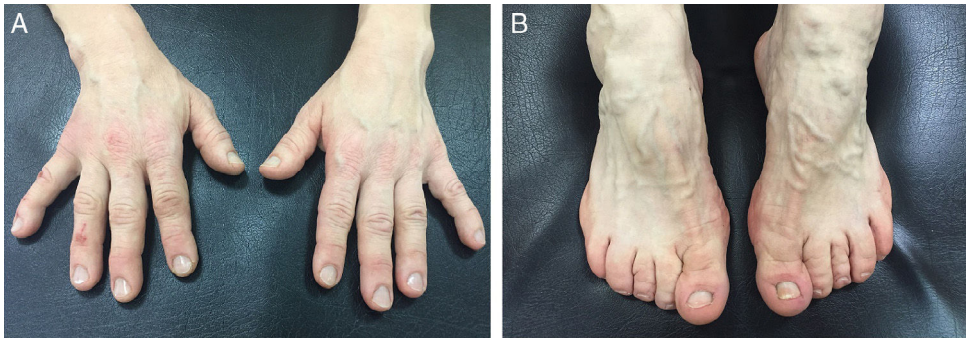

Fig. 1. (A and B) Diffuse thickening of soft tissue and acral enlargement of both hands and feet.

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https://doi.org/10.1016/j.reuma.2017.01.001

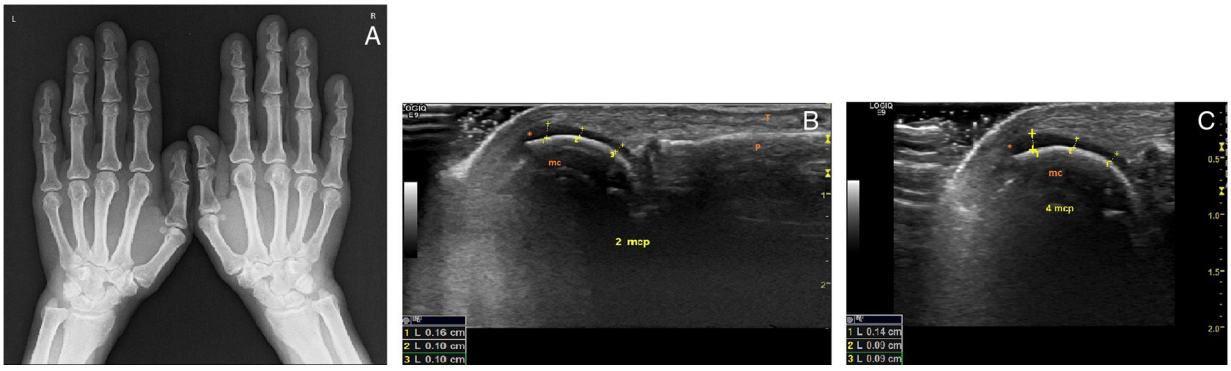

Fig. 2. (A) PA conventional X-ray of hands showing diffuse soft tissue hypertrophy, acral enlargement and joint space widening. (B and C) Ultrasound longitudinal image of the second and fourth MCP joints in maximal flexion shows increased anechogenic cartilage thickness (normal 0.02–0.05 cm).[2] Mcp, metacarpophalangeal joints; mc, metacarpal head; P, proximal phalanx base; T, extensor tendon; * cartilage.

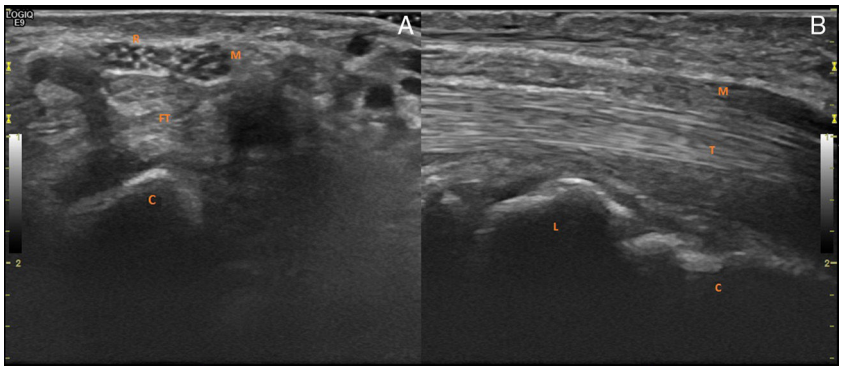

Fig. 3. Ultrasound transverse (A) and longitudinal (B) image of the enlarged fascicular pattern of median nerve of right hand, area: 22 mm^2 (normal less than 12 mm^2).[3] Power Doppler signal was absent. C, capitate; FT, flexor tendons; M, median nerve; R, flexor retinaculum; L, lunate.

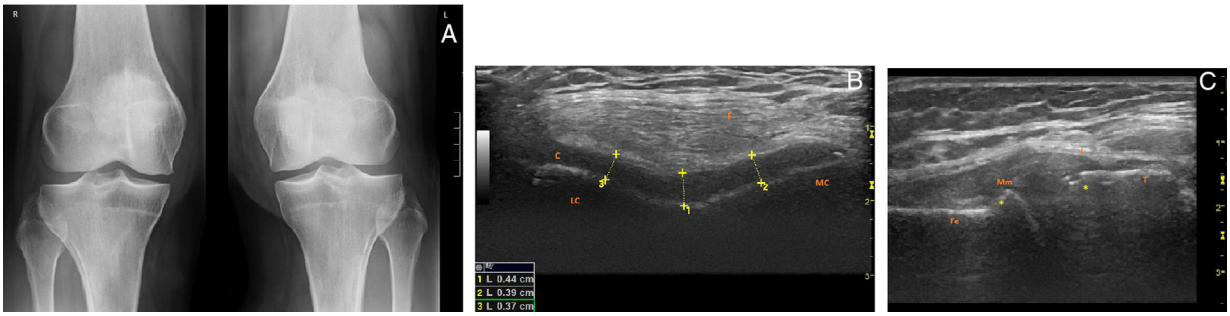

Fig. 4. (A) PA conventional standing knees X-ray showing joint space widening. (B) Transverse ultrasound image of the knee cartilage in maximal flexion illustrates increased anechogenic cartilage (normal 0.25–0.3 cm).[4] (C) Longitudinal ultrasound image of medial compartment of the right knee depicts small hyperechogenic articular femoral and tibial bony margins set-ups that represents osteophytes, poorly visualized in the X-ray. C, cartilage; LC, lateral condyle; MC, medial condyle; F, suprapatellar fat pad; Fe, femur; T, tibia; Mm, medial meniscus; L, Medial collateral ligament; * osteophytes.

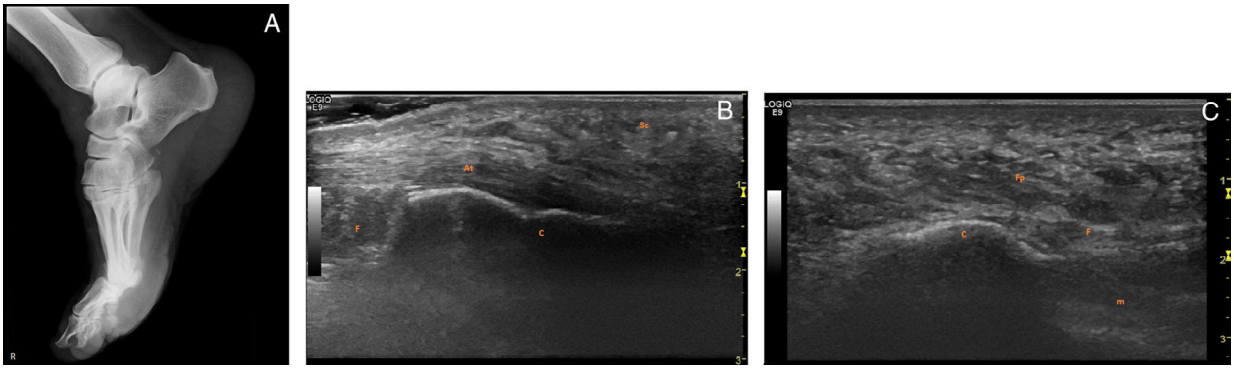

Fig. 5. (A) Lateral right foot X-ray showing increased heel fat pad. (B) Longitudinal ultrasound image showing homogeneous Aquiles tendon and enthesis. (C) Longitudinal ultrasound image of plantar fascia insertion that shows homogeneous non thickened fascia and increased fat pad: 1.4 cm (normal <0.39 mm).[5] F, Kager's fat; C, calcaneous; At, aquilles tendon; Sc, subcutaneous tissue; Fp, heel fat pad; F, plantar fascia; m, muscle.

US examination detected cartilage thickening, median nerve enlargement, osteophytes and foot-pad thickness but not synovitis (Figs. 2–5).

In conclusion, conventional X-rays lack sensitivity in cartilage and soft tissue evaluation. US helped in evaluation of this patient as it showed cartilage thickening, median nerve enlargement, osteophytes, foot-pad thickness and excluded tendon lesion, enthesitis and synovitis. Although more studies are needed, ultrasound seems to be useful in the clinical setting of the acromegalic patients identifying articular and periarticular abnormalities.

Ethical Disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

Funding

No funding was received in this work.

Conflicts of Interests

No conflicts of interest to declare.

Acknowledgements

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