A 43-year old man presented at Early Arthritis Clinic for recent onset of a mild swelling of the right knee, the remainder of the examination was normal and blood testing for inflammation and autoimmunity (i.e., erythrocyte sedimentation rate, C-reactive protein, rheumatoid factor, anti citrullinated peptide antibodies and antinuclear antibodies) were negative. Ultrasonography (US) of the involved knee revealed synovial hypertrophy with mild effusion and diffuse and confluent hyperechoic deposits in cartilage, fibrocartilage of the menisci and synovium and calcium pyrophosphate crystals were observed in the synovial fluid of the knee. The concomitant presence of hypomagnesemia, hypocaliuria and hypokalemia made clear the diagnosis of Gitelman’s syndrome associated with chondrocalcinosis.

Key words: Gitelman syndrome; calcium pyrophosphate deposition disease.

**SUMMARY**

Gitelman’s syndrome is a rare autosomal-recessive tubular disorder characterized by hypomagnesemia and hypocaliuria associated to hypokalemia. The clinical spectrum is wide and usually characterized by chronic fatigue, cramps, muscle weakness and paresthesiae. We describe a case of a 43 year-old male patient with early onset of knee arthritis and no other symptoms. Ultrasound revealed diffuse and confluent hyperechoic deposits in cartilage, fibrocartilage of the menisci and synovium and calcium pyrophosphate crystals were observed in the synovial fluid of the knee. The concomitant presence of hypomagnesemia, hypocaliuria and hypokalemia made clear the diagnosis of Gitelman’s syndrome associated with chondrocalcinosis.
Figure 1 - Ultrasonographic examination of the femoral cartilage on longitudinal (A) and transversal view (B) with the right knee maximally flexed. In A and B ultrasonography examination reveals the hyperechoic deposits in the center of the anechoic hyaline femoral cartilage, due to diffuse deposition of calcium pyrophosphate crystals. Meniscal calcification of the right knee as it appears on ultrasonography (C) and corresponding radiograph (D) (white arrow). Transversal view of the right Achilles tendon (E) with anisotropic artefact and clear evidence of crystal deposits (curved arrow). (F) Synovial hypertrophy with small crystal aggregates (curved arrow) in the second metatarsophalangeal joint of the right foot. In (G) and (H) radiographs of the left knee, clinically silent, with calcified enthesopathy of the quadriceps tendon (G) and femoral cartilage calcification (H).
pokalemia. The clinical spectrum is wide and is characterized by chronic fatigue, cramps, muscle weakness and paresthesiae, nevertheless in our report none of these symptoms was present and knee arthritis was the only presenting symptom. Some authors have described an association between CPPD and Gitelman’s syndrome (4-6). Probably, a key role is played by hypomagnesaemia because magnesium is a necessary cofactor for pyrophosphatases, a group of enzymes that increase the solubility of calcium pyrophosphate crystals.

This case report highlights the ultrasonographic features in different joints of a patient suffering from CPPD associated with Gitelman’s syndrome. The widespread calcifications are the main and well documented imaging features in such condition, but are usually shown and described on X-ray (5, 7).

Nevertheless, as US will be increasingly important to differentiate early arthritis (8), documenting ultrasonographic features of a rare disease, such as CPPD in Gitelman’s syndrome, is worthwhile. In conclusion, this case report confirms the importance of US in the differential diagnosis of early arthritides.

Furthermore, from a clinical point of view, rheumatologists should pay attention to metabolic disease when widespread calcifications of the cartilage, synovium, tendon and periarticular tissue are detected.

REFERENCES