Case Report
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Severe hypothyroidism presenting as arthropathy of the fingers: a new case report

Abstract

We describe the case of a patient presenting with painful arthropathy of the distal interphalangeal joints of the fingers. She was initially believed to have chronic inflammatory rheumatism. High thyroid stimulating hormone values were discovered leading to the diagnosis of primary severe hypothyroidism. Rapid response of articular manifestations to thyroid hormone substitution suggests that hypothyroidism could be the cause of this articular impairment.

Keywords: hypothyroidism, arthropathy, bone, joint

Volume 11 Issue 6 - 2019

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Received: October 25, 2019 | **Published:** December 19, 2019

Abbreviations: DIP, distal interphalangeal; anti-CCPs, antibodies against cyclic citrullinated peptides; LDH, lactate dehydrogenase; CPK, creatine phosphokinase

Introduction

Thyroid dysfunction may present with musculoskeletal signs and symptoms.[1] Rheumatic complains during hypothyroidism were first described by many authors and included several manifestations mainly, chronic joint effusions;[2] muscular pain[3] and proximal muscle weakness.[4] We report a patient who suffered from a painful arthropathy of the distal interphalangeal joints of the fingers which was the first manifestation of a severe unknown hypothyroidism.

Case report

Mrs. EH, 32 years old, with no particular medical history, was hospitalized for exploration of a bilateral Raynaud's phenomenon of both hands with arthralgia of large and small joints for more than six months. She complained of asthenia of progressive aggravation without other associated signs. The physical examination found a puffy face (Figure 1), cutaneous xerosis and sclerosis, a psychomotor slowing with a rasping voice. Osteoarticular examination showed bilateral and symmetrical edema of the fingers (Figure 2) and toes (Figure 3) with swelling and reducible subluxation of the distal interphalangeal (DIP) joints (Figure 4). The other joints of the hand were simply swollen on examination. The large joints were normal. The rest of the somatic examination was normal. In biology, the blood count showed normochromic normocytic anemia at 10.8g/dl, a normal rate of leukocytes with a normal platelet count. The inflammation parameters were normal with a C-reactive protein at 6mg/l and a sedimentation rate at 10mm H1. Renal function was normal. Antinuclear antibodies, antibodies against cyclic citrullinated peptides (anti-CCPs) and rheumatoid factor were negative. Capillaroscopy showed normal capillary loops. X-rays of the hands (Figure 5) and forefeet (Figure 6) showed subcutaneous soft tissue swelling with joint space narrowing in the proximal interphalangeal without erosive carpitis or geodes. Faced with asthenia and psychomotor slowing, thyroid function tests showed a TSH at 750µunits/ml (N:0.5-7). The diagnosis of severe peripheral hypothyroidism was retained and comforted by biological rhabdomyolysis with creatine phosphokinase (CPK) at 1749 IU/l (N: 38-171) and lactate dehydrogenase (LDH) at 593IU/l (N<248). Cardiac echocardiography showed good segmental and global left ventricular function with circumferential pericardial effusion. Cervical ultrasound revealed a multinodular normal size thyroid gland with TIRADS II nodules. Antithyroglobulin and antiperoxydase antibodies were negative. The patient was treated with L-thyroxine with progressive doses. The evolution was marked by a clear clinical improvement with disappearance of arthralgia, regression of edema and persistence of a slight subluxation of the IPD without local inflammatory signs. Clinical and biological euthyroidism was perfectly obtained at 4 months of follow-up while the patient was under 100µg/day of L-thyroxine.

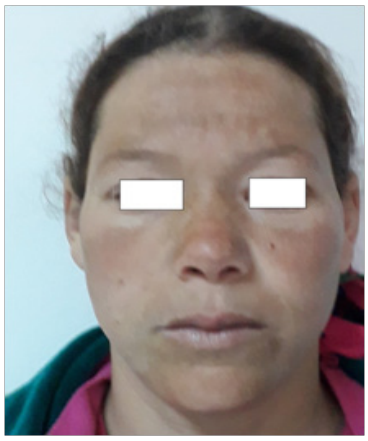

Figure 1 Puffy face with cutaneous xerosis.

Discussion

Disorders of the thyroid gland often present with musculoskeletal signs and symptoms. Conversely, rheumatic diseases, such as rheumatoid arthritis, Sjogren's syndrome and systemic lupus erythematosus, are frequently associated with autoimmune thyroid

disease.[1] None of these rheumatic diseases were present in this patient. Systemic sclerosis was initially suspected but early ruled out by the normality of complementary investigations. Several musculoskeletal symptoms have been reported in hypothyroidism but they are rarely the first manifestation of this endocrinopathy. Calcium pyrophosphate deposition disease was described in myxedematous patients who were symptomatic of joint pain in the hands and knees.[5] The mechanism of this disorder is not well understood.

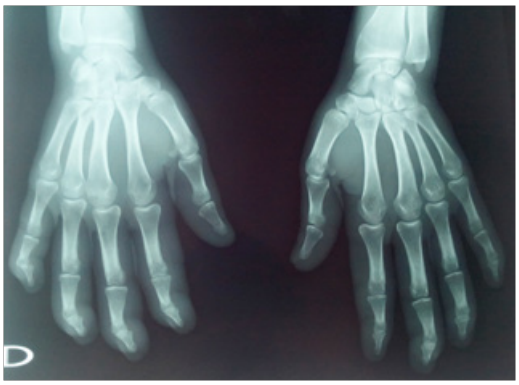

Figure 2 Edema of the fingers.

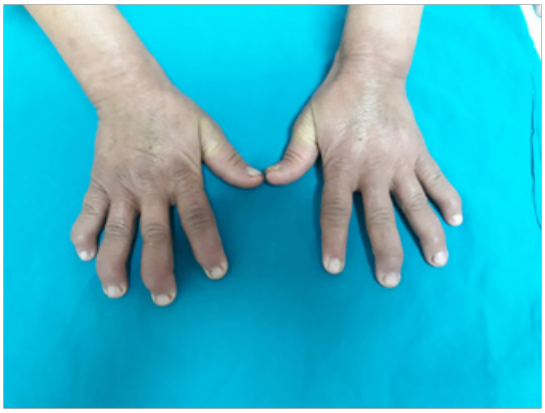

Figure 3 Edema of the toes.

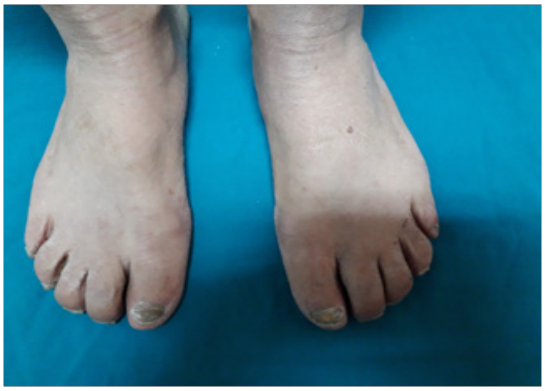

Figure 4 Swelling and reducible subluxation of the distal interphalangeal (DIP) joints.

Hypothyroid myopathy is also frequent. The symptoms often reported by patients are pain, cramps, stiffness, easy fatigability, and weakness.[6,7] Our patient had asthenia without evidence of proximal muscle weakness neither muscle hypertrophy.

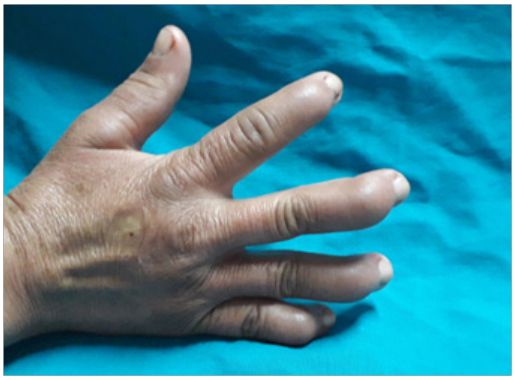

Figure 5 X-Rays of the hands showing subcutaneous soft tissue swelling with joint space narrowing in the proximal interphalangeal.

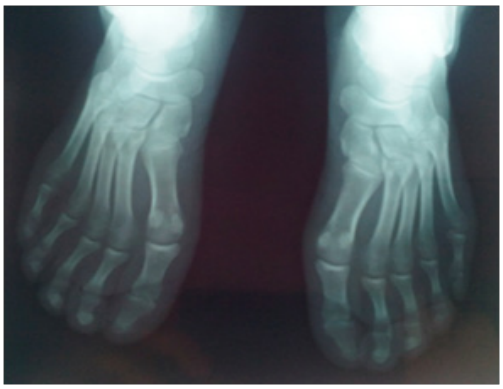

Figure 6 X-Rays of the forefeet showing subcutaneous soft tissue swelling with joint space narrowing in the proximal interphalangeal.

Serum muscle enzyme levels are frequently elevated in patients with hypothyroid myopathy and are elevated in up to 90% of asymptomatic patients.[6] Myolysis was present in our patient despite the absence of evident muscle deficit.

Carpal tunnel syndrome is a common neuromuscular disorder that can be associated with hypothyroidism.[8] In the present case, articular complaints were the presenting features of hypothyroidism. The articular involvement was mainly confined to the DIP joints. Clinical presentation was similar to erosive inflammatory rheumatism although the localization in the DIP is not common. Radiological images have not shown an evidence of bone or joint destruction, a difference from classical erosive arthritis.

Rheumatic complaints started simultaneously with the first symptoms of hypothyroidism. Our patient presented a rasping voice and a puffy face. The disappearance of joint pain and swelling, the clear improvement of deformation with thyroxine substitution and the absence of any evident underlying rheumatic disease suggest that hypothyroidism was responsible for the arthropathy in our patient.

Conclusion

The relationship between thyroid disorders and rheumatic manifestations is significant. Hypothyroidism could be a causative factor of joint complains. As the symptoms generally regress after substitutive treatment, as illustrated in our case, hypothyroidism should always be suspected in patients with rheumatic complaints of undeterminated etiology.

Citation: Zoubeidi H, Daoud F, Rachdi I, et al. Severe hypothyroidism presenting as arthropathy of the fingers: a new case report. *MOJ Orthop Rheumatol.* 2019;11(6):208–210. DOI: 10.15406/mojor.2019.11.00503

Acknowledgments

None.

Conflicts of interest

The authors declare there are no conflicts of interest.

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