

Diffuse Melorheostosis, Linear Scleroderma and Primary Sjogren Syndrome: First Reported Case in the Literature of an Unusual Association

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Abstract

Case Report

Melorheostosis is a rare bone disorder that could be associated with soft tissue anomalies and result in chronic pain, joint deformities, and significant esthetic impact. Melorheostosis has been reported to be associated with a broad spectrum of skin changes, including scleroderma. However, systemic disorders and particularly chronic rheumatic diseases are not a common association. We report the case of a 53-years-old female patient with unknown comorbidities who presented with the unusual association of diffuse melorheostosis, linear scleroderma, and primary Sjögren syndrome resulting in severe joint deformities. The patient was treated with radical orthopedic surgery.

Keywords: Melorheostosis; Scleroderma, Localized; Sjögren syndrome.

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INTRODUCTION

Melorheostosis is a rare mesodermal disorder that is often associated with soft tissue anomalies [1, 2]. Its pathogeny remains, somehow, uncertain. However, it seems to be associated with the LEMD3 gene mutation [3]. Despite not classically associated with rheumatic diseases, Melorheostosis can be associated with scleroderma. The treatment is not a consensus and remains overall deceiving [8]. We present an unusual case of a unique association of diffuse melorheostosis, linear (localized) scleroderma, and primary Sjögren syndrome in a female patient with advanced joint deformities, marked skin lesions, and a plethora of associated symptoms.

CASE REPORT

A 53-year-old female patient was admitted for investigating the case of chronic musculoskeletal deformations associated with multifocal mutilating skin lesions that insidiously appeared after the patient hit puberty without known triggering factors. She also reported recurring eye redness episodes, both ocular and buccal dryness, chronic fatigue, diffuse body aches, neuropathic type of pain in both lower limbs with a score of 6 on the DN4 scale. She had no history of drug intake, or trauma, or Raynaud syndrome. Her physical exam revealed multiple skin abnormalities with a polyostotic distribution: over the right scapular region, the anterior face of the upper right limb, the right tibial region and also over both knees (Figure 1 and 2).

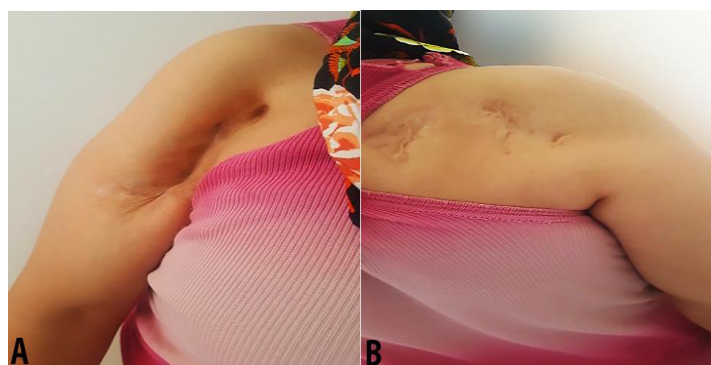


Fig-1: Clinical findings of localized scleroderma and joints deformity of the right shoulder in A, and Posterior face of the right shoulder with more cutaneous lesions in B



Fig-2: Clinical finding of localized scleroderma and joint deformity of the right knee and lower limb

The cutaneous anomalies were described as the following: sclero-atrophic lesions, either linear or plaques extending to the soft subcutaneous structures. The joints adjacent to the skin lesions showed severe stiffness in both active and passive movements. The radiographic findings showed irregular thickening of cortical bone similar to “melting wax dripping down a candle” compatible with classic melorheostosis. Interestingly there was also severe destructive arthropathy of both knees, right shoulder and left elbow. (Figures 2A and 2B).

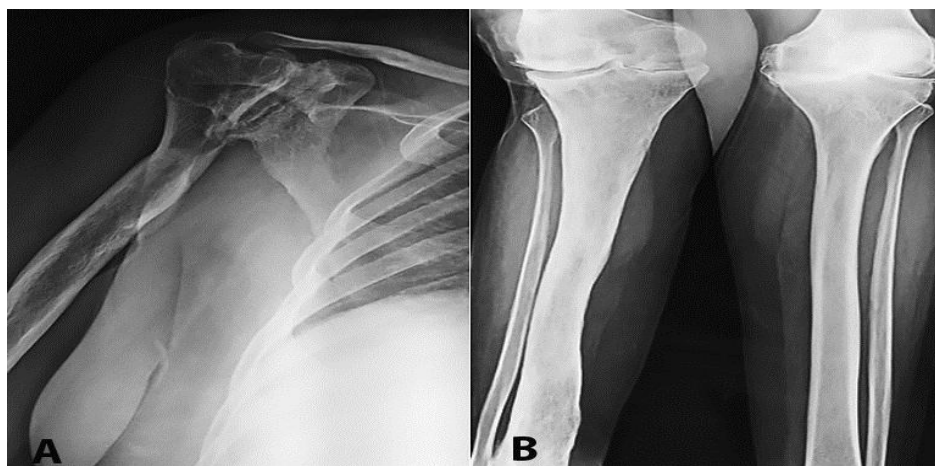


Fig-3: A - Plain X-Ray of the right shoulder showing the destructive arthropathy; B - Classical aspect of melorheostosis of the tibia associated to destructive arthropathy of the right knee

The biopsy of the deep skin layers over two affected sites was affirmative for anatomopathological findings of linear scleroderma and morphea. The blood cell count was normal, while erythrocyte sedimentation rate (ESR) was 60mm/ first hour (RR [0-15 mm/ First hour), ferritin 200ng/L (RR; 50-150 ng/L), C- reactive protein (CRP) of 8mg/L (RR; 0-5mg/L), blood protein electrophoresis showed polyclonal increase in gammaglobulins. ANA was positive at 1/160 with speckled immunofluorescence, Anti-SSA (Ro60) positive at 92, anti-Sm/RNP positive at 9 (threshold at 6 IU), anti-CCP positive at 23.9 IU, anti-DNA negative, anti-centromere negative, anti scl70 negative and rheumatoid factor also negative. Capillaroscopy was normal. Accessory salivary gland biopsy showed a grade 4 focal lymphocytic sialadenitis, according to Chisholm and Mason. Lyme serodiagnosis was negative. Renal and liver functions, phospho-calcium balance, thyroid function, muscle enzymes, viral serologies, showed no particularities.

Ophthalmological examination showed bilateral superficial punctate keratitis. The electromyogram of four limbs was normal.

Bone scintigraphy was done to map the lesions and look for associated striated osteopathy; it confirmed

the radiological findings without any other signs of associated osteopathy. The diagnosis of diffuse melorheostosis with primary Sjogren Syndrome was established. A treatment with synthetic anti-malarial drugs was initiated and the patient is a candidate for prosthetic surgery on different joint sites.

DISCUSSION

Melorheostosis is a rare mesodermal disorder characterized by hyperostosis of the cortex of tubular bones resembling dripping candle wax, and soft tissue abnormalities [1] It occurs sporadically and mainly affects the appendicular skeleton and much more rarely the axial skeleton [2]. Its pathogenesis remains uncertain. The mutation of the LEMD3 gene like striated osteopathy and osteopœcilie, early embryonic infection of a sensitive nerve inducing anomalies in the corresponding sclerotome, mosaicism [3]. It can be discovered at a variable age, but willingly during childhood. It is asymptomatic or results in pain, swelling, limitation of joint mobility, or in severe forms, unequal length and/or bone deformation. Opposite soft tissue anomalies can be associated (subcutaneous fibrosis and atrophy, pigmentation anomalies, para-articular masses) [1]. The latter often precede bone anomalies and are generally

symptomatic. Magnetic resonance imaging (MRI) is the most performant examination to assess the in-depth extension of morphea, especially in the fascia, muscles, underlying synovial tissue and even bone tissue [4].

Meloheostosis can affect a single bone (monostotic form), a limb (monomelic form) or several bones (polyostotic form). Bilateral involvement is exceptional [5]. The lower limb is affected much more often than the upper limb, while the skull and face, ribs and vertebrae are rarely affected [6]. The radiographic aspect is that of a wavy “proliferation of candle” bony proliferation, parallel to the long axis of the bone, along one or more bones. This hyperostosis affects only one side of the bone part and can be associated, later, with an endosteal hyperostosis narrowing or obliterating the medullary canal [2]. This is usually characteristic of the long bones. The other radiographic aspect that can be encountered is the mimicking striated osteopathy (the two dysplasia can, however, be associated) but in melorheostosis, the striations are larger, unilateral and eccentric [2]. The largest series of melorheostosis with soft tissue involvement was published by Campbell et al., [7] in 1968. It is believed that the skin changes result from the same mesodermal proliferative disorder that produces bone hyperostosis. It is a chronic progressive disorder with no known curative treatment. Options range from non-surgical management to various types of orthopedic surgical management [8]. Some case reports showed pain relief after bisphosphonate treatment [9]. A recent case report indicated the effectiveness of denosumab, a RANKL-inhibitor monoclonal antibody in a patient with failure on intravenous bisphosphonate treatment [10]. To our knowledge, this is the first report case of the unusual association of melorheostosis and linear (localized) scleroderma to a primary Sjogren syndrome, especially since antibodies, apart from ANA, are conventionally absent during this condition :there are theoretically no anticentromeric and anti-topoisomerase I (anti-Scl-70) antibodies. However, their presence has been reported in a few observations without long-term evolution to systemic scleroderma [11]. There has been no report of positive serological markers of Sjögren syndrome or any other established connective tissue disease in association to melorheostosis, which would suggest that melorheostosis is a disorder that is yet to reveal all of its etiopathogenic facets.

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