BUSCKE-OLLENDORFF SYNDROME: A CASE REPORT

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BACKGROUND

Buschke-Ollendorff syndrome (BOS) is a hereditary autosomal-dominant disease that is characterized by the presence of connective tissue nevi and osteopoikilosis. On some occasions it is also associated with melorheostosis.

MATERIAL AND METHODS

We present the case of a 6-year-old female with Buschke-Ollendorff syndrome associated with melorheostosis from 3 years of age. The patient presented with slight skin lesions on the trunk and lower left limb and deformity of the leg in genu valgus and knee flexion. Imaging tests are performed that are suggestive of the disease and biopsy of the affected tissue and genetic tests are proposed to confirm it.

DISCUSSION

Buschke-Ollendorff syndrome presents skin-colored papules on the thighs and buttocks along with punctate sclerotic lesions on the pelvis, hands, and feet. Most are asymptomatic, although it may be associated with melorheostosis with subsequent deformity and pain. The pathogenesis of the disease is based on the alteration of the LEMD3 gene function, which is responsible for inhibiting TGF-§ and other bone proteins. Its diagnosis is based on clinical characteristics, exclusion of other sclerosing diseases, imaging tests and genetic study. There is currently no curative treatment, but the administration of ZOledronate IV and denosumab have been successfully tested. There is controversy regarding the need for intervention in patients with a high percentage of recurrences.

CONCLUSIONS

Surgical intervention, of patients with BOS associated with melorheostosis, should be reserved for cases of surgically correctable complications or very severe deformities resistant to other treatments.

Key Words: Buscke-Ollendorff, Pediatrics

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INTRODUCTION

Buschke-Ollendorff syndrome (SBO) is an autosomal dominant hereditary disease that was first described in 1928 by Buschke and Ollendorff as dermatofibrosis lenticuralis [1,2,3,4]. The sex distribution of the disease is 1:1 and it is estimated that the incidence of this syndrome is 1 case per 20,000 people[1,2], which is why it is considered a rare disease.

The syndrome is characterized by the appearance of tissue nevus

connective, mainly derived from collagen; and osteopoikilosis. The appearance of these two findings is not always linked: both may appear at the same time, separated in time or in isolation[1,2,3, 4].

CLINICAL CASE

We present the case of a 6-year-old woman who attends pediatric orthopedic outpatient clinics referred from the dermatology clinic to assess deformity and dysmetria of the left lower limb that has been increasing since she was 3 years old . The patient has a family history of psoriasis on the mother's side with a hardened plaque on the leg with no other medical history of interest. Not actually

refers to pain, but presents with a limping gait and apparent deformity of the lower limbs

of the left knee in asymmetric genu valgus (Image 1j.

The patient is being evaluated by dermatology due to the appearance of induration on the left leg and thigh with tenuous lesions on the skin of the trunk compatible with collagenomas. Given the suspicion of linear scleroderma, she was treated with oral corticosteroids and methotrexate for 2 years without clinical improvement. A full systems scan is performed for without evidencing alterations in cardiac, pulmonary or renal function.

On inspection, the patient presented stiffness and left knee flexion of -20 degrees, which caused a false discrepancy with a significant pelvic boscule. Thickening of the entire lateral part of the thigh and leg with the appearance of flesh-colored spots on the skin is palpable. On examination, the decreased mobility of the left hip stands out with its slight retroversion, presenting an internal rotation of 20 degrees and an external rotation of 50 degrees.

Imagen 1: Podemos observar en las imágenes la aparición de retracción del tejido blando de la parte lateral de muslo y pierna izquierda con aparición de manchas pálidas tenues. Así mismo se puede ver en nuestro caso la posición en genu valgo asimétrico y flexo de rodilla.

In the podoscope we can observe a good plantar footprint without alterations in the foot. The patient presents with external rotation of the tibia through the

thigh-foot angle of 60 degrees. The presented No patient alterations at the level of the spine or upper limbs.

The rheumatology department requested blood analysis and biochemical tests, these being normal with negative autoimmunity tests, so scleroderma was ruled out.

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we can observe characteristic signs of osteopoikilia in the hands, feet and knees with melted candle hyperostosis compatible with melorheostosis at the medial level of the left iliac muscle and bilateral accessory scaphoid in both feet (Image 2j.

The study is extended with a nuclear magnetic tissue resonance to assess soft involvement and the degree of fibrosis in it, highlighting in this the appearance of an image compatible with fibrosis of the iliotibial band and the lateral fascia of the thigh and left leg compatible with melorheostosis (Image 3).

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Given the appearance of suggestive signs of osteopoikilia and melorheostosis together with the appearance of cutaneous nevus , Buschke-Ollendorff syndrome is suspected , for which a genetic study and tissue biopsy are requested.

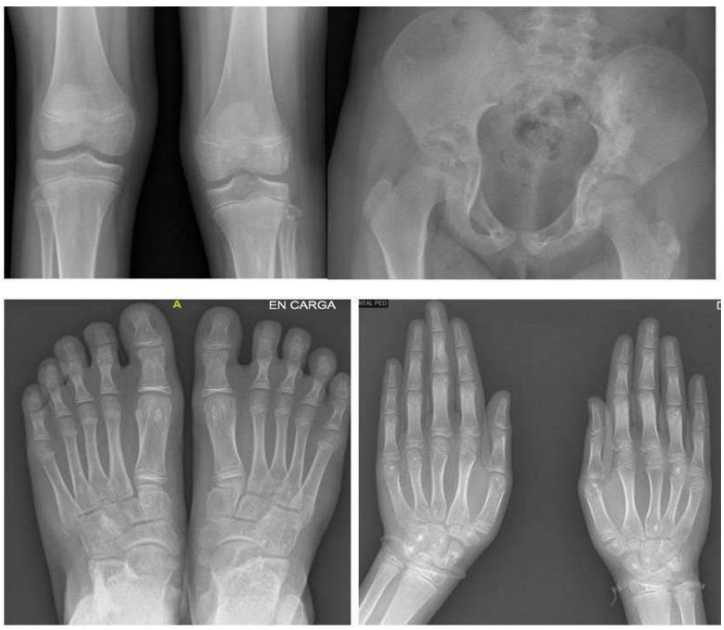

Imagen 2: Podemos observar en las radiografías esclerosis puntiforme (osteopoiquilia) a nivel de manos, pies y rodillas, así como imagen de hiperostosis a nivel de pala iliaca izquierda.

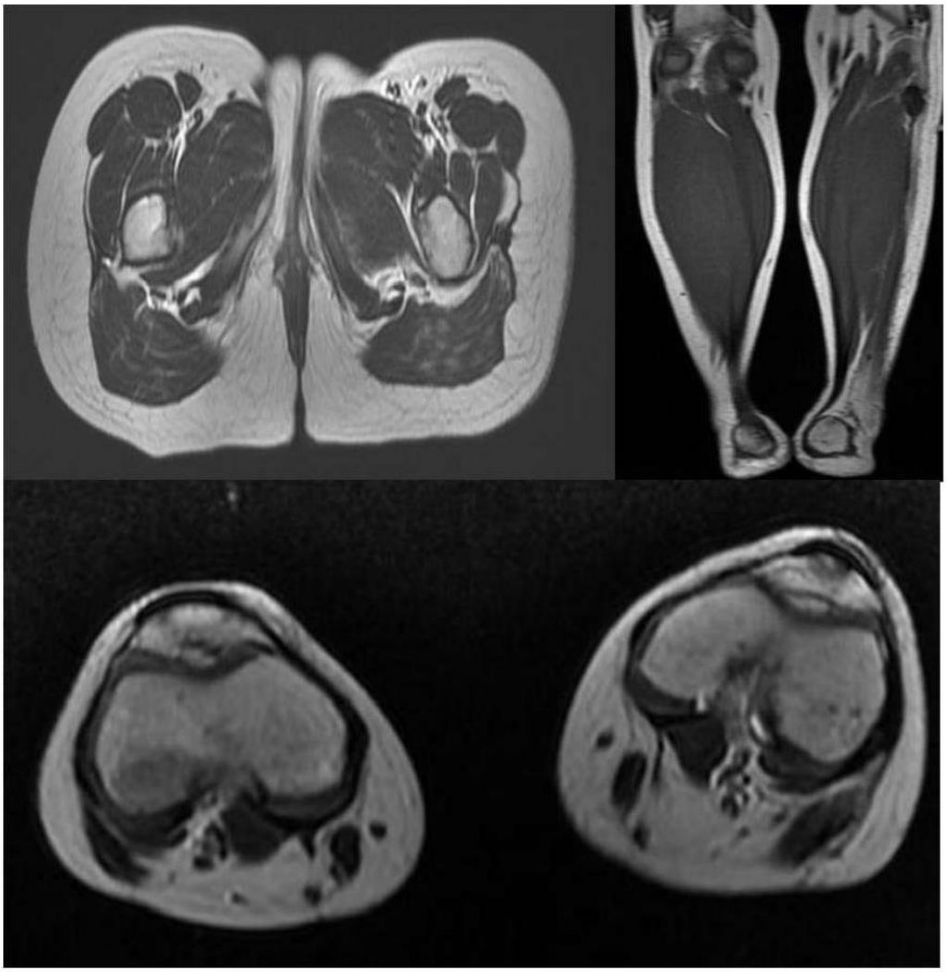

Imagen 3: Podemos observar RMN en secuencia T2 con cortes coronales del muslo y pierna y corte axial a nivel de la rodilla y zona glútea donde se evidencia aumento de la fibrosis (hipointensidad) y asimetría contralateral provocada por las retracciones.

DISCUSSION

Buschke-Ollendorff syndrome is characterized by the appearance of skin tissue lesions connective and bone involvement.

Typical dermatologic changes consist of yellowish or skin-colored populations, plaques, or nodules that appear mainly on the thighs and buttocks [3,4]. These lesions may increase in number and size over the years or disappear spontaneously in the case of small lesions [4].

The osteopoikilosis is the most frequent bone manifestation and is considered almost pathognomonic of the syndrome[4]. It is a benign childhood-onset dysplasia characterized by the appearance on radiographs of bilateral 1-10mm punctate sclerotic lesions in the pelvis, hands, feet, and long bones[1,2,3,4].

The disease is generally asymptomatic, with the main complaint of these patients being pain, which appears in up to 25% of cases [1].

Buschke-Ollendorff syndrome can be associated with the development of melorheostosis (also known as Lery's disease).
[4,5,6,7]. In these cases, the typical findings of the syndrome are mixed mesodermal add one sclerosing bone dysplasia , characterized by the appearance of hyperostosis, muscle and soft tissue ossifications contractures [6,7]. Melorheostosis usually begins in childhood, but it can appear at any age and is usually associated with findings of bone involvement : hyperostosis in the form of a melted candle (the most classic), osteoma-like, striate-like osteopathy, and myositis ossificans like[7]: in addition to involvement of soft tissue that can vary from subcutaneous fibrosis to

erythema, scleroderma -like lesions , muscle ossification, soft tissue edema, hypertrichosis, hemangiomas, and fibromas, and aneurysms parts either [7].
These changes can mean the appearance of contractures muscle, tendon and ligament retraction with subsequent deformity and limited range of motion [6,7,8].

The bibliography highlights that the most frequent place of appearance of said muscular contractures is the plantar fascia. Being this place difficult to treat and may become permanent [11].

Likewise, intra-articular ossifications can occur with deformities, joint pain and limitation of mobility[8, 11].

Premature closure of growth lysis can also appear in these patients, which will produce angular deformities and limb discrepancies [10].

This disease is usually limited to one extremity and can progress from proximal to distal[5] and has been associated, although infrequently, with glucose intolerance, craniosynostosis, otosclerosis, cataracts, and spinal stenosis [3].

The pathogenesis of SBO has been associated with the appearance of mutations that affect the function of the LEMD3 gene, located at the level of chromosome 12q14. This gene is responsible for inhibiting tissue growth factor beta (TGFb) and other bone proteins. More than 23 mutations have been described

of said gene, which explains the wide phenotypic variability of this disease [1,2,6,7].

The diagnosis of this disease is difficult. It is suspected by clinical and radiological findings and is later confirmed by genetic tests that demonstrate the involvement of said gene. Performing a tissue biopsy that excludes other more prevalent bone sclerosing diseases is considered essential [1,2,6,8,9]. It is vital

It is important to make a differential diagnosis of osteoblastic metastases , tuberous sclerosis, osteosarcoma, Paget's disease , chronic osteomyelitis and myositis ossificans [7].

There is currently no curative treatment for SBO. These patients are monitored and evaluated need a by a multidisciplinary committee made up of orthopedic surgeons, rehabilitators, rheumatologists, and dermatologists in order to find the best management for these patients [7].

Regarding conservative treatment, in the event that the disease produces pain, mainly due to melorheostosis, the administration of zoledronate Smg IV has been shown in some cases to be effective in reducing pain.

himself [6,9,10,11]. He is currently HE studying the use of denosumab for patients with pain resistant to bisphosphonates with good clinical results [9].

In addition to reducing pain, it is important to assess the need to intervene to mitigate joint deformities resulting from contractures and interstitial muscle fibrosis and their alteration in posture, gait and range of motion.

The pain and limitation produced by the calcification of the tissues is soft It can diminished be done through physiotherapy that includes stretching and movement[11].

The use of invasive surgical techniques such as cortical fenestration , tendon lengthening, excision of tissue or bone fibrosis, release of contractures and tenotomies, nerve decompression, arthroplasties and deformity corrections has been proven in the literature in order to improve the quality of life of these patients. patients [10]. Thus, Hasegawa et al. [8] obtained good results in decreasing

of pain after excision of soft tissue ossifications of the knee in a patient with melorheostosis.

In these patients is recommendable perform capsulotomies and tenotomies preferably to tendon lengthening to reduce their recurrence and later use correction orthosis in case of periods of rapid growth [10].

Surgical treatment is a controversial issue, as the literature suggests recurrence rates of pain and deformity to be around 54% of cases [11].

In the case of deciding to intervene in these patients, it is recommended to delay it until the age of bone maturation decreases for recurrences[10, 11]. are

Regarding surgery, it is important to plan the incisions to be made to avoid scars that cause greater retraction and restriction of mobility in these

patients, as well as take into

account the lack of elasticity of the skin at the time of wound closure [10].

The surgical technique to perform in these patients depends on the location of the lesion and the degree of deformity. A case similar to ours is the one published by Kitta et al.[12]. These authors present a case of a patient with fibrosis and contractures at the level of the vastus lateralis, iliotibial band and lateral retinaculum that was causing knee flexion, genu valgus and recurrent patella dislocations affecting seriously on the go. The authors They opted to perform a section of the iliotibial band and lateral retinaculum, later sectioning the joint capsule and dissecting the lateral half of the patellar ligament to end with anteromedial plication of the medial retinocule on the patella. According to their article, they obtained good results in the alignment and reduction of the patella with 3 years of follow-up [12]. However, they did not perform any intervention or improvement on the fibrosis or deformity of the patient, but they limited themselves to correcting the patella dislocation.

In the absence of the appearance of a greater number of cases in the bibliography, we can conclude that surgical intervention in patients with SBO associated with melorheostosis should be reserved in the event of surgically correctable complications or deformities.

very severe resistant to other treatments.

BIBLIOGRAPHY

1. Brodbeck M, Yousif Q, Diener PA, Zweier M, Gruenert J. The Buschke-Ollendorff syndrome: A case report of simultaneous osteocutaneous malformations in the hand. BMCResNotes. BioMedCentral ; 2016:9(1):4–7.

2. Torregrosa Calatayud JL, et to the. Buschke-Ollendorff syndrome. An Pediatr (Barc). 2014. http://dx.doi.org/10.1016/j.anpedi.2014.03.001

3. Schaffenburg WC, Fernelius C, Arora NS. Buschke-Ollendorff syndrome presenting asa painful nodule. JAAD Case Reports [Internet]. Elsevier Inc; 2015:1 (2):77—9 . Available from: http://dx.doi.org/10.1016/j.jdcr.2015.01.004

4. Pope V, Dupuis L, Kannu P, Mendoza-Londono R, Sajic D, So J, et al. Buschke-Ollendorff syndrome: A novel case series and systematic review. Br J Dermatol. 2016:174(4j:72E9

5. Jha S, Laucis N, Kim L, Malayeri A, Dasgupta A, Papadakis GZ, et al. CT analysis of anatomical distribution of melorheostosis challenges the sclerotome hypothesis. Bones [Internet]. Elsevier Inc; 2018: 117:31—6. Available from: https://doi.org/10.1016/j.bone.2018. 09.005

6. Elsheikh AA, Pinto RS, Mistry A, Frostick SP. A Unique Case of Melorheostosis Presenting with Two Radiologically Distinct Lesions in the Shoulder. Case ReportOrthop

[Internet]. Hindawi: 2017:2017(Figure 1j :1—4. Available from: https://www.hindawi.com/journals/crior/2017/9307259/

7. Kotwal A, Clarke BL. Melorheostosis: a Rare Sclerosing Bone Dysplasia. Curr Osteoporos Rep. Current Osteoporosis Reports: 2017:15(4j:335—42.

8. Hasegawa S, Kanda S, Imada H, Yamaguchi T, Akiyama T. Melorheostosis with recurrent soft tissue components: a histologically confirmed case. Skeletal Radiol [Internet]. Skeletal Radiology: 2017 :46(3j:399—404. Available from: http://dx.doi.org/10.1007/s00256-016-2562-9

9. Byberg S, Abrahamsen B, Kassem M, Ralston S, Schwarz P. Clinical improvement in a patient with monostotic melorheostosis after treatment with denosumab a: case report. Journal of Medical Case Reports: 2018;1 —6.

10. Gagliardi GG, Mohan KT. Melorheostosis: A Literature Review and Case Report with Surgical Considerations. J Foot Ankle Surg [Internet]. Elsevier Ltd; 2010;49(1):80—5 . Available from: http://dx.doi.org/10.1053/j.jfas.2009.08.004

11. John B, Sharma A, Pandey RA. Managing Recurrence in Intraarticular Melorheostosis Involving the Knee Joint: A Case Report. J Orthop case reports. 2017:7(5j:29—33.

12. Kitta Y, Niki Y, Udagawa K, Enomoto H, Toyama Y, Suda Y. Severe valgus deformity of the knee with permanent patellar dislocation associated with melorheostosis: A case report and review of the literature. Knee [Internet]. Elsevier BV; 2014:21(2):589—93. Available from: http://dx.doi.org/10.1016/j.knee.2012.11.004