UCLA
Proceedings of UCLA Health

Title
Buschke-Ollendorff Syndrome

Permalink
https://escholarship.org/uc/item/267184wz

Journal
Proceedings of UCLA Health, 23(1)

Authors
Heitmann, Sonya
Eshraghi, Rauz

Publication Date
2019-02-06

eScholarship.org Powered by the California Digital Library
University of California

CLINICAL VIGNETTE

Buschke-Ollendorff Syndrome

Sonya Heitmann, MD and Rauz Eshraghi, MD

A 39-year-old male of Askenazi Jewish background presented with intermittent right ankle pain which had been present for several years. He denied prior injury to the ankle and he rated his pain at 0/10 when he presented but reported the pain could be mild to moderate during flares. He previously noted mild swelling of the ankle but reported no edema now. The pain was usually localized around the medial malleolus.

His father had Buschke-Ollendorff syndrome and the patient had a personal history of bone lesions noted on imaging. During a prior hospital admission for appendicitis, CT scan of his abdomen and pelvis showed both splenomegaly and multiple sclerotic bone lesions.

The patient denied a history of unintended weight loss, fevers, night sweats, pelvic pain or easy bruising. He did not have current skin lesions, but reported childhood skin lesions on his chest which resolved. He denied back pain or hearing loss.

On physical exam, he was 5 feet and 9 inches tall with normal vital signs. His sclera were anicteric and hearing was grossly normal with normal tympanic membranes. He had no cervical or inguinal lymphadenopathy. Abdomen was soft, nontender and nondistended with mild splenomegaly without hepatomegaly. There was no tenderness to palpation over the iliac bones and skin was free of connective tissue nevi or petechiae.

Right ankle was free of erythema, edema, or warmth. There was no tenderness to palpation over the medial malleolus or other areas of the tibia and fibula. There was a mild decrease in right ankle range of motion for inversion and eversion, with normal dorsiflexion and plantar flexion. No laxity of the ankle was noted and he had a negative anterior drawer sign and was able to bear weight without pain. The dorsalis pedis and posterior tibialis pulses were +2 bilaterally with no lower extremity edema.

Labs and Studies

Right ankle x-ray showed bone islands of the tibia, fibula and the calcaneus without soft tissue swelling.

Abdonimal CT scan showed splenomegaly as well as multiple small sclerotic lesions of the bilateral iliac bones, the sacrum and the proximal femurs. The radiologist thought that these lesions were most likely bone islands but could not rule out bone metastases.

CBC was normal: Hgb16.7, Hcf 48.2%; platelets 216,000/uL, WBC 6,400/uL with a normal smear. Total bilirubin level was 2.4mg/dL, AST, ALT, alkaline phosphatase, albumin and total protein levels were within normal limits.

Flow cytometry showed no blasts and no signs of a T-cell or B-cell lymphoproliferative disorder. Genetic testing was negative for Gaucher disease. Vascular endothelial growth factor (VEGF) levels were within normal limits. Free kappa and lambda light chain levels were within normal limits. Immunofixation showed no monoclonal immunoglobulins.

Treatment Course

His evaluations showed no signs of malignancy or Gaucher disease. Hematology recommended further evaluation of the splenomegaly only if the spleen continued to increase in size. The elevated total bilirubin was chronic and felt to be Gilbert syndrome.

For his ankle, the patient started physical therapy to improve his range of motion. So far, he has not had further flare ups of ankle pain since starting physical therapy.

Discussion

Buschke-Ollendorff syndrome (BOS) is an autosomal dominant genetic disorder caused by mutations in the LEMD3 gene.[1] This genetic mutation can lead to skin and bone lesions. The Pope et al. study (2016) found bone lesions alone in 20% of patients studied, skin lesions alone in 24%, and both skin and bone lesions in 54% of patients.[1] Our patient had both skin and bone lesions though his skin lesions resolved in childhood.

The most common skin lesions are connective tissue nevi and the most common bone lesions are sclerotic areas of increased bone density referred to as osteopoikilosis (OPK).[1] The majority of individuals with OPK are asymptomatic from the bone lesions.[1] However, one study noted 15-20% of individuals with OPK reported swelling or pain at the site of some bone lesions.[2] For patients with BOS, since the bone lesions are often asymptomatic, it is important to still consider other etiologies for the pain.

Some individuals with BOS will suffer from a more rare bone disorder called melorheostosis (MEL). MEL is a type of bone dysplasia characterized by sclerosing bone lesions that can also

disrupt nearby soft tissue structures.[3] This bone condition tends to be painful and can cause contractures.[3] Radiologists classically use the phrase "dripping candle wax" to describe the appearance of the bone lesions seen with MEL.[3] Though our patient did complain of pain in a location with a bone lesion, the appearance of his bone lesions on imaging were more consistent with OPK than with MEL.

OPK can be confused for metastatic bone lesions. However, the bone lesions seen with OPK generally involve multiple small and symmetric lesions of the bone with more defined borders than are often seen with metastatic bone lesions.[2] Our patient did get further evaluation for his bone lesions despite his family history of BOS because of the finding of splenomegaly.

Our patient's ethnic background along with the findings of bone lesions and splenomegaly, prompted workup for Gaucher disease (GD). Type 1 Gaucher disease is seen more frequently in individuals of Ashkenazi Jewish background than other ethnic backgrounds.[4] One GD study reported 81% had bone disease on radiographic studies and 95% had splenomegaly.[4] Genetic testing for GD was negative for our patient.

Future considerations for our patient include monitoring for back pain and radicular symptoms as OPK can contribute to the development of spinal stenosis.[5] OPK lesions tend to be progressive and increase in number over time.[6] Secondary to this gradual progression, some manifestations of BOS may not present until later in life. BOS patients can develop otosclerosis leading to hearing loss and tinnitus.[5] Schnur et al. (1994) reported onset of hearing loss with BOS as late as age 45 for the patient population they studied.[5]

Though our patient's ankle pain was only an intermittent mild discomfort, it helps highlight the importance of having a better understanding of BOS. Other etiologies for pain in the vicinity of a bony lesion still need to be considered as the lesions are often asymptomatic. This has to be balanced with avoiding unnecessary tests. Excess testing in the setting of numerous bone lesions can easily be pursued if BOS is not considered in the differential.

REFERENCES

1. **Pope V, Dupuis L, Kannu P, Mendoza-Londono R, Sajic D, So J, Yoon G, Lara-Corrales I.** Buschke-Ollendorff syndrome: a novel case series and systematic review. *Br J Dermatol*. 2016 Apr;174(4):723-9. doi: 10.1111/bjd.14366. Epub 2016 Mar 8. Review. PubMed PMID: 26708699.
2. **Korkmaz MF, Elli M, Özkan MB, Bilgici MC, Dağdemir A, Korkmaz M, Tosun FC**. Osteopoikilosis: report of a familial case and review of the literature. *Rheumatol Int*. 2015 May;35(5):921-4. doi: 10.1007/s00296-014-3160-6. Epub 2014 Oct 29. Review. PubMed PMID: 25352085.
3. **Kotwal A, Clarke BL**. Melorheostosis: a Rare Sclerosing Bone Dysplasia. *Curr Osteoporos Rep*. 2017 Aug;15(4):335-342. doi: 10.1007/s11914-017-0375-y. Review. Pub Med PMID: 28676968.
4. **Kaplan P, Andersson HC, Kacena KA, Yee JD**. The clinical and demographic characteristics of nonneuronopathic Gaucher disease in 887 children at diagnosis. *Arch Pediatr Adolesc Med*. 2006 Jun;160(6):603-8. PubMed PMID: 16754822.
5. **Schnur RE, Grace K, Herzberg A**. Buschke-Ollendorff syndrome, otosclerosis, and congenital spinal stenosis. *Pediatr Dermatol*. 1994 Mar;11(1):31-4. Review. PubMed PMID: 8170846.
6. **Schena D, Germi L, Zamperetti MR, Colato C, Girolomoni G**. Buschke-Ollendorff syndrome. *Int J Dermatol*. 2008 Nov;47(11):1159-61. doi: 10.1111/j.1365-4632.2008.03727.x. PubMed PMID: 18986450.

Submitted January 7, 2019