



Bilateral painful foot masses

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Received: 9 February 2018 / Accepted: 9 April 2018 / Published online: 23 April 2018
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Answer: Bilateral hypertrophy of extensor digitorum brevis (EDB)

Discussion

The soft tissue fullness that was found bilaterally at the dorsolateral midfoot, 8.0 × 5.0 cm on the right and 6.0 × 4.0 cm on the left, demonstrated hypertrophied extensor digitorum brevis (EDB) bilaterally with normal muscle architecture and signal, right greater than left. This patient underwent staged debulking of EDB and extensor hallucis brevis (EHB). Macroscopically, the masses appeared as normal muscle fibers; histopathology revealed hypertrophy muscle fibers. At 3-year follow-up, the patient was symptom-free with normal gait.

Hypertrophy of the EDB is a rare condition with unknown etiology that causes pain with ambulation, cosmetic dissatisfaction, and may mimic soft tissue tumors. This case featured a patient with bilateral hypertrophy of the EDB; the only previously reported case of this occurred in 1998 [1], while another reported on bilateral hypertrophy of the extensor hallucis brevis (EHB) [2]. Only a few other cases of congenital muscle hypertrophy of the foot have been previously reported, including single or multiple muscle involvement [3–5].

With respect to identification, conventional radiography has been found to be insufficient in discerning between hy-

pertrophy or neoplasm [3]. Though ultrasound has some utility, MRI is considered the provisional gold standard for diagnosis, given its ability to discern soft tissue by signal intensity [3, 6]. In this case, minimal contrast (gadolinium) uptake, in addition to enhanced signal in T1-weighted images and margin preservation, was characteristic of muscle hypertrophy [3]. The difference in age of onset has been found to have negligible impact on the success of MRI detection [7]. However, while Raab et al. [3] describe characterization of soft tissue masses by MRI or ultrasound to be reliable for diagnosis, they recommend histological verification to reach a definitive diagnosis; histopathology, via incisional or excisional biopsy, will help effectively rule out other muscular pathologies, such as pseudohypertrophy (tissue enlargement/swelling not resulting from cellular hypertrophy), benign or malignant neoplasia, and inflammation, and permit diagnosis of muscle hypertrophy [3].

Although intrinsic muscle hypertrophy is generally a diagnosis of exclusion, clinicians may be able to suspect this diagnosis when no other organic cause can be identified following diagnostic workup [8]. The diagnostic process can also be impacted by the level of experience of the diagnostic radiologist in discerning between pathological entities and anatomic variants of intrinsic muscle anatomy. Polesuk et al. [9] discussed radiographic detection of palmaris longus hypertrophy, highlighting the variations of normal palmaris anatomy to demonstrate that radiologists may have differing degrees of familiarity with anomalies. This report and discussion aim to emphasize the need for familiarity with the features of entities such as this one, as it may prevent the reporting of findings that could lead to unnecessary workup or radical surgical intervention [9, 10].

Compliance with ethical standards

Disclosures/Conflict of interest The authors declare that they have no conflicts of interest related or indirectly related to any element of this work/study.

The case presentation can be found at <https://doi.org/10.1007/s00256-018-2952-2>

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