A Rare Case of Skeletal Sarcoidosis in the Foot Causing a Symptomatic Degenerative First Metatarsophalangeal Joint

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Statement of Purpose

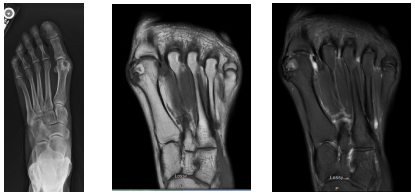
To present a rare case of a sarcoid cystic lesion in the first metatarsal head and its symptomatic management with excision and first metatarsophalangeal joint arthrodesis.

Literature Review

Sarcoidosis is a multisystem granulomatous disease process which has a variety of clinical presentations and progression (1). Extrapulmonary involvement is most commonly associated with pulmonary disease in approximately 50% of cases. (3). The pathologic hallmark of the granulomas of sarcoidosis include a non caseating, round to oval granuloma. Chronic lesions transform into an avascular and virtually acellular connective tissue structure (2). Osseous involvement is rare in sarcoidosis with an average incidence of 3-13% although this does vary widely in literature. Of those with skeletal involvement, however, only approximately 50% are symptomatic lending to its wide variation and low prevalence (4). While a large portion remains asymptomatic, the presence of bone lesions themselves suggest an overall progressive disease biology.In a study by Zhou et al (2017), patients with osseous involvement had a higher incidence of more advanced organ involvement when compared to the control sarcoid group (5). Osseous involvement is usually most common in the axial skeleton and within the hands and the feet (3). Bone lesions have multiple characteristic features. They are usually bilateral in distribution. The lesions often are found at the ends of bones, cortical in nature with preservation of the overlying periosteum. They are also often described as cystic or “lace-like” in nature and often do not disrupt or alter the surrounding soft tissue (2). The morphologic appearance of these lesions, however, can range from a more permeative or “moth-eaten” pattern, lytic, destructive or sclerotic. Some of the variation has been associated with the anatomic location of the lesion (4). When located peri-articularly, patients often experience associated soft tissue swelling and joint effusions. In advanced disease, periarticular lesions can extend into the joint. (2). While it is often reported in literature that the small bones within the hands and feet are most commonly involved, overall, there is a paucity in literature on the nature of bone lesions in the foot when compared to the hand.

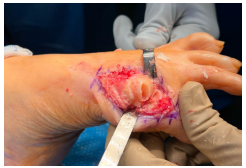
Case Study

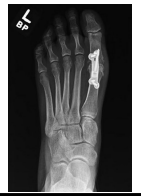
A 50 year old female presented to clinic with chief complaint of painful left foot bunion deformity. The pain had been present for years, however, had been worsening over the last few months. The patient has known history of sarcoidosis and well controlled diabetes mellitus. Physical examination was significant for a prominent medial eminence of the first metatarsal with hallux abduction. No significant hypermobility of the first ray. First metatarsophalangeal joint range of motion with crepitus but no significant pain. Plain film imaging was significant for a large lytic lesion on the the medial aspect of the first metatarsal head with small surrounding calcific densities. After extensive discussion, patient was agreeable to proceed with first metatarsophalangeal joint arthrodesis with possible bone autograft harvest.



Surgical Procedure

A dorsomedial incision was made about the first metatarsophalangeal joint and carried down in anatomic layers. A linear capsulotomy was performed and the joint was exposed. The joint was adequately prepped. After reaming the metatarsal head, a well circumscribed and encapsulated bone cyst was identified and passed off the field to be sent for pathology. Autograft was harvested from the calcaneus and utilized to fill the 1.5 cm defect. The first metatarsophalangeal joint was positioned and a lag screw and dorsal plate was placed using standard AO technique.The incision was then closed in anatomic layers.





Pathology

Pathology report was significant for focal granulomatous inflammation, with a small focal area of necrosis. Calcifications within multinucleated giant cells consistent with schaumann bodies. These findings are consistent with sarcoidosis.

Analysis and Discussion

Sarcoidosis is a multisystem granulomatous disease with pulmonary involvement being the most common manifestation of the disease. The occurrence of bony involvement of sarcoidosis has been reported as ranging from 3-13% of patients, with approximately 50% being asymptomatic lesions. The bone lesions can have different morphologies including more permeative appearance, lytic lesions, or sclerotic lesions. The hallmark of the pathology for these lesions are noncaseating granulomas that are non-necrotizing in nature. This is an uncommon lesion with only a few reported in case studies and in our case, caused a symptomatic degenerative joint. Though this is an exceedingly rare finding, foot and ankle diagnosticians should keep this on their differential for aid in future treatment.

References

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