

INTRODUCTION

Bipartite medial cuneiform is a rare and sparsely documented pedal anatomic variant. Presented here as an incidental radiographic finding, the symptomatic bipartite medial cuneiform lacks the documented outcomes to sufficiently guide diagnostic and treatment protocols. Clinical and surgical implications brand this anatomic variation an important consideration for patients with foot or ankle pain.

A retrospective observational chart analysis was performed. In the scant literature that exists pertaining to the bipartite medial cuneiform no agreed upon diagnostic method exists however treatment modalities are abundant ranging from taping and strapping to corticosteroid injection to tarsometatarsal arthrodesis.

LITERATURE REVIEW

Although rare, the most frequently observed bipartition among tarsal bones is the medial cuneiform with a reported incidence ranging from 0.33% to 2.4%. Barlow is credited with documenting the classic anatomic description of the medial cuneiform having a horizontal partition into a larger dorsal and smaller plantar piece. Etiology of a bipartite medial cuneiform is felt to be due to failure of two primary ossification centers to fuse.

A literature search revealed only three case reports of treatment for a symptomatic bipartite medial cuneiform. Azurza and Sakellarios reported a case of a 34 year old male Soldier with a three year history of symptomatic bipartition following a soccer injury. Successful treatment consisted of arthrodesis. Chiodo and Parentis reported a case of a 32 year old female Olympic marathon runner with a medial to lateral partition. Successful treatment consisted of excision of the medial segment. Bismil and Foster reported a case of a 23 year old male professional rugby player who became symptomatic following a rugby injury. Successful treatment consisted of a single injection of 40mg of methylprednisolone into the bipartition.

Given this dearth of literature and variation in treatments, the optimal treatment for a bipartite medial cuneiform is still unknown. Presented here is a case of an asymptomatic bipartite medial cuneiform incidentally discovered on imaging.

CASE REPORT

A case is presented of a 40 year-old male without significant PMH with Incidental radiographic discovery of an asymptomatic bipartite medial cuneiform. Advanced imaging confirmed and visualized this rare anatomic variant.



Figure 1: Lateral View Plain Film Radiograph demonstrating the “E-sign” as described by Elias et al.

The patient underwent incision and drainage with debridement of the aforementioned abscess and eventually healed by means of secondary intention. Subsequent follow-up with dressings, CAM boot and eventually normal shoe gear revealed no initiation of symptomatic complaint at the bipartite medial cuneiform after 22 months of follow up.

Figure 2: AP View Plain Film Radiograph demonstrating a “Double Cuneiform sign”



Figure 3: Sagittal plane CT without contrast demonstrates obvious visualization of the bipartite medial cuneiform with complete dual ossification



Figure 4: 3D CT reconstruction, albeit not requisite for proper visualization, does provide adequate visualization of the bipartite medial cuneiform



Figure 5: Frontal plane CT without contrast demonstrates obvious visualization of the bipartite medial cuneiform with complete dual ossification

This study details the rarely observed pedal anatomic variant of bipartite medial cuneiform. Considering the lack of reported literature and variation in diagnosis and treatments, the optimal diagnostic and treatment modalities for a symptomatic bipartite medial cuneiform remains to be seen. However, given the obvious clinical and surgical implications relating to this anatomic variant it should be a consideration for patients with foot or ankle pain.

CT guided injection is felt to be beneficial in terms of pre-operative planning as isolated arthrodesis of the medial cuneiform segments would not have provided resolution in the case presented here. However, proper imaging is required for sufficient preoperative planning and ultimately for guidance of treatment, be it conservative or surgical.

CONCLUSION

Bipartite medial cuneiforms are a rare anatomic anomaly. When present, the condition is often bilateral and has a predilection for the male gender. It is theorized that the area becomes symptomatic secondary to abnormality of fibrocartilagenous union. This is supported by the cases reported in the literature. The condition is easily recognizable on standard radiographs as well as advanced imaging. Elias et al described the “E-sign” as a useful way to diagnosis the condition via MRI.

Future attempts to elucidate a gold standard approach for diagnosis as well as treatment modalities should focus on minimally invasive and cost effective options in order to

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