

Cubonavicular Coalition

Published on 13.05.2001

DOI: 10.1594/EURORAD/CASE.829

ISSN: 1563-4086

Section: Paediatric radiology

Imaging Technique: CT

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Case Type: Clinical Cases

Authors: JWK Harrison, MR Carmont, V Peter, HPJ Walsh

Patient: 12 years, female

Clinical History:

Pain on the dorso-lateral aspect of the mid-foot worse on exercising. On examination subtalar joint movements were reduced and painful.

Imaging Findings:

Pain on the dorso-lateral aspect of the right mid-foot for 2 years and pain brought on by exercise. No history of trauma. On examination movement of the right subtalar joint was reduced and painful. Plain radiographs with antero-posterior and oblique weight-bearing views suggested a bone bar of the cubonavicular joint. Computed tomography (CT) of the tarsus was performed. Scan acquisition was direct coronal with the patient supine, the hips and knees flexed and the feet together flat on the scanner table. There was no gantry angulation and slices were taken at 2mm intervals. Axial and 3-D reconstruction were performed. This confirmed a large cubonavicular coalition mainly on the plantar aspect. This was explored surgically through a dorsal approach and a cubonavicular coalition resected.

Discussion:

Tarsal coalition is abnormal bony, cartilaginous or fibrous fusion between two or more tarsal bones. Calcaneonavicular and talocalcaneal are the most common forms. Cubonavicular coalition is a rare form thought to occur in less than 1% of all coalitions (Palladino et al 1991). Most coalitions can be diagnosed by plain radiography and CT. Studies have shown magnetic resonance imaging (MRI) to have the same diagnostic accuracy as CT (Emery et al 1998). MRI may be useful in showing cartilaginous or fibrous unions in cases where the clinical suspicion of a tarsal coalition is high but both radiographs and CT are negative. Other modalities such as scintigraphy may be helpful. In this case a CT reconstruction was used to aid in surgical planning.

Differential Diagnosis List: Cubonavicular coalition

Final Diagnosis: Cubonavicular coalition

References:

Palladina SJ, Schiller L, Johnson JD.

Cubonavicular Coalition.

J Am Podiatric Med Assoc. 1991 May; 81(5): 262-6. (PMID: [2061824](#))

Emery KF, Blisset GS, Johnson ND, Nunan PJ.

Tarsal Coalition: A Blinded Comparison of MRI and CT.

Paediatr Radiol. 1998 Aug; 28(8): 612-6. (PMID: [9716636](#))

Figure 1

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Description: Weight-bearing view suggesting a cubonavicular bony coalition. **Origin:**

Figure 2

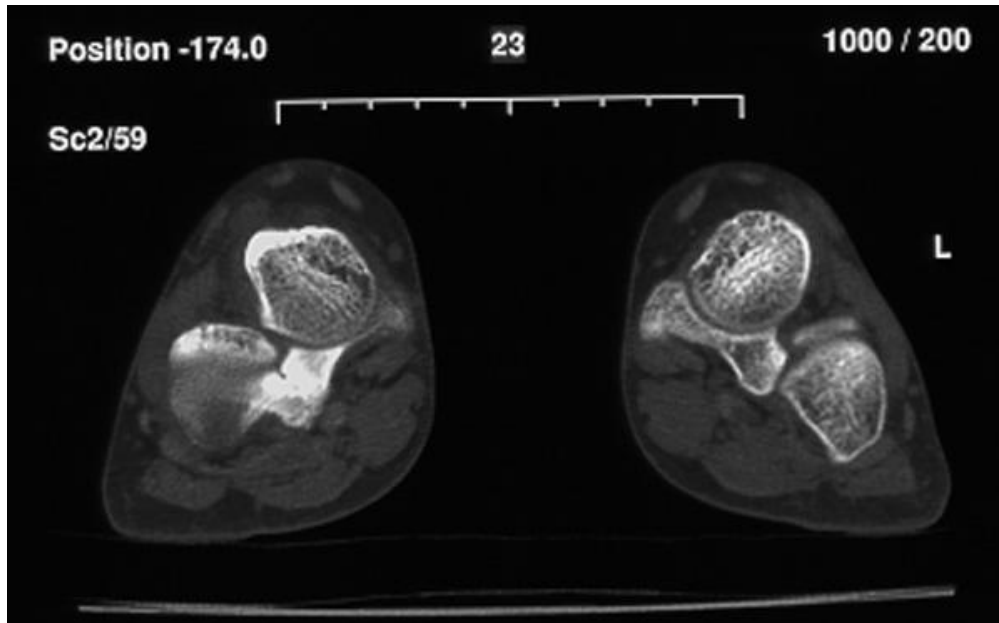
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Description: View showing more definitely the coalition. **Origin:**

Figure 3

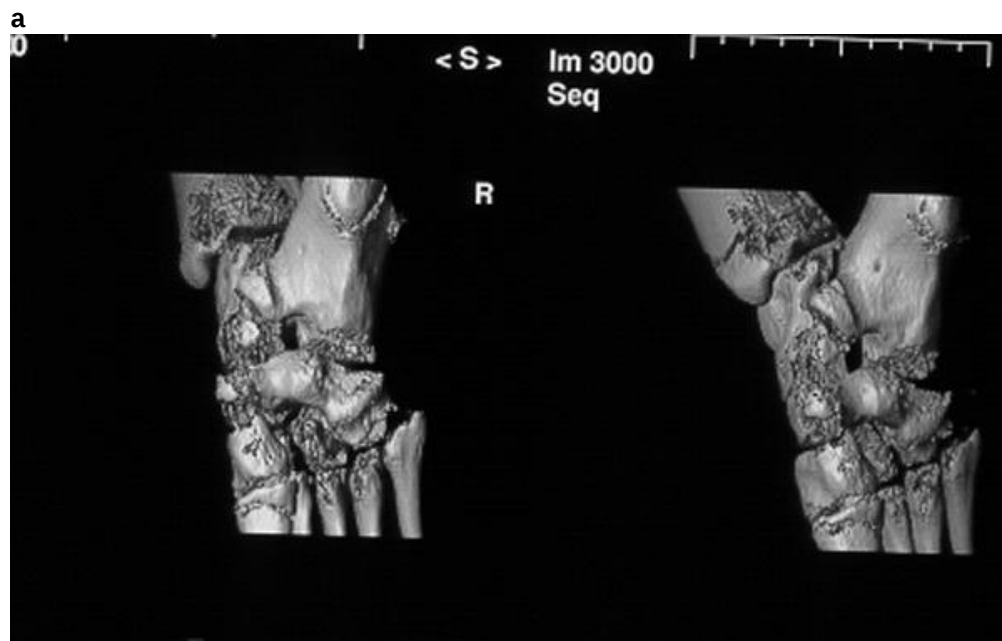
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Description: Slices through the navicular, cuboid and head of talus showing the cubonavicular coalition.

Origin:

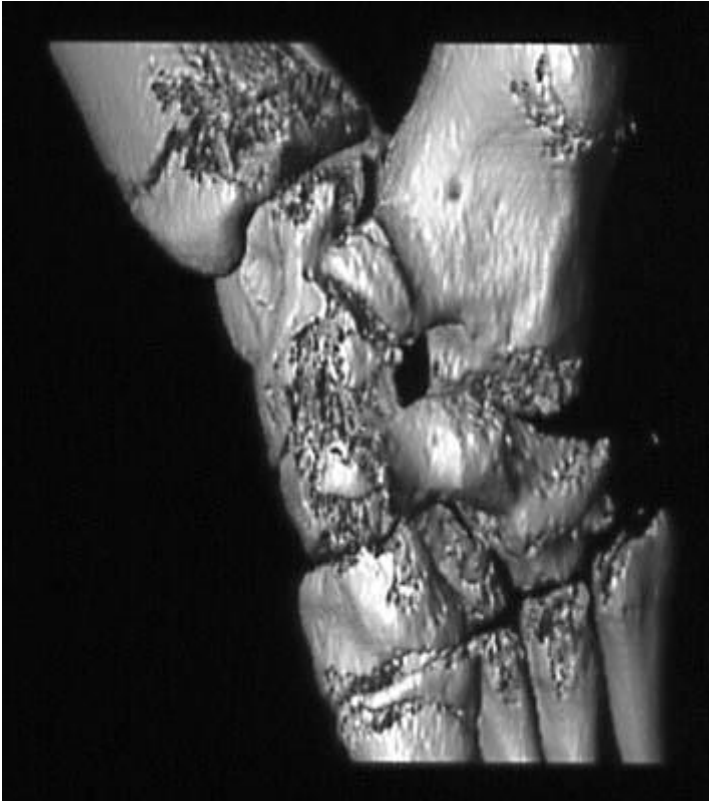
Figure 4



Description: Oblique view showing the large plantar coalition. **Origin:**

Figure 5

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Description: Medial-oblique view showing the coalition. **Origin:**