CUBOID-NAVICULAR COALITION – A RARE FINDING

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• The authors declare that they have no financial relationship.

• The authors declare that they have no conflict of interest.
ANAMNESIS

• Age: 35 years old.

• Sex: Male.

• Complaint:
  – Sprained right ankle 20 months ago with fibula fracture.
  – Had surgery with plate and screws, followed by physical therapy.
  – Has leg edema, pain and paresthesia in the instep since surgery.

• Physical examination:
  – Pain with palpation, edema and dorsiflexion limitation.

*Magnetic resonance image (MRI) was requested to elucidate diagnosis.*
MRI

T1 without contrast - sagittal

STIR - sagittal
MRI

T1 without contrast - coronal

T1 without contrast - axial
MRI

- Cuboid-navicular fibrous coalition showed in the blue circles and arrows.
Current ideologies regarding cuboid-navicular coalitions elucidate the belief that this particular type of coalition is usually asymptomatic except at specific moments where activity or exercise can result in pain or peroneal spastic flatfoot\(^1\).

Intolerance to exercise and prolonged walking as well as frequent ankle sprains often appear\(^2\).
The two most common coalitions - talocalcaneal: 48% and calcaneonavicular: 44% - present as a painful foot in adolescence that can be exacerbated with walking, activity or any exercise.

Talonavicular and calcaneocuboid coalitions each account for an additional 1%, with the remaining 6% comprised of coalitions between nonspecified tarsal joints.

EPIDEMOIOLOGY
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- Males are slightly more likely to exhibit tarsal coalition than females, ratio ranged from 4:1 to 12:5\(^2\), and patients classically develop progressive pain and stiffness in the foot with decreased hindfoot and midfoot motion on clinical exam\(^1\).
EPIDEMIOLOGY

• Leonard, in a long series of tarsal coalitions, found that 33% of relatives and 46% of the children of patients with tarsal coalitions also had some type of coalition, with 39% of close relatives having tarsal coalitions.
  – A total of 14% of the relatives had a different kind of tarsal coalition\(^2\).

• Over 50% of the patients with tarsal coalition in one foot are likely to have the same condition in the other foot\(^2\).
The most likely aetiology of tarsal coalitions in the majority of cases is represented by a genetic mutation which is eventually responsible for a segmentation failure of the primitive mesenchyme\textsuperscript{2}. 
ASSOCIATIONS

- A talar beak will never be present in this type of coalition as there is no alteration in the weight bearing mechanics of the talonavicular joint in a cuboid-navicular coalition\(^1\).

Is frequently associated with symphalangism, clinodactyly, ball-and-socket ankle joint and a big toe shorter than the second toe, with a dominant autonomous hereditary pattern\(^2\).
DIAGNOSIS

• Often, the only clue to the diagnosis of cuboid navicular coalition on radiography may be an abnormal articulation between the posterior medial cuboid and plantar lateral navicular with marked superimposition of the cuboid over the navicular bone\(^1\).

Thus, the lack of a talar beak cannot be confidently used to exclude the presence of a tarsal coalition\(^1\).
• Symptomatic coalitions may be treated conservatively with nonsteroidal anti-inflammatory drugs, casting, steroid injection and orthotics or can be treated surgically with excision\(^1\).

• More recently, symptomatic cuboid-navicular coalitions have been treated through the resection and interposition of an adipose graft in a handful of patients\(^1\).
CONCLUSION

• Cuboid-navicular coalition is a very rare finding and even rarer to cause symptoms.

• This coalition may not cause prolonged or disabling symptoms or osteoarthritic degeneration of the adjacent joints.
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