



The merger of Medical Imaging Australasia (MIA) and Gold Coast Medical Imaging's (GCM) parent company, I-MED, at the end of 2004 has brought together some of the best musculoskeletal radiologists in the country and even in the UK.

This highly dedicated and experienced team of doctors and their supporting staff work to provide expert opinion on a multitude of cases every day. The cases range from orthopaedic reviews, rheumatological cases and sports medicine imaging for weekend "warriors", to the elite sporting athletes and teams alike.

Our Network's MSK specialists are able to provide sub-specialist support to GCM and make sure the standard of imaging in musculoskeletal medicine in our group is of the highest standards and performed using the latest, most innovative techniques.

I hope you enjoy the first of our "MSK Imaging" articles from MSK Imaging Special Interest Group members.

Dr. Phil Lucas

Phil Lucas is a Sydney based radiologist, who works at MIA at Dee Why.

How to Determine Tarsal Coalition

By Rob Jones M.B. B.Ch. F.R.C.R., Hobart Radiology, St John's Hospital, Hobart Tasmania

CT is invaluable in the diagnosis of talocalcaneal coalition and may be extremely useful in surgical planning, particularly in determining if surgical resection is feasible or if fusion is indicated. MR may be indicated since it is particularly useful differentiating between fibrous and cartilaginous coalitions. Also, MR may better define certain types of coalition in specific cases.

"...tarsal coalition likely results from abnormal segmentation..."



Figure 1

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The case story represented by figures 1, 2 and 3 is a typical example of tarsal coalition. A male, 20 years of age consulted his GP with pain in his left hind foot, particularly with exercise. The GP requested plain films (Figure 1). They were followed up by an orthopaedic referral and the request for CT of the hind foot to evaluate the extent of coalition (Figures 2-3).

Plain Films

Lateral view of the ankle, shows the "C sign". A C-shaped line outlines the medial talar dome and postero-inferior sustentaculum. It results from bony bridging between the talar dome and sustentaculum.

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CT Imaging

Coronal reconstruction and axial CT images, figures 2–3 confirm presence of non-bony (fibrous) talocalcaneal coalition.

What is the Cause?

Congenital tarsal coalition likely results from abnormal segmentation and differentiation of primitive mesenchyme resulting in lack of joint formation. It is autosomal dominant with variable penetrance. Incidence in the general population is approximately 1–2% with a slight male preponderance and is bilateral in 50%.

About 90% of tarsal coalitions involve the talocalcaneal or calcaneonavicular joints. Talonavicular coalitions are much less common and may be asymptomatic. Calcaneocuboid, cubonavicular and navicular-first cuneiform coalitions are rare.

Tarsal coalitions are also further sub classified as fibrous, cartilaginous or osseous though this should be thought of as a continuum with progressive osseous bridging occurring

“...diagnosis might not occur until early adulthood...”

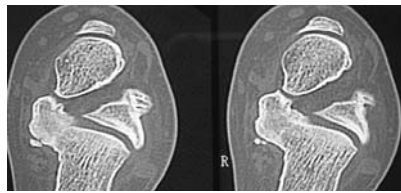


Figure 2

with increasing age. Onset of symptoms is variable but may become more pronounced with progressive ossification.

Talocalcaneal coalitions typically ossify later than calcaneonavicular (12–16 yrs as opposed to 8–12 yrs) but, as shown in the case study, diagnosis might not occur until early adulthood, often presenting as hind foot pain or stiffness and commonly first after trauma, weight gain or increased athletic activity. In some patients tarsal coalition is discovered incidentally and may be completely asymptomatic.

Imaging of Talocalcaneal Coalition

Talocalcaneal coalition most commonly affects the middle facet of

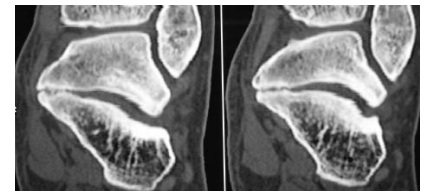


Figure 3

the subtalar joint at the level of the sustentaculum tali. They may be difficult to visualise on standard radiographic views because of the complex orientation. A number of secondary signs have been described, including the “C sign” (described earlier in this article), a talar beak and narrowing of the posterior subtalar joint. The “C sign” is the most reliable with a sensitivity of 88% and a specificity of 87%.

References:

- Julia R. Crim, Kristina M. Kjeldsberg: Radiographic Diagnosis of Tarsal Coalition AJR 2004 182:323-328.
- Angela J. Gessner, S Jay Kumar, George W. Gross: Tarsal Coalition in Pediatric Patients: Seminars in Musculoskeletal Radiology 1999 Vol 3 No 3.
- Newman and Newberg: Congenital Tarsal Coalition: Multimodality Evaluation with Emphasis on CT and MR Imaging: Radiographics 2000 20:321-332.

Tarsometatarsal Fracture Dislocation

By Dr. John Korber, MBBS,DDR,FRANZCR, Macquarie Street Sydney.

“Diagnosis requires a high degree of suspicion.”

Lisfranc fracture or tarsometatarsal fracture dislocation can occur with direct or more commonly indirect trauma.

Violent abduction or plantar flexion of the forefoot can result in extremely subtle plain x-ray changes in the presence of significant disability. Diagnosis requires a high degree of suspicion.

In the normal anatomical situation, the medial border of the second metatarsal base aligns perfectly with the medial border of the middle cuneiform.

Even one millimetre of malalignment should indicate the possibility of a fracture dislocation in the appropriate clinical context. Widening of the space between first

and second metatarsal bases also indicates injury.

CT is extremely useful in the diagnosis of this injury, as well as other subtle fractures in the foot and ankle.

In the presence of a “normal x-ray”, CT of the forefoot, mid foot, hind foot or ankle is indicated in the patient who is unable to weight bear, or who has had an injury that is not resolving.



Bulk Billing Echocardiography Service Now Available

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- **Thrombus, endocarditis, cardiac tumours, and other anomalies**

Andrew Carter, an Echocardiographer with over ten years experience in this field, will be performing the service.

All echocardiograms will be reported by Dr Andrea Riha. Dr Riha is a graduate of University of Queensland. She is a trained Cardiologist and has further specialised in vascular medicine at Monash Medical Centre in Melbourne. Dr Riha is the Director of The Wesley Vascular Centre in Brisbane.

Echocardiograms are available

Mondays:

**Tweed Valley Radiology
50 Wharf Street,
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Fridays (Coming Soon):

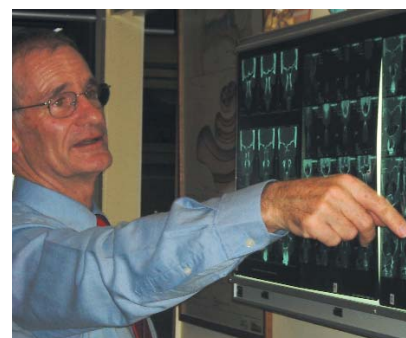
**Gold Coast Medical Imaging
Pacific Private Clinic,
123 Nerang Street, Southport
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Know the Nose

During 2004 Gold Coast Medical Imaging, in conjunction with Schering-Plough, hosted multiple "Know the Nose" workshops. Dr Roger Wilson, ENT Surgeon at Pacific Private, presented the anatomy, physiology and clinical correlates of the nose, including nasal obstruction and epistaxis. Dr Wilson described what clinical signs and symptoms GPs need to look for and which imaging is appropriate. Guests had a chance to glimpse some ENT procedures as they viewed videos of minitrephination and irrigation of the frontal sinus, and functional endoscopic sinus surgery (FESS). The evening concluded with a live demonstration of a nasendoscopic investigation and CT sinus case studies. I am sure that all GPs who attended would agree that Dr Wilson successfully delivered a very informative and interesting evening.



Dr Laurence Kelly "volunteers" for the nasendoscopy demonstration



Dr Roger Wilson discusses some CT sinus studies

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New Face at GCMI

GCMI is pleased to announce **Dr Umesh Patel** has joined the Practice. Umesh has special interests in vascular radiology (diagnostic and interventional studies); renal, pelvic, gastrointestinal, and hepatobiliary interventional radiology; and musculo-skeletal imaging including MRI.

Umesh is a great addition to the GCMI team and will certainly complement our service provision in the Gold Coast and Tweed Valley Region.



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