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Case Report

Iselin's disease: Traction apophysitis of the fifth metatarsal base, a rare cause of lateral foot pain

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Introduction

Iselin's disease was first described by Iselin in 1912.¹ It refers to a painful apophysitis of base of fifth metatarsal.² Patients present with pain and tenderness over the lateral aspect of midfoot. Radiographic features are characteristic and help to differentiate this condition from Jones fracture, avulsion fracture and Os vesalianum. Management is usually conservative. Awareness of this entity is important as this condition is often misdiagnosed as a fracture.

Case report

A 14 year old male patient presented with complaints of pain of 2 months duration over the lateral aspect of right midfoot.

There was no history of trauma. He was an active participant in sports in his school and his pain was aggravating during his sports activities and partially subsiding with rest. On physical examination, there was tenderness over the proximal aspect of fifth metatarsal. Clinically, a diagnosis of stress fracture was considered. Anteroposterior and oblique radiographs were obtained. Anteroposterior radiographs (Fig. 1) were normal but oblique radiographs (Fig. 2) showed a small bony fragment lateral to base of fifth metatarsal, longitudinal to the long axis of the metatarsal. Subtle soft tissue swelling was present on close examination. This area was exactly corresponding to the site of pain and clinical tenderness. Based on clinical and radiological findings, a diagnosis of Iselin's disease was made. Magnetic Resonance Imaging scan, done out of academic interest, showed bone marrow oedema within the apophysis and metatarsal base with oedema of adjacent soft tissue (Fig. 3). The patient was prescribed analgesics and ice packs. He was also advised to restrict his sports activities. The patient was followed up at 4 weeks and again at 12 weeks. He reported significant pain relief and serial radiographs showed disappearance of soft tissue swelling and union of the apophysis.

Discussion

Iselin's disease was first described by Iselin in 1912.¹ It is a traction apophysitis of base of fifth metatarsal.^{2,3} The apophysis is within the peroneus brevis tendon insertion site and appears radiographically at about age 10 in female and age 12 in male and usually fuses by age 11 in female and by age 14 in male.^{4,5} Repetitive microtrauma from the peroneus brevis

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Fig. 1 – Anteroposterior radiograph of the foot showed no abnormality.

Fig. 2 – Oblique radiograph of the foot showing a bony fragment lateral to base of fifth metatarsal oriented longitudinally (black arrow).

tendon, as occurs in sports activities is the cause of traction apophysitis.⁶

Lateral midfoot pain aggravated by sports activities is common.⁴ Physical examination may show tenderness at the

base of fifth metatarsal, soft tissue swelling and enlargement of the tuberosity. Symptoms resolve when apophysis fuses.⁴

Radiographically, the secondary ossification centre is seen on oblique views as a small fleck of bone oriented longitudinal

Fig. 3 – MRI proton density fat suppressed sagittal and coronal images showing oedema of the bone and soft tissue (white arrow).

Fig. 4 – Illustration showing differential diagnosis of Iselin's disease.

to the long axis of metatarsal.^{3,4} It must be emphasized that this finding can be seen as a normal variant in most children.⁶ To make a diagnosis of Iselin's disease, this radiographic finding must be correlated with clinical symptoms.⁶ Enlargement, fragmentation and widening of chondro-osseous junction are other radiographic signs.³ MRI is not required for the diagnosis. If done, MRI will show increased signal intensity on T2 and STIR images due to bone marrow oedema.⁷ A technetium bone scan, not required for diagnosis, may show increased uptake.^{3,6}

Differential diagnosis includes Jones fracture, avulsion fracture, stress fracture and os vesalianum (Fig. 4). A history of trauma is absent in Iselin's disease while it is present in Jones fracture. Jones fracture is transversely oriented at the metadiaphyseal junction,⁶ whereas in Iselin's disease the bony fleck is oriented longitudinally. An avulsion fracture of the fifth metatarsal (pseudo Jones fracture), which occurs in inversion type injuries due to avulsion of peroneus brevis tendon from its attachment site, is also transversely oriented but occasionally it is oblique and can mimic Iselin's disease.⁶ Avulsion fracture extend to the tarsometatarsal articular surface, whereas Jones-type fractures are more distal, occurring at the proximal shaft.⁸ A stress fracture of proximal fifth metatarsal can occur without trauma but it is also transverse

and more distal, occurring at proximal 1.5 cm of the shaft.⁶ Os vesalianum, a sesamoid bone within the peroneus brevis tendon, is asymptomatic in many, found proximal to the base of fifth metatarsal with its opposing surfaces smooth and sclerotic.⁹ Normal apophysitis is asymptomatic, has no soft tissue swelling on radiograph and MRI will not show any abnormality.

Treatment involves analgesics, ice packs and restriction of sports activities while severe symptoms may require cast immobilization.³ Failure of conservative management will result in nonunion which may require surgical excision of the bone fragment.⁶

Conclusions

Iselin's disease is a traction apophysitis of base of fifth metatarsal with characteristic radiographic features. Management is by conservative methods. Awareness of this entity and differentiation of this entity from fractures is important to Radiologists and Orthopaedicians as this condition is usually managed by conservative methods whereas fractures require non-weight bearing immobilisation.

Conflicts of interest

The authors have none to declare.

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