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A 20-year-old lady presented with left ankle discomfort of four months duration. She was previously treated for medial malleolus and a Weber C distal end fibula fractures following a motor vehicle accident 13 months earlier. She was treated with open reduction, screw fixation and plating. A syndesmotic screw was also inserted with usual post-operative pre-caution of non-weight bearing. After eight weeks the syndesmotic screw was removed allowing the patient to fully weight bear. The patient was discharged at nine months post trauma after subsequent uneventful follow-up with good left ankle function. A plain radiograph of the left ankle joint is shown (**Panel**),

What is the diagnosis (arrow)?

Answer: refer to page 89

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(Refer to page 79)

Answer: Synostosis of the distal tibiofibular (syndesmotic) joint

The radiograph showed synostosis of the distal tibiofibular joint after a traumatic fracture and open reduction. A synostosis is an abnormal bony formation bridging two adjacent long bones such as the radius and ulna or tibia and fibula. Synostosis is an uncommon presentation following traumatic or iatrogenic causes to the said regions. Very rarely, synostosis can also be associated with congenital manifestations. The actual pathogenesis leading to synostosis is not fully understood. There are theories that associate local haematoma formation or soft tissue injury such as periosteal stripping with higher risk of synostosis.¹ It is also difficult to ascertain whether the trauma itself or the surgery to the region causes synostosis.

The occurrence of synostosis affecting the radioulnar joint is more common than that of the tibiofibular joint which usually resulted in limited motion in supination and pronation of the forearm. The complaint following synostosis of the tibiofibular is more subtle which varies from mild ankle discomfort to reduced motion of the ankle joint. Very rarely, there will be ankle pain on weight bearing or prolonged walking.²

The distal tibiofibular synostosis is an uncommon complication which occurs in

about 6% of the overall ankle injury with distal fibula fracture (Weber B 2%, Weber C 12%).² Tibiofibular synostosis is defined when plain radiography shows the absence of radiolucent space in between the distal tibia and fibula. It may be visualised as early as three months post-trauma.

In the normal circumstances, the fibula will move 1-2 mm downward and laterally upon weight bearing activities such walking or running. It serves to deepen and tighten the interosseous membrane thus stabilising the ankle mortise on weight bearing. With the presence of synostosis this effect is restricted leading to reduced motion of dorsiflexion and plantar flexion of the ankle joints or sometimes pain upon weight bearing.^{1, 2}

Management for synostosis of the distal tibiofibular joint is usually supportive with analgesics and physiotherapy. Unlike synostosis of the radioulnar, surgical treatment for synostosis of the distal tibiofibular is not usually indicated since the presence of synostosis in situ may further enhance joint stability unless it causes significant pain or interferes with functional activities of the ankle joint. Resection of the synostosis has been described with variable outcomes.^{1, 3}

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