Talocalcaneal Coalition

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Section: Musculoskeletal system
Case Type: Clinical Cases
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Patient: 18 years, male

Clinical History:

An 18-year-old man complained of right ankle stiffness and pain. and lateral radiograph of ankle suggested a diagnosis.

Imaging Findings:

An 18-year-old man complained of right ankle stiffness and pain for six years, aggravated by long-timed walking or standing. Physical examination revealed no remarkable positive signs except for a slightly decreased ankle and hindfoot motion range. Anteroposterior and lateral radiographs of right ankle were obtained and a diagnosis was suggested. A film of another projection was subsequently ordered to confirm the diagnosis.

Discussion:

The lateral ankle radiograph shows talar beak sign which is a osseous excresence at dorsal aspect at the head of talus, the C sign which is a C-shaped line outlines the medial talar dome and posteroinferior sustentaculum, and absent middle facet sign which means lack of depiction of the middle facets All of these signs are suggestive of talocalcaneal coalition. The subsequent internal oblique projection of 15° demonstrates bridging between the talar middle facet and sustentaculum tali. Tarsal coalition represents abnormal fusion between two or more tarsal bones. Congenital tarsal coalition likely results from abnormal differentiation and segmentation of primitive mesenchyme with resultant lack of joint formation. The prevalence of tarsal coalition is estimated less than 1% of the population However, according to our experience of encounter at almost every workday, the prevalence is much higher in China. There is a slight male predominance, and the onset of symptoms commonly occurs in the 2nd decade of life. Many investigators believe that calcaneonavicular coalitions are the most common type, others report a nearly equal prevalence of talocalcaneal and calcaneonavicular coalitions or even a slightly greater prevalence of talocalcaneal coalitions, and we believe that talocalcaneal coalitions is far more common than all the types else in China.

Talocalcaneal fusion most commonly involves the middle facets of the subtalar joint Talocalcaneal coalitions may be difficult to visualize directly on the standard lateral radiographic view, but the internal oblique projection of 15°can manifest it well. Axial or Harris-Beath radiographic view may also be useful. A number of secondary radiographic signs on lateral radiograph have been described to suggest the diagnosis of talocalcaneal coalition. Some of these signs reflect premature degeneration, including a talar beak, narrowing of the posterior subtalar joint, and rounding of the lateral talar process. These secondary findings may develop because of alteration in hindfoot biomechanics secondary to the coalition. Secondary radiographic signs on lateral view suggestive the presence of talocalcaneal coalition are talar beak sign, C sign, and absent middle facet sign. A talar beak occurs because of impaired subtalar joint motion, which results in the navicular overriding the talus. Periosteal elevation occurs at the insertion of the talonavicular ligament and osseous repair ultimately results in formation of the talar beak. Another radiographic finding is the C sign, a C-shaped line outlining the talar dome and posteroinferior sustentaculum. The C sign results from bone bridging between the talus and sustentaculum, as well as the prominent inferior outline of the sustentaculum. It may be continuous or interrupted. Absent middle facet sign, absence of a clear picture of the joint between the sustentaculum tali and the neck of the talus, can also occur in foot with a subtalar joint coalition. Some
authors evaluate the absent middle facet sign by standing rather than standard lateral radiograph. Both patient position and variation in sustentacular size and orientation may affect the reliability of the latter two signs.

**Differential Diagnosis List:** Talocalcaneal Coalition

**Final Diagnosis:** Talocalcaneal Coalition

**References:**

Description: talar beak sign, C sign and absent middle facet sign

Origin:
Figure 2

Description: bridging between middle facets of talus and calcaneum

Origin: