MRI Findings of Talocalcaneal Coalition: Two Case Reports

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ABSTRACT

Introduction: Tarsal coalition is abnormal fusion of two or more tarsal bones and is a common cause of foot pain. There are osseous, cartilaginous and fibrous subtypes. Calcaneonavicular and talocalcaneal coalitions are more frequent. Radiography is the primary diagnostic tool, however CT and MRI are precious examinations for differential diagnosis of osseous/non-osseous coalitions separations. Furthermore, cross-sectional imaging methods indicate the extension and secondary degenerative joint changes. Case reports: The detection of bone marrow edema in the articulation area is valuable for diagnosis. Hereby, we present two cases, 24 years old female and 35 years old male, with the diagnosis of talocalcaneal coalition. We also discuss MRI and radiographic findings.

Key words: tarsal, coalition, subtype, talocalcaneal, osseous, non-osseous

1. INTRODUCTION

Tarsal coalition is abnormal fusion of two or more tarsal bones and classified as osseous, cartilaginous and fibrous subtypes (1). It has been determined in 1% of the general population and more and 90% comprises calcaneonavicular and talocalcaneal coalitions (2, 3). It is usually asymptomatic, however pain may be observed in adolescents or emerge with the increase in ossification. It may be related with the lack of differentiation and segmentation in the early stages of primitive mesenchymal development (4). It is slightly more common in men and is determined bilaterally by 50% of the patients (3).

All types of coalitions can be detected by CT and MRI easily. The sections should be known by radiologists. In this report we discuss the two talocalcaneal coalitions (one osseous and one fibrous type) in company with MRI findings.

2. CASE REPORTS

Case 1: 35 years old male patient was admitted with chronic joint pain. Left ankle MRI was performed for examining arthritis. On MRI, talocalcaneal facet joint medial hypertrophy, narrowing and irregularities in joint space, irregularities on articular surfaces was detected. Also, fat-suppressed T2-weighted sequences showed that marrow edema in the calcaneus was observed. Subtalar joint space narrowing and degenerative osteophytes were observed. In addition, bone marrow edema affecting a wider area of the calcaneus was observed (Figure 2). The findings were interpreted with talocalcaneal fibrous coalition. Osseous fusion was not found.

Case 2: 24-year-old female patient presented with pain and swelling in the left ankle. Left ankle MRI was performed for investigate arthritis or bursitis. T1 FSE (fast spin echo), fat-suppressed FSE T2 and GE (gradient echo) images were obtained. Subtalar medial facet hypertrophy, narrowing and irregularity at the joint space were observed. Subtalar joint space narrowing and degenerative osteophytes were observed. In addition, bone marrow edema affecting a wider area of the calcaneus was observed (Figure 2). The findings were interpreted with talocalcaneal fibrous coalition. Osseous fusion was not found.

3. DISCUSSION

Subtalar joint, consists of anterior, middle and posterior facet. Talocalcaneal coalition, most commonly affects middle facet at the level of sustentacul tali (5). Diagnostic methods used in the tarsal coalition are radiographs, CT and MRI.

Radiography, anteroposterior lateral and 45° internal oblique position should be achieved. It can be difficult to detect talocalcaneal coalition with standard radiograms and often need a cross-sectional method. Therefore suggesting talocalcaneal coalition, secondary marks are defined on the radiographs. These are; talar beak, narrowing the posterior subtalar joint, rounding of the lateral talar process (5, 6, 7). Lateur et al (8) defined ‘C sign” is a sign that seen on lateral radiographs. Bean-shaped density is monitored and evaluated as a diagnostic for talocalcaneal coalition. This mark occurs as a result of bone bridging between the talar dome with sustentacul tali.

Harris axial radiographs which is taken 10 degrees of dorsiflexion of the foot in position by pressing the patient’s X-ray cassette with a 45 degree beam angle, can be used in talocalcaneal coalition. However, cross-sectional imaging gives more information (9).

CT is superior in terms of diagnostic accuracy compared to radiographs in tarsal coalition (10). Talocalcaneal coalition with axial and coronal images can be displayed easily. Both of the foot inside the gantry should be symmetrical and displays should be obtained simultaneously at the both of the parties (1). The slice thickness should be 3 mm or less. CT is valu-
CONFLICT OF INTEREST: NONE DECLARED.

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4. CONCLUSION

As a result, due to the anatomy of the subtalar joint, to detect talocalcaneal coalition in radiography may be very difficult. Often need further investigation by CT or MRI. With these methods osseous / nonosseous coalition can be distinguished. Knowledge of anatomy and the warning signs allows the radiologist to recognize the pathology easily.