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## **Computed tomography modifies the diagnosis of ankle fractures**

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### **ABSTRACT**

**Introduction:** Ankle fracture is an injury with a high rate of surgical indication in clinical practice. Treatment decisions are classically based on radiographs (XR) of the region; however, this approach may be imprudent considering the frequent difficulty of reading them. In recent years, some researchers have advocated the use of computed tomography (CT) as an auxiliary instrument in the diagnosis and surgical planning of treatment for this injury. Our study aims to demonstrate the superiority of the combination of CT with XR for evaluating ankle fractures.

**Methods:** Examinations (XR and CT) of 53 patients with ankle fractures seen from 2011 to 2016 were collected. Seven raters (2 foot and ankle experts, 1 foot and ankle surgeon with less than 5 years of experience in the medical specialty, 2 foot and ankle surgeons with more than 5 years of experience in the medical specialty and 2 general orthopedists with more than 5 years of board certification) evaluated the unlabeled examinations in random order and identified the injuries found on XR alone and those also detected on CT. The data were subjected to statistical analysis.

**Results:** The characteristics of medial malleolar fracture (posteromedial and anterior colliculus fragment), the presence of posterior malleolar fracture and its characteristics (avulsion, deviation, fragment larger than 25%, posteromedial and posterolateral fragment) and syndesmosis injury and the absence of deltoid bone injury were clearer in CT combined with XR than in exclusively radiographic examinations in all groups, with high intraobserver reliability.

**Conclusion:** Our study shows that conventional XR at 3 positions may fail to reveal more subtle injuries. CT emerges in this scenario as an extremely widespread and well-supported examination in the approach to articular fractures, although it is not yet fully incorporated into clinical practice for ankle fractures. Our conclusion is that this examination increases diagnostic accuracy and may improve the quality of information available to the clinician and surgeon, who thus gain access to more data, which may positively influence patient care.

**Keywords:** X-ray computed tomography; Ankle; Bone fractures.

