

Carpal Bone Fractures in Distal Radial Fractures: Is Computed Tomography Expedient?

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To the Editor:

We read with great interest the article “Evaluation of associated carpal bone fractures in distal radial fractures” by Heo et al.¹⁾ We would like to congratulate the authors for this study. However, the article left a few seminal questions unaddressed that we would like to draw the authors’ attention to.

The authors mentioned that out of 223 fractures of the distal end of the radius, which were subjected to computed tomography (CT) evaluation, 46 patients had an associated carpal-bone fracture. They were silent, however, about how many of these associated carpal bone fractures were picked-up on plain X-rays. A CT undoubtedly helps in diagnosing undisplaced or minimally displaced fractures; however, this cannot be the story in all cases. Indeed, plain radiographs can definitely aid in diagnosing the *obvious*, if not all of these fractures.²⁾

Type C2 and C3 are a result of high-energy trauma, and 40 out of the 46 cases of the carpal bone fractures were identified in these fracture subtypes. If we go by the current study, the incidence of carpal bone fractures is 28.36% in these two types as against 4.87% in all other types combined together. High-energy trauma has been found to be associated with a higher risk for associated carpal bone injuries.²⁾ Thus, it would not be wise to perform screening CT scans for all fracture types. It is an expensive investigation that subjects a patient to substantive amounts of radiation exposure. Moreover, in a recent study by Jorgsholm et al.,³⁾ it was identified that even a CT scan is not always 100% sensitive in diagnosing carpal bone fractures and some of these fractures are liable to be missed on a CT as well.

It is important to decide a treatment protocol, rather than subjecting all patients with distal radius fractures to CT examination. Patients with Type C2 and C3 types should be looked with a high degree of suspicion and as approximately one-third of them have been found to be associated carpal bone fractures, mobilization can be delayed as it does not lead to unsatisfactory outcome.⁴⁾ Moreover, there is a high incidence of associated soft tissue injury in

these patients perpetuated by high energy trauma.⁵⁾ Delayed mobilization will also aid in healing of these injuries.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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Received August 7, 2013; Accepted September 3, 2013

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<http://dx.doi.org/10.4055/cios.2014.6.1.101>

Youn Moo Heo, Sang Bum Kim, Jin Woong Yi, Jung Bum Lee, Cheol Yong Park, Jeong Yong Yoon, Doo Hyun Kim, Reply:

We would like to thank Dr. Dhamangaonkar for your interest in our article and valuable comments.

We did not describe the results by plain radiographs in our article because most of associated carpal bone fractures (CBFs) were diagnosed by computed tomography (CT) scans. Among 46 cases with associated CBFs, ten cases were confirmed on both plain radiographs and CT scans and others were on CT scans alone. Of the ten cases that were diagnosed on plain radiographs, five cases had an associated fracture of one carpal bone and others had two or more. However, associated fractures of two or more carpal bones were limited in the confirmation of location or number of injured carpal bones by plain radiographs alone, which were identified by CT scans. Therefore, assessment for associated CBFs using plain radiographs alone is insufficiency, though it is not able to perform CT scans for the evaluation of associated CBFs in all distal radial fractures (DRFs).

In our study, no significant differences were observed for age, sex, body mass index, the mechanism of injury, or AO type of DRFs between DRFs with and without CBFs. On the other hand, Komura et al.¹⁾ reported that the risk of simultaneous fractures of the distal radius and carpals was increased in males, young patients, AO type B, and high energy trauma, and recommended examinations using both plain radiographs and CT scans. We think that there is no necessity to perform screening CT scans for the diagnosis of associated CBFs except the fracture of scaphoid. However, the decipherment of radiologic exami-

nations should be given attention because associated CBFs are often found on CT scans performed for DRFs.²⁾

CT scans or MRI for the diagnosis of associated CBFs cannot be performed in all DRFs. Therefore, we believe that immobilization for an appropriate period after an operation for DRFs is necessary because the frequency of associated CBFs is relatively high and those injuries are frequently undetected on the initial plain radiographs.

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No potential conflict of interest relevant to this article was reported.

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<http://dx.doi.org/10.4055/cios.2014.6.1.102>