

Brief Commentary

e The Results of Scaphoid Avascular Necrosis Can Be More Than Just Wrist Pain in Patients with Spinal Cord Injury

Didem Yenigun, MD, Timur Ekiz, MD, Cem Hatipoglu, MD, and Murat Kara, MD

From: Ankara Physical Medicine and Rehabilitation Training and Research Hospital, Ankara, Turkey.

Address Correspondence:
Timur Ekiz, MD
Ankara Physical Medicine and Rehabilitation Training and Research Hospital
Türkcocagi St. No.3
Ankara, Turkey
E-mail:
timurekiz@gmail.com

Disclaimer: There was no external funding in the preparation of this manuscript.

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A 30-year-old man with a complete L2 level of spinal cord injury (SCI) was seen due to right wrist pain. Medical history revealed a scaphoid fracture due to fall 6 months ago. Although surgical fixation was recommended in that period, the patient had refused surgery and static hand-wrist splint was recommended. The patient also stated that the pain worsened progressively over months. He could not use a walker and therefore could not ambulate due to hand pain. He also had challenges in self-care activities such as catheter use, and he became more dependent in his activities of daily living (ADL).

On physical examination, palpation of the right carpal bones was painful. Laboratory investigations were not remarkable. X-rays of the wrists and hands demonstrated a scaphoid fracture on the right side (Fig. 1). Magnetic resonance imaging (MRI) showed bone marrow edema and fracture of the scaphoid bone (Fig. 2). Overall, the patient was diagnosed with avascular necrosis (AVN) of the scaphoid and referred to the hand surgery department.

Scaphoid fractures are the most common type of carpal fractures and they are usually seen after a forced dorsiflexion wrist injury (1). On the other hand, AVN is the collapse and necrosis of the bone due to the loss of blood supply. Femoral head, humeral head, knee joints, and neck of the talus are the most common places for AVN (1). In addition, AVN is a common complication due to the delay in the diagnosis/treatment of scaphoid fractures (2). Although AVN after scaphoid fractures has been reported as a common complication, to the best of our knowledge, AVN in a patient with SCI and its association with ADL has not been reported yet.

Fractures, trauma, corticosteroid use, alcoholism, thrombosis, and vascular problems are the risk factors for AVN (3). In our case, scaphoid fracture has already played a role in the development of AVN. Moreover, to use a walker over long-term periods might cause repetitive trauma and aggravate the development of AVN.

AVN of the scaphoid classically presents with pain and some limitations in hand activities in populations without SCI. However, upper extremities are quite vital for ADL, mobilization, and transfers in SCI patients. Likewise, our pa-



Fig. 1. Plain radiographs show right scaphoid fracture (arrowhead).

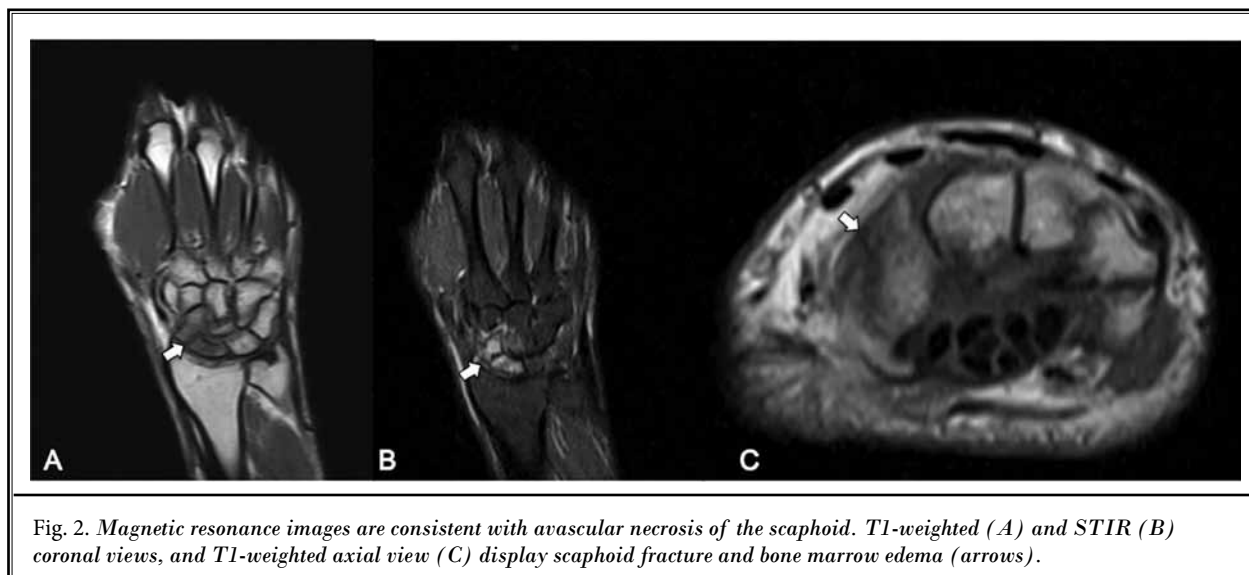


Fig. 2. Magnetic resonance images are consistent with avascular necrosis of the scaphoid. T1-weighted (A) and STIR (B) coronal views, and T1-weighted axial view (C) display scaphoid fracture and bone marrow edema (arrows).

tient had restrictions in ambulation, transfers, and self-care activities due to hand pain and became more dependent.

Since prompt diagnosis of AVN is critical, diagnostic images are of importance. X-rays are the first line imaging modality and can show other bone pathologies; however, despite being inexpensive, x-rays are insensitive to detect early diagnosis of AVN, particularly for the scaphoid bone. Patchy lucency areas and sclerosis are the typical findings of x-rays. MRI is the best imaging modality with the highest sensitivity and specificity for the detection of AVN (4).

As for the treatment of scaphoid fractures, a conventional approach may be appropriate for non-displaced acute fractures. On the other hand, surgical treatment is necessary for displaced fractures or if the AVN risk is high. If AVN occurs, bone grafts can be carried out (5).

In conclusion, we would like to highlight by presenting our case that scaphoid fractures require strict treatment strategies to prevent the development of AVN, especially in patients with SCI. Otherwise, AVN can develop and wrist pain can result in decreased mobility, quality of life, and ADL.

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