

Kienböck's Disease: Avascular Necrosis of the Lunate

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Image Article

A 61-year-old woman presented with 9 months of progressive left wrist pain with no prior history of injury. Examination revealed tenderness over the left dorsal lunate with diminished grip strength and limited extension and flexion. Radiography demonstrated sclerosis and flattening of the lunate (Figure 1). Magnetic resonance imaging (MRI) showed diffuse abnormal low signal throughout the lunate on

T1-weighted image consistent with avascular necrosis (Figure 1). A diagnosis of Kienböck's disease was made. She underwent a proximal row carpectomy, a reconstructive salvage procedure that aims at maintaining wrist motion and relieving pain. Following surgery, her wrist was immobilized in a cast for 6 weeks. At 5 months' follow-up, an improvement in pain and wrist function was noted.

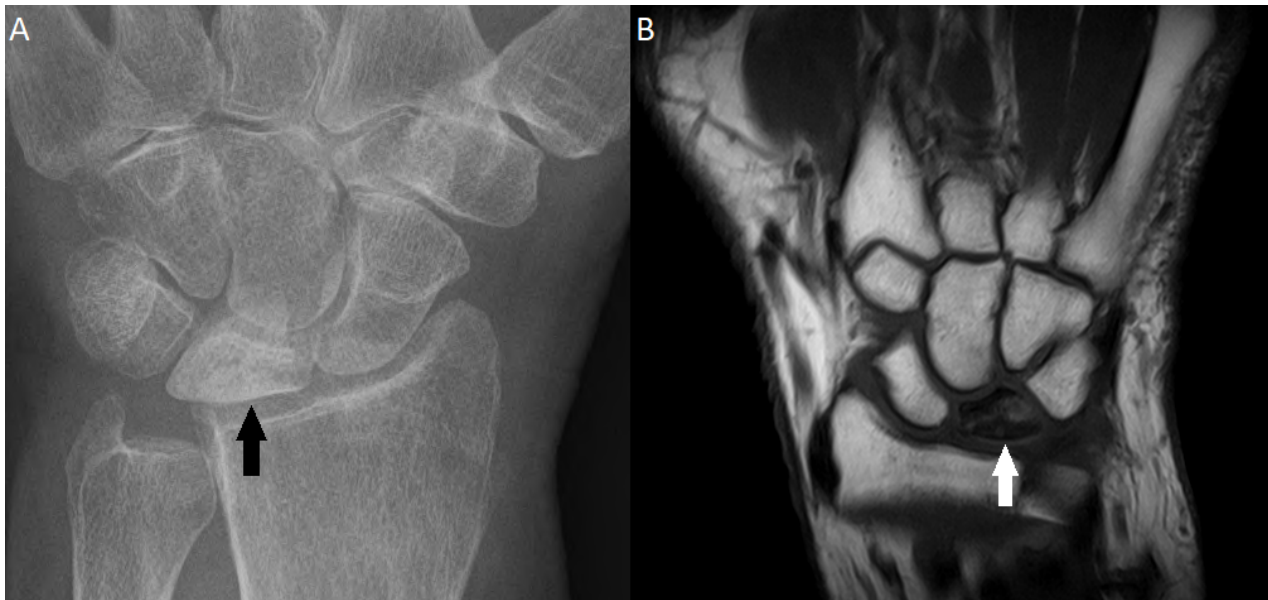


Figure 1: (A) Left wrist radiograph demonstrates sclerosis and flattening (black arrow) of the lunate. (B) T1-weighted image shows relatively diffuse abnormal low signal (white arrow) throughout the lunate.

Kienböck's disease was described by Austrian radiologist Dr Robert Kienböck in 1910. The precise etiology of this condition remains unknown. It is thought to result from a combination of anatomic, vascular, traumatic and mechanical factors leading to impaired lunate vascularity [1]. Patients typically present with unilateral dorsal wrist pain which is classically insidious in onset and can be aggravated by activities. Symptoms can vary in severity and rarely affect bilateral wrists. There is often no history of acute trauma. Physical examination reveals tenderness over the dorsal lunate and radiolunate facet, poor grip strength and reduced wrist motion [1,2]. The diagnosis of Kienböck's disease can be made on plain radiographs. Although it may not reveal abnormalities early in the disease process, it usually progresses to reveal increased lunate density indicating osteonecrosis [1,2]. MRI is a good modality in detecting early stages of the disease and typically shows diffuse hypointensity on T1-weighted images

which correspond to decreased vascularity and necrosis. It is important to note that this uniformly decreased signal intensity within the lunate is essential in establishing the diagnosis [2,3]. Staging of Kienböck's disease is mainly based on radiographic findings and is used to guide management. There remains no gold standard treatment despite various available therapeutic options. The three main surgical options include mechanical unloading, salvage and revascularization procedures. Treatment goals include relieving symptoms, preserving motion and restoring function [1-3]. If left untreated, Kienböck's disease can often lead to progressive joint destruction [3].

References

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