

Kienböck's disease is also known as avascular necrosis (AVN) of the lunate. The lunate is one of the eight small bones in the wrist. In this condition, the lunate bone loses its blood supply, leading to death of the bone. The lunate is a central bone in the wrist that is important for proper movement and support of the joint (Figure 1). It works closely with the two forearm bones (the radius and ulna) to help the wrist move. Kienböck's disease is most common in men between the ages of 20 and 40. It rarely affects both wrists.

Causes

There is no single cause of Kienböck's disease. It can be caused by multiple factors such as:

- **Skeletal variations:** The ulna bone can be shorter than the radius bone, which may cause issues. Sometimes the shape of the lunate bone may be irregular and place it at risk (see Figure 2).
- **Trauma:** A single accident or multiple accidents may cause this disease.
- **Other medical conditions:** Kienböck's disease can be found more commonly in people who have medical conditions that affect blood supply. It is also associated with diseases like lupus, sickle cell anemia and cerebral palsy.

Signs and Symptoms

Damage to the lunate can lead to pain and stiffness. If time has passed since injury, it can also lead to wrist arthritis. Most patients with Kienböck's disease have the following symptoms:

- Wrist pain
- Tenderness directly over the lunate bone

- Decreased motion or stiffness of the wrist
- Swelling

Diagnosis

The diagnosis of Kienböck's disease can often be made by reviewing your history, performing a physical examination, and taking x-rays. In the early stages of this disease, the x-rays may be normal and other tests are needed to confirm the diagnosis. Most likely, the most reliable test to assess the blood supply of the lunate is Magnetic Resonance Imaging (MRI). CT and bone scans may also be used.

This is a slow-progressing disease, and patients often have the condition for months or even years before they seek treatment. It can be difficult to diagnose in its earlier stages.

Treatment

Treatment options depend upon the severity and stage of the disease. In very early stages, the treatment can be as simple as observation, activity changes, and/or immobilization. For more advanced stages, surgery is usually considered. Surgery may be done to change forces across the lunate and wrist joint or to improve vascularity of the lunate. When the lunate is severely fracture, collapsed, or arthritic, salvage treatments such as lunate and other wrist bone removal may be necessary. Hand therapy does not change the course of the disease; however, it can help to minimize loss of motion from the disease. Treatment is designed to relieve pain and restore function.

Your hand surgeon will advise you of the best treatment options and explain the risks, benefits and side-effects of various treatments for Kienböck's disease.

