

# KIENBOCK'S DISEASE (Avascular Necrosis of the Lunate)



## ■ ■ ■ Description

Kienbock's disease is characterized by death of one of the bones of the hand and wrist (the lunate bone) due to loss of blood supply. It is thought to be related to repetitive microtrauma, causing interruption of the blood supply to the bone.

## ■ ■ ■ Common Signs and Symptoms

- Wrist pain and tenderness
- Stiffness and loss of motion at the wrist
- Occasionally, tenderness and swelling in the wrist
- Loss of grip strength
- Swelling in the wrist (uncommon)

## ■ ■ ■ Causes

The cause of this problem is controversial. It is thought to be related to microtrauma or repetitive stress to the wrist. It is felt that the blood supply to the lunate is somewhat tenuous, making it susceptible to interruption and loss of blood supply and bone death. Falling on an outstretched hand may or may not be associated. An ulna bone that is shorter than the radius at the wrist (called negative ulnar variance) results in greater force transmission across the wrist to the lunate, possibly affecting the blood supply to the lunate.

## ■ ■ ■ Risk Increases With

- Long radius bone
- Repeated wrist injury
- Dominant wrist
- Age between 20 and 40 years

## ■ ■ ■ Preventive Measures

- Unknown

## ■ ■ ■ Expected Outcome

The outcome of the disease depends on the how advanced the process is. Nearly always, immobilization and usually surgery are required. Return to sports is variable.

## ■ ■ ■ Possible Complications

- Prolonged healing time if usual activities are resumed too soon
- Frequent recurrence of symptoms
- Prolonged disability (sometimes)
- Wrist stiffness or weakness
- Arthritis of the wrist

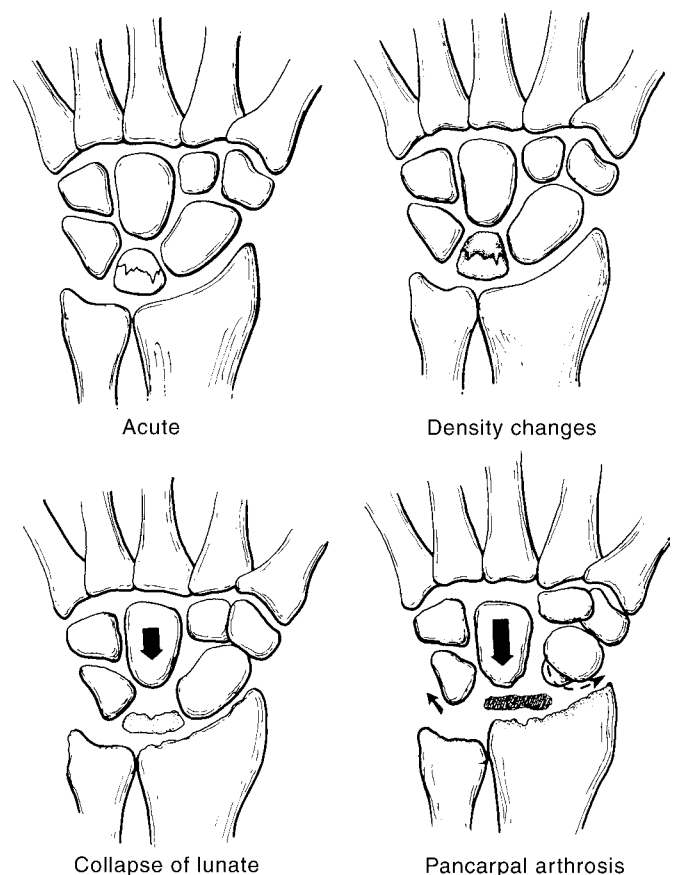
## ■ ■ ■ General Treatment Considerations

Initial treatment consists of medication and ice to relieve the pain, compressive elastic bandaging, and immobilization with a cast, splint, or brace for varying lengths of time. After

immobilization, stretching and strengthening of the injured and weakened joint and surrounding muscles (due to the injury and the immobilization) are necessary. These may be done with or without the assistance of a physical therapist, occupational therapist, or athletic trainer. Surgical treatment is often needed, with different procedures utilized depending on how involved the bone is, its size, the status of the blood supply, whether there is arthritic change, and whether the bone has collapsed. Surgery may involve cutting bone (shortening the radius or lengthening the ulna) to reduce pressure on the lunate, limited or complete fusion of the wrist joint, or removal of the lunate and the bones around it.

## ■ ■ ■ Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before



**Figure 1**

From Miller MD, Cooper DE, Warner JJP: Review of Sports Medicine and Arthroscopy. Philadelphia, WB Saunders, 1990, p. 193.

surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.

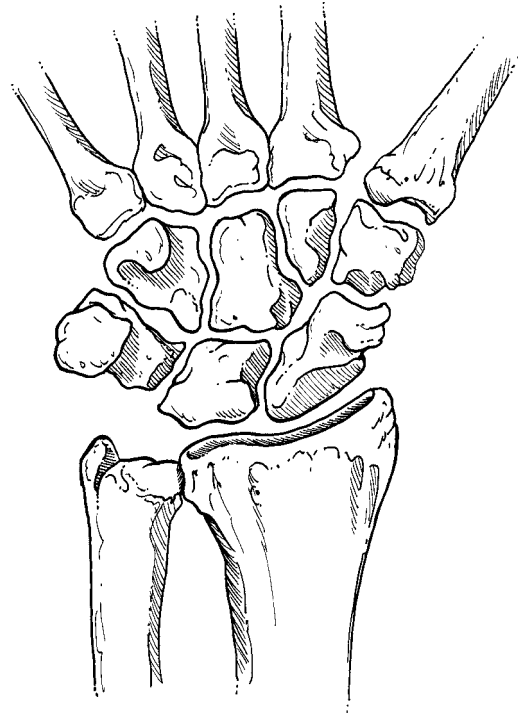
- Pain relievers may be prescribed as necessary by your physician. Use only as directed and only as much as you need.

#### ■ ■ ■ Heat and Cold

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

#### ■ ■ ■ Notify Our Office If

- Pain, swelling, or bruising worsens despite treatment or persistent pain lasting more than 2 to 4 weeks
- You experience pain, numbness, discoloration, or coldness in the hand or fingers or blue, gray, or dusky fingernails
- Any of the following occur after surgery: increased pain, swelling, redness, drainage, or bleeding in the surgical area or signs of infection, including fever
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)



**Figure 2**

From Scuderi GR, McCann PD, Bruno PJ: Sports Medicine: Principles of Primary Care. St. Louis, Mosby, 1997, p. 266.

Notes:

(Up to 4400 characters only)

Notes and suggestions