

Scaphoid Non-Union Fractures

A scaphoid “non-union” fracture refers to a wrist fracture that is failing to heal. A fracture that is healing more slowly than expected is a “delayed union” fracture.

The scaphoid is one of the eight small bones in the wrist. These small bones are arranged into two rows (**Figure 1**). During normal wrist motion, the wrist bones move together to allow the wrist to achieve many positions that we take for granted. The scaphoid spans these two rows; in a way, it “directs” the motion of the other small bones.

Causes

The scaphoid can be injured when a significant load is placed on the extended wrist, such as a fall onto an outstretched hand. If the scaphoid is broken, the few tiny blood vessels that supply the bone with nutrients can be damaged. Because blood supply is needed to heal a fracture, the scaphoid often takes a long time (a few months) to heal.

Signs and Symptoms

Most people with a scaphoid fracture will have pain and/or swelling along the thumb-side of the wrist.

Diagnosis is confirmed most commonly with x-rays (**Figures 2a and 2b**). Sometimes, a CT scan and/or MRI is used to get better views of the shape and alignment of the scaphoid and assist with the diagnosis or surgery plans.

If the scaphoid fracture does not heal, you may or may not continue to have symptoms. It may be a sign that your fracture is not healing if you notice decreased strength, such as inability to do push-ups.

Treatment

Treatment of a scaphoid non-union depends on many factors, including:

- Patient age
- Use of the hand
- Activity level
- Symptoms
- Tobacco use
- Other medical and/or wrist conditions
- Fracture pattern

The goals of treatment are to relieve pain, maximize function and prevent arthritis. Usually, surgery is needed to clean out the fracture site, to potentially place some form of bone graft to help bone healing, and to stabilize the fracture with pins or screws (**Figure 3**). Surgery options may include radial styloidectomy, proximal row carpectomy, scaphoid removal and limited wrist fusion, wrist arthroplasty or total wrist fusion.

Treatment without surgery can include use of a brace, anti-inflammatory medication or cortisone injections for pain relief. You and your hand surgeon can discuss which treatment is best for you.

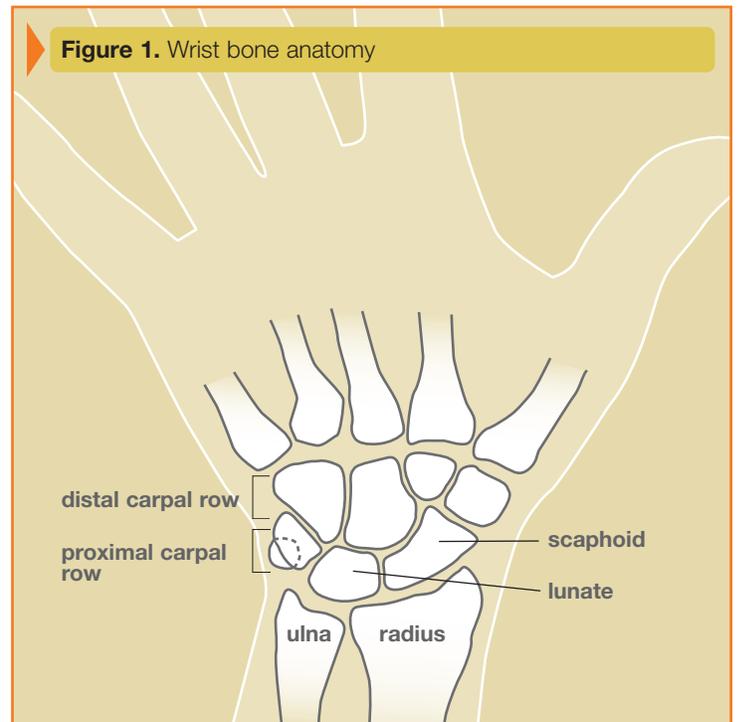


Figure 1. Wrist bone anatomy

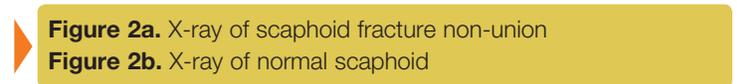


Figure 2a. X-ray of scaphoid fracture non-union

Figure 2b. X-ray of normal scaphoid

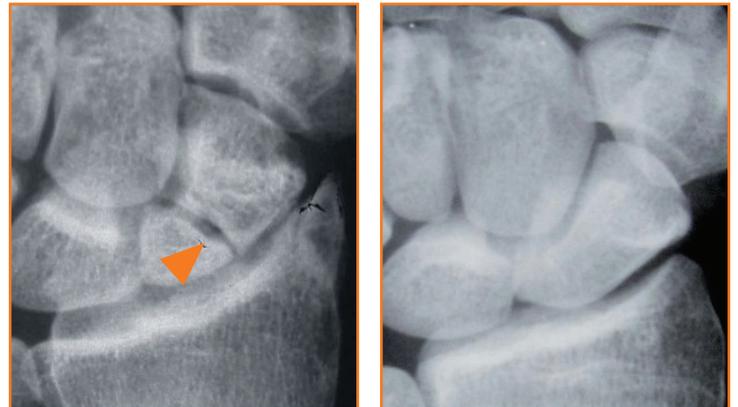


Figure 3. Scaphoid repaired with a screw