

# Rare But Serious Injuries of the Collarbone

The place where your collarbone meets the breast bone is called the sternoclavicular (SC) joint. Another name for the breast bone is the sternum. The anatomical term for the collarbone is clavicle, hence the name for the joint between these two bones: sternoclavicular or SC joint.

Injuries to the SC joint are rare but when they do occur, the results can be very serious. The close proximity of structures such as the trachea, esophagus, lungs, blood vessels, and nerves to the arms makes this injury the cause of problems that can be life-threatening.

In this article, orthopedic surgeons review the cause of this injury, diagnosis, and treatment. Discussion of special considerations related to the patient's age is included. Patients in their early-to-mid-20s (and younger) may not have completed growth. The growing ends of the bones in this area may not be complete. The bones are not fully ossified.

Traumatic injuries to the SC joint are rare because the supportive soft tissue structures in this area are so strong. It takes a great force to overcome resistance and stability provided by the shape, size, and strength of the ligaments.

Car accidents and sports injuries account for most of the reasons why the SC joint might dislocate. And even athletic events have to be pretty extreme to dislodge this joint. For example, dislocation can occur to a player lying on the field who is then subjected to the force of another player falling or jumping on his or her clavicle. Or taking a direct hit or kick to the clavicle can also dislodge the SC joint.

Injuries of the SC joint can be classified as mild-to-severe. A mild injury means there's pain and even swelling but the ligaments aren't torn or damaged so the joint is still stable. If the ligaments stretch because of severe swelling, the joint can get partially separated, a condition called subluxation. Subluxation is considered a moderate injury. The most serious injury is a dislocation.

The swelling can prevent the surgeon from being able to tell the direction of the dislocation (anterior or posterior). The patient's symptoms are somewhat diagnostic. For example, difficulty breathing may point to a posterior dislocation affecting the trachea (windpipe) or lungs. Difficulty swallowing suggests injury to the esophagus.

Imaging studies such as X-rays, MRIs, and CT scans are usually needed to make the final diagnosis and help the surgeon plan the best course of treatment. Mild injuries may respond well to conservative (nonoperative) care. Ice and pain relievers relieve symptoms (pain and swelling) and positioning with a sling helps protect the area while it is healing.

There are two ways to reduce (realign) a SC joint that is dislocated: closed or open reduction. Anterior dislocations are treated most often with closed reduction. Closed means the surgeon does not make an incision to gain access to the joint. Instead with the patient asleep (under anesthesia), pressure is applied to the collarbone to push it back in place. The joint will probably still be unstable until healing is completed, so the joint is supported and protected for a few weeks.

Posterior dislocations of the SC joint can also be treated with closed reduction. Again, the patient must be sedated. The surgeon uses positioning and traction of the arm while an assistant applies pressure to the clavicle to shift it back in place. X-rays are taken to confirm successful closed reduction of anterior or posterior dislocations treated in this fashion.

When the surgical team is unable to use closed reduction, an open procedure is done. The clavicle is manually reduced and stability of the joint assessed. Reconstructive surgery using a tendon graft to replace the ruptured ligaments may be needed to restore joint stability.

In some cases, the surgeon removes part of the clavicle (portion nearest the sternum). Then the rest of the clavicle is reattached to the first rib. The authors offer details on the surgical technique they use for this procedure.

After surgery, patients must be watched carefully. They are still at risk for infection, failure to maintain the reduction, and breakage of pins and plates used to hold everything together. Pins and wires can also migrate or shift and pierce the heart or nearby blood vessels. To avoid such serious complications, surgeons are advised never to use any wires, sutures, pins, or other fixation devices across the SC joint.

Later, arthritis can develop and the joint can even dislocate again. Patients must be monitored closely and told what to watch for. They must be instructed to return to their surgeon at the first sign of trouble. Early treatment helps prevent further complications and yields the best results.

Reference: Gordon I. Groh, MD, and Michael A. Wirth, MD. Management of Traumatic Sternoclavicular Joint Injuries. In *Journal of the American Academy of Orthopaedic Surgeons*. January 2011. Vol. 19. No. 1. Pp. 1-7.