

Ulnar Styloid Impaction Syndrome

What is ulnar styloid impaction syndrome? Not exactly a household word. But certainly one that patients with ulnar-side wrist pain become familiar with rather quickly. First of all, ulnar-sided wrist pain is located on the little finger side. Ulnar styloid impaction refers to a condition causing that pain because there is a short ulna (one of the two bones of the forearm) and a long styloid.

The styloid is a piece of bone at the end of the ulna that makes the ulna look longer on one side compared to the other. The styloid is a normal feature of the ulnar bone but when it is too long, it presses against the bones of the wrist. In particular, the triquetrum bone in the wrist gets compressed.

The contact point between the too-long tip of the ulnar styloid and the triquetrum (wrist) bone starts to get inflamed and swell up. There can be bone bruising and bone edema as well. Pain along the ulnar side of the wrist is a hallmark finding. But the diagnosis can be difficult to make. Imaging studies such as MRIs and CT arthrography may be needed to see if there is any soft tissue damage that could cause the same or similar symptoms.

The natural history of ulnar styloid impaction (i.e., what happens without treatment) is as follows. At first, the impingement just causes pain. But after a while, pressure builds up from the styloid process (tip) pressing against the triangular fibrocartilage complex or TFCC ligament. The TFCC ligament holds several bony structures of the wrist together including the ulna and the triquetrum.

With continued chronic pressure, the TFCC starts to tear and the contact surfaces of the two bones start to wear unevenly. Bone-on-bone friction can lead to painful synovitis (inflammation of the synovial fluid inside the joint).

If the impaction is allowed to continue without treatment, the wrist can lose its stability. Ligaments holding the bones together in perfect alignment start to break down. Bones start to shift and sublux (partially dislocate) or fully dislocate. Pain, decreased wrist motion, and loss of wrist and hand function can create significant disability.

What can be done about this problem? Treatment ranges from conservative (nonoperative) care with antiinflammatories and hand therapy to surgery. There are several different types of surgical procedures that can be used.

For example, the surgeon can shave down (decompress) or remove the styloid tip (stylectomy) altogether. Whether a partial or complete stylectomy is done, the surgeon makes every effort to save the ligaments holding everything together.

Surgeons may try other approaches as in the case series presented in this study. Five patients with confirmed ulnar styloid impaction syndrome had a surgical procedure called an oblique osteotomy. In any osteotomy procedure, the surgeon cuts out a wedge- or pie-shaped piece of bone from the side of a bone. In the case of the ulnar styloid osteotomy, the piece of bone was removed from the extra long tip of the styloid (the styloid process).

Removing this piece of bone allows the surgeon to collapse the remaining pieces of the bone together, effectively shortening the bone. The fact that this was an oblique osteotomy tells us the entire procedure was done at an angle on the diagonal rather than straight across.

After the piece of bone is removed, a pin is used to hold everything together until healing occurs. The exact steps of the surgical procedure are outlined complete with pre- and postoperative MRIs and X-rays to show the before and after effects.

The patients were all followed for almost four years. Four of the five patients returned to their previous (pre-styloid impaction syndrome) level of activity and sports. These patients were very satisfied with the results (rated as "excellent" and said they would recommend this surgery to others. Only one patient labeled the results as good due to persistent wrist pain. Two of the patients were completely pain free. The other three had mild pain that came and went.

The authors conclude that an oblique ulnar styloid osteotomy (OUSO) for the treatment of ulnar styloid impaction syndrome can be a successful and effective approach. Patients must be selected carefully to make sure the diagnosis is accurate.

If there is soft tissue damage from ligamentous instability, an osteotomy may not be the best choice. For those individuals with intact ligament attachments, the oblique osteotomy does not disrupt but rather preserves the soft tissues and maintains joint stability. That is a unique and important feature of this particular procedure.

Reference: Priscilla D'Agostino, MD, et al. Oblique Ulnar Styloid Osteotomy -- A Treatment for Ulnar Styloid Impaction Syndrome. In *The Journal of Hand Surgery*. November 2011. Vol. 36A. No. 11. Pp. 1785-1789.