Midcarpal Impingement: A Cause of Ulnar-sided Wrist Pain in Batters

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Introduction

In general, baseball is associated with a low number of wrist injuries. Batters, however, are at increased risk of wrist injuries due to repetitive extreme ulnar deviation during swinging. We describe midcarpal impingement of the bottom hand at the triquetral-hamate joint as a potential cause of ulnar-sided wrist pain in batters.

Methods

Fluoroscopy was utilized in one normal subject to evaluate carpal kinematics and carpal bone position both statically and dynamically during a swing.

We reviewed the literature on triquetral-hamate joint kinematics and midcarpal impingement.

Swing Technique

Bottom hand at point of contact during swing

Moritomo et. al: Lunate type affecting triquetral articulation with hamate

References:


Potential Causes

▸ Anatomic variations of T-H joint
▸ Variations in shape of hamate and triquetrum
▸ Helicoid vs. Ellipsoid articulation
▸ Type I lunate vs. Type II lunate
▸ More constraint at T-H joint with Type I lunate
▸ Screw-home mechanism
▸ With extreme ulnar deviation of hamate the triquetrum palmarly translates and extends on hamate
▸ T-H joint more constrained in ulnar deviation
▸ Hamate ridge (concave portion of hamate) may guide triquetrum subsequently constraining T-H joint motion

Conclusion

▸ Repetitive motion of wrist in extreme ulnar deviation during swinging along with increased constraints caused by variations in anatomy and articulation at the T-H joint predisposes batters to midcarpal impingement.

Midcarpal impingement should be considered in the differential for batters with ulnar-sided wrist pain.

▸ Treatment includes NSAIDs, bracing, injections, and surgical debridement may be necessary in refractory cases.