TFCC Injury

(Triangular Fibrocartilage Complex Injury)

What is a TFCC Injury?

The **Triangular Fibrocartilage Complex (TFCC)** is a structure in the wrist that plays a crucial role in stabilizing the joint and allowing smooth movement. It is located on the ulnar (little finger side) aspect of the wrist, where the **ulna** bone meets the **carpal bones** (small wrist bones). The TFCC consists of cartilage, ligaments, and tendons that provide support to the wrist, especially during rotation and gripping. A **TFCC injury** occurs when any part of the TFCC becomes damaged, leading to pain, instability, and difficulty with wrist movements, particularly in activities involving forceful gripping or rotation (such as turning a doorknob or using tools).

Causes and Risk Factors

A TFCC injury can be caused by a variety of factors:

- **Trauma or injury**: This is the most common cause of TFCC injury, such as a fall onto an outstretched hand or a sudden impact (e.g., during sports or accidents).
- **Repetitive movements**: Certain sports or activities, such as tennis, gymnastics, or weightlifting, can increase the risk due to repeated wrist movements.
- **Degeneration**: As part of the natural aging process, the TFCC can wear down over time, particularly after the age of 40, leading to wear-and-tear injuries.
- **Anatomical variations**: Some people may be born with an inherent weakness or abnormality in the TFCC, making it more susceptible to injury.
- **Pre-existing wrist conditions**: Individuals with other wrist problems, such as **ulnar variance** (where the ulna bone is longer than normal), are at higher risk for TFCC injuries.

Symptoms

The symptoms of a TFCC injury can range from mild to severe, and they may include:

- **Pain** on the ulnar side of the wrist, often aggravated by rotating the wrist or gripping objects
- **Swelling** or tenderness in the wrist, particularly on the little finger side
- **Decreased range of motion** in the wrist, especially during activities like twisting or turning
- **Clicking, popping, or catching** sensations in the wrist when moving it, particularly with rotation
- **Weakness** in the wrist, making it difficult to perform tasks requiring grip strength (e.g., opening jars, lifting objects)
- In severe cases, there may be **instability** or a sense of the wrist "giving way" during activity

Diagnosis & Investigation

Diagnosing a TFCC injury typically involves:

- **Clinical history**: The surgeon will ask about the onset of symptoms, any recent trauma or repetitive activities, and any history of previous wrist injuries.
- **Physical examination**: The wrist will be palpated to check for tenderness, especially on the little finger side, and specific tests (such as the **TFCC compression test** and **press test**) may be performed to provoke symptoms and assess the stability of the wrist.
- **Imaging tests**:
    - **X-rays**: While X-rays cannot directly show TFCC damage, they are useful for ruling out fractures or other bone-related issues.
    - **MRI**: An **MRI** (Magnetic Resonance Imaging) is the gold standard for diagnosing TFCC injuries as it can show soft tissue damage, including tears, degeneration, or inflammation of the TFCC.

- **Arthroscopy**: In some cases, a **wrist arthroscopy** (minimally invasive surgery) may be performed to directly visualize the TFCC and assess the extent of the injury.

Non-Surgical Treatment

Most TFCC injuries can be treated without surgery, especially if the injury is mild to moderate:

- **Rest**: Avoiding activities that put stress on the wrist, such as heavy lifting or repetitive twisting motions, is crucial for recovery.
- **Ice**: Applying ice to the wrist for 20 minutes several times a day can help reduce swelling and pain.
- **NSAIDs (Nonsteroidal Anti-inflammatory Drugs)**: Medications like ibuprofen can reduce inflammation and provide pain relief.
- **Splinting or bracing**: A wrist splint or brace can provide support and protect the wrist from further strain during healing.
- **Corticosteroid injections**: In cases where pain is severe or persistent, a corticosteroid injection may be administered to reduce inflammation and alleviate symptoms.
- **Physical therapy**: Once the initial pain and swelling subside, a hand therapist can provide exercises to improve wrist strength, flexibility, and stability.

Surgical Treatment

Surgery is considered for TFCC injuries that do not respond to non-surgical treatments or when the injury is more severe:

1. **Arthroscopic debridement**: This minimally invasive surgery involves using small incisions and a camera (arthroscope) to clean out damaged tissue, remove debris, or smooth out any rough cartilage in the TFCC.
2. **TFCC repair**: If the TFCC is torn or significantly damaged, the surgeon may use sutures or anchors to repair the torn tissue and restore stability to the wrist. However, only **certain types of tears** are amenable to repair, particularly those that are located in the **peripheral region** of the TFCC, where the blood supply is better. **Central tears**, which are avascular, may not be repairable and may require other treatment options, such as excision or debridement.
3. **Partial or total TFCC excision**: In cases where the damage is extensive and the TFCC cannot be repaired, the damaged portion of the TFCC may be removed. This is typically reserved for cases of degeneration or irreparable injury.
4. **Ulnar shortening osteotomy**: In patients with **ulnar variance**, where the ulna is too long, this procedure involves shortening the ulna to reduce stress on the TFCC and improve wrist mechanics.

Recovery

- After non-surgical treatment, most patients begin to feel better within **4–6 weeks**, although full recovery may take **2–3 months** depending on the severity of the injury.
- **Surgical recovery**:

- **Arthroscopic debridement** or **repair** typically allows for a quicker recovery, with patients often returning to light activities within **4–6 weeks**. Full recovery and return to normal activities may take **3–6 months**.
- **TFCC excision** recovery can vary depending on the extent of the surgery. Most patients can resume light activities in **6–8 weeks**, but full recovery may take **3–4 months**.
- **Ulnar shortening osteotomy** requires a longer recovery period, with patients usually immobilized for **6–8 weeks** and a more gradual return to activities over the course of **4–6 months**.

Risks

As with any surgery, TFCC-related procedures carry risks, including:

- Infection
- Nerve injury
- Stiffness or loss of motion
- Recurrence of symptoms
- Complications related to the hardware used in repair (e.g., anchors or screws)
- Failure of the repair (in rare cases)

When to See One of Our Hand Specialists

You should consult a hand specialist if:

- You experience persistent pain or weakness in your wrist, especially after a fall or repetitive activities
- You have difficulty performing everyday tasks that require wrist rotation or gripping
- Symptoms do not improve with rest, ice, or conservative treatments
- You suspect a more serious injury, such as a tear or degeneration of the TFCC

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