

# THE ROTATOR CUFF

## Diagnosis and Treatment

### The Rotator Cuff: Anatomy

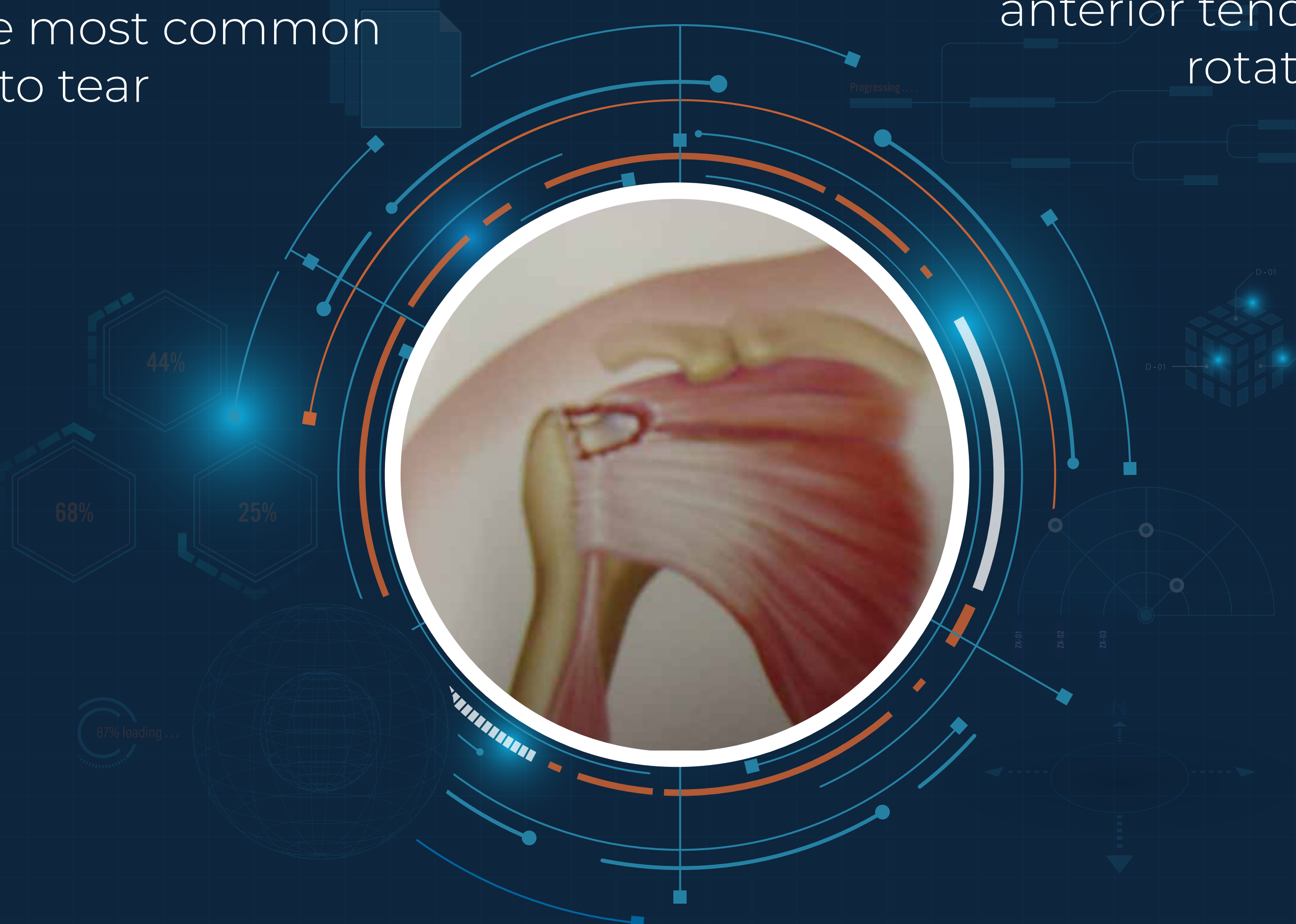
Consists of 4 tendons that attach the muscles of the scapula to the proximal humerus

1. **Supraspinatus:**

superior tendon, helps to lift or elevate the arm and is the most common tendon to tear

2. **Subscapularis:**

anterior tendon that internally rotate the arm



3&4. **Infraspinatus** and **Teres Minor:**

posterior two tendons that externally rotate the arm

## Rotator cuff tears can occur by an acute injury or from overuse and degeneration

The tendon can be stretched, frayed, or completely torn

### Tendonosis

- Micro tears within the tendon with thickening of tendon

### Partial Tear

- The tendon is frayed but still attached

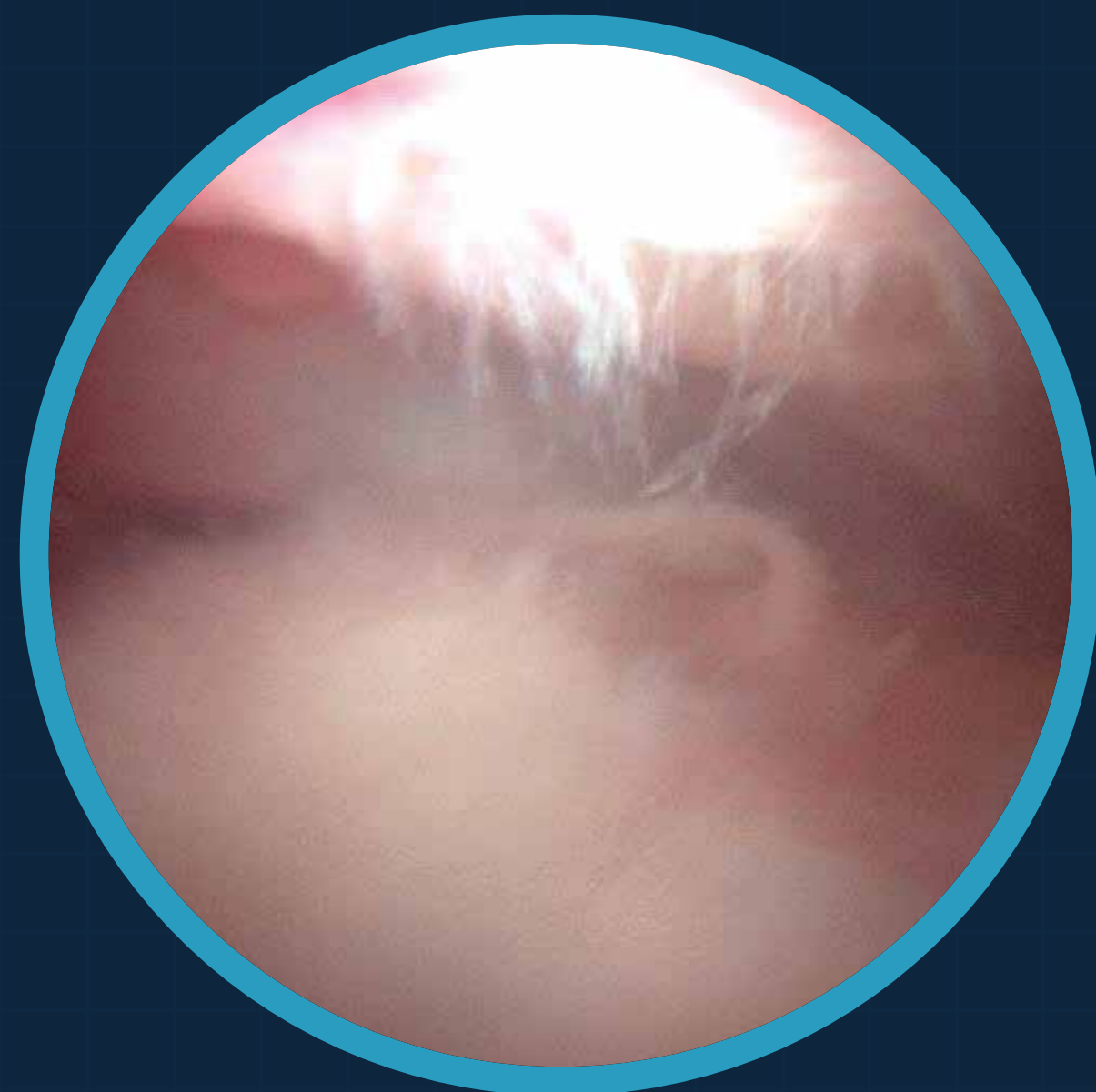
### Full Tear

- Part or all of the tendon is torn from bone

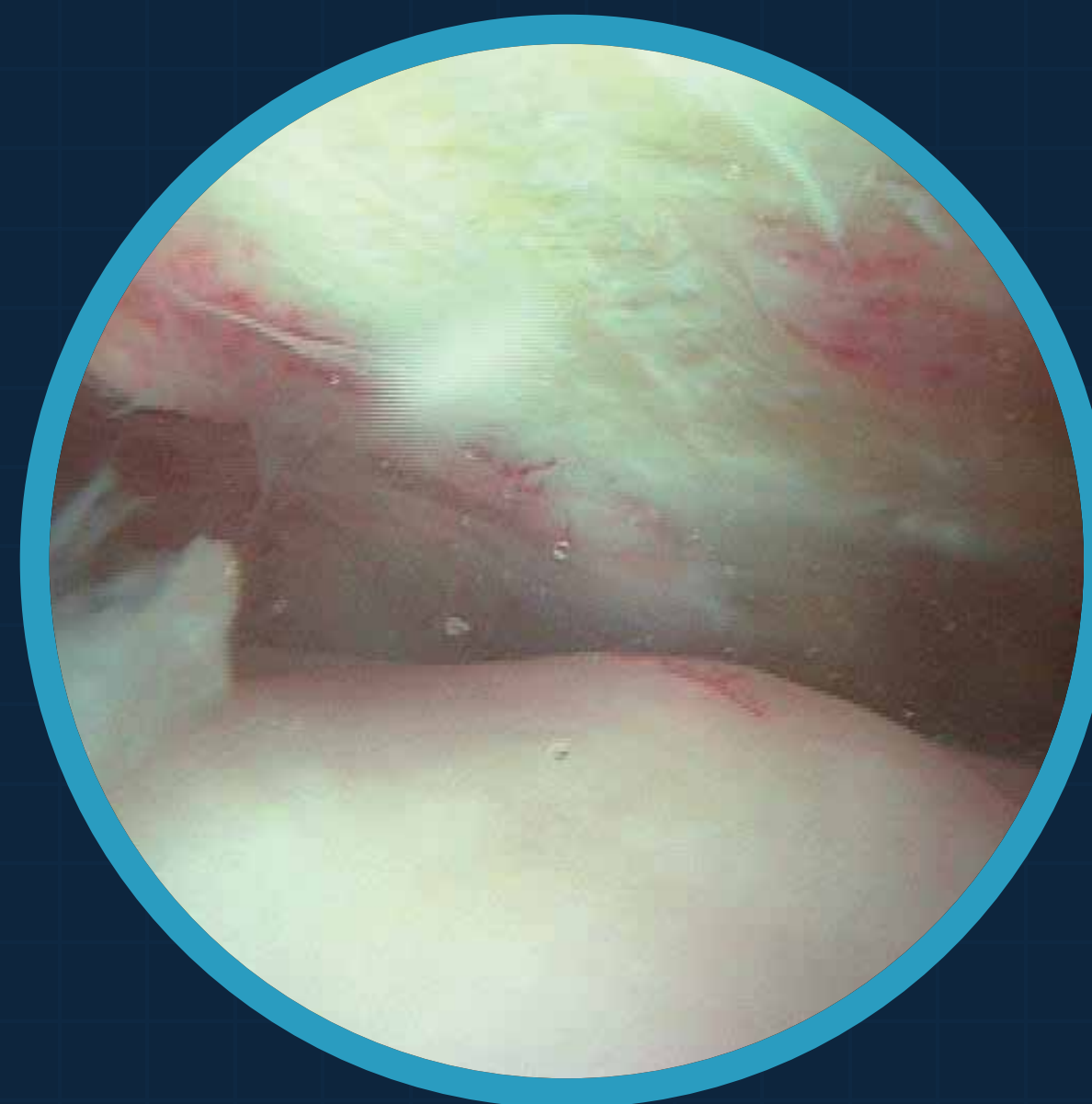
## Tendonosis

Micro tears and degeneration within the tendon

*May be associated with impingement on the undersurface of the acromion*



Impingement with abrasion of the undersurface of the acromion



Normal acromion with no evidence of abrasion

## Tendonosis: Treatment

### Initial treatment is always conservative

- Physical therapy to strengthen muscles around area of tendonosis
- A limited number of corticosteroid injections if pain is severe

### Surgical treatment

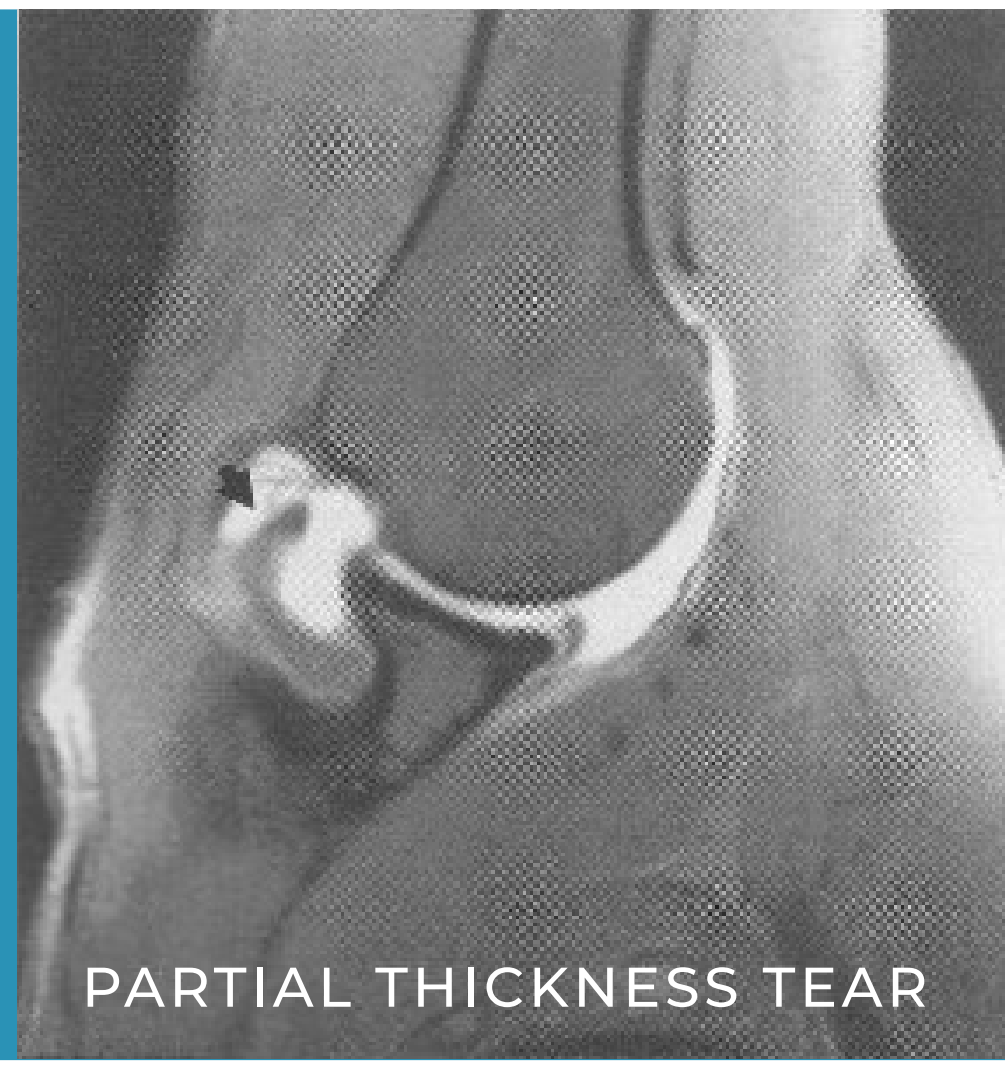
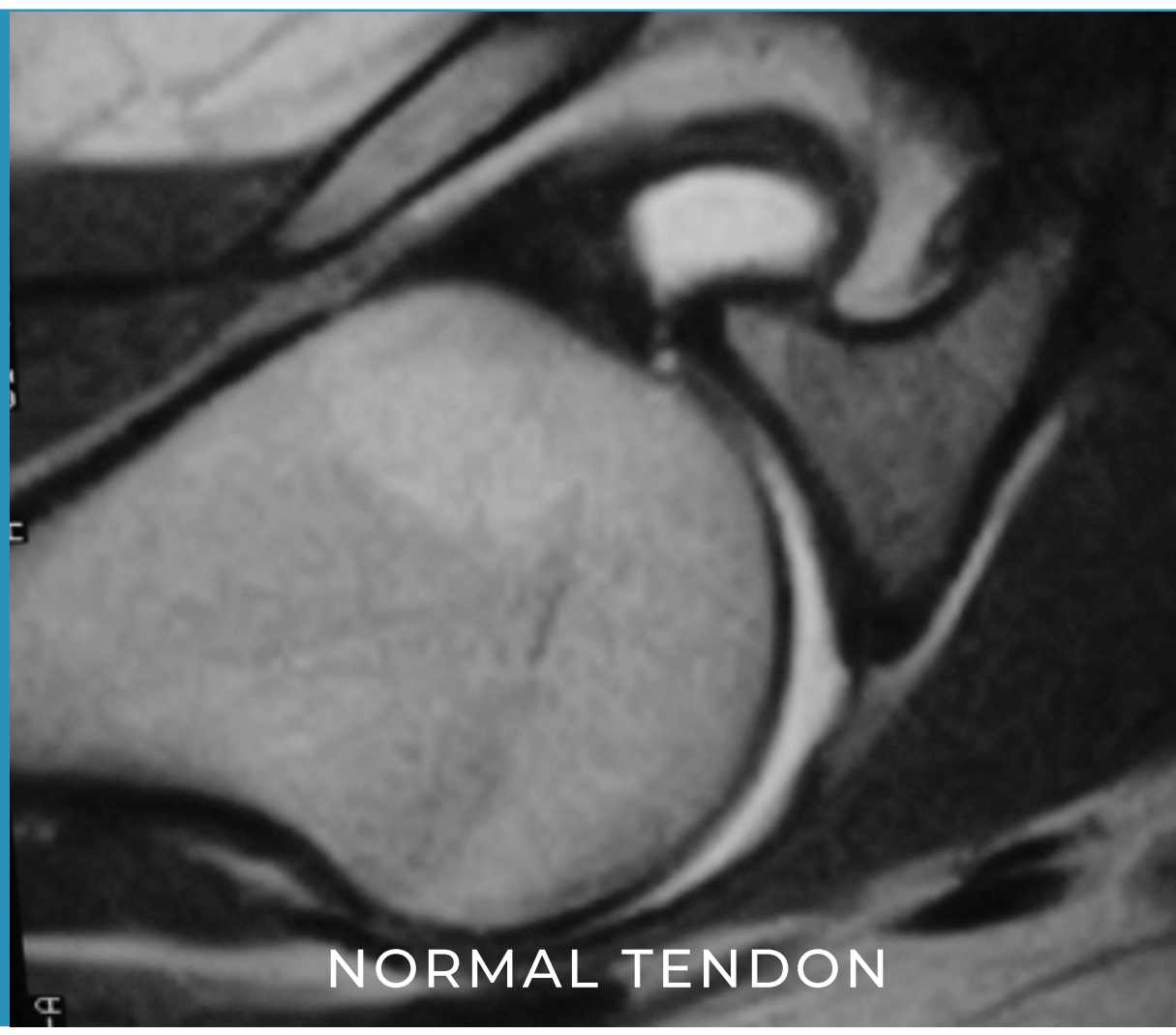
- Arthroscopy is indicated only for patients who have failed a prolonged course of therapy
- Requires additional physical therapy after surgery for motion and strength



# Partial Thickness Rotator Cuff Tears

Rotator cuff tear where the tendon is partially torn or frayed but still attached to bone

## Supraspinatus Tendon



### Initial treatment is always conservative

- Physical therapy to strengthen muscles around area of tendonosis
- A limited number of corticosteroid injections if pain is severe

### Surgical treatment

- Arthroscopy is indicated only for patients who have failed a prolonged course of therapy
- Tears under 50% total thickness are debrided
- Tears over 50% total thickness require repair
- Requires additional physical therapy after surgery for motion and strength

#### Debrided Partial Tear



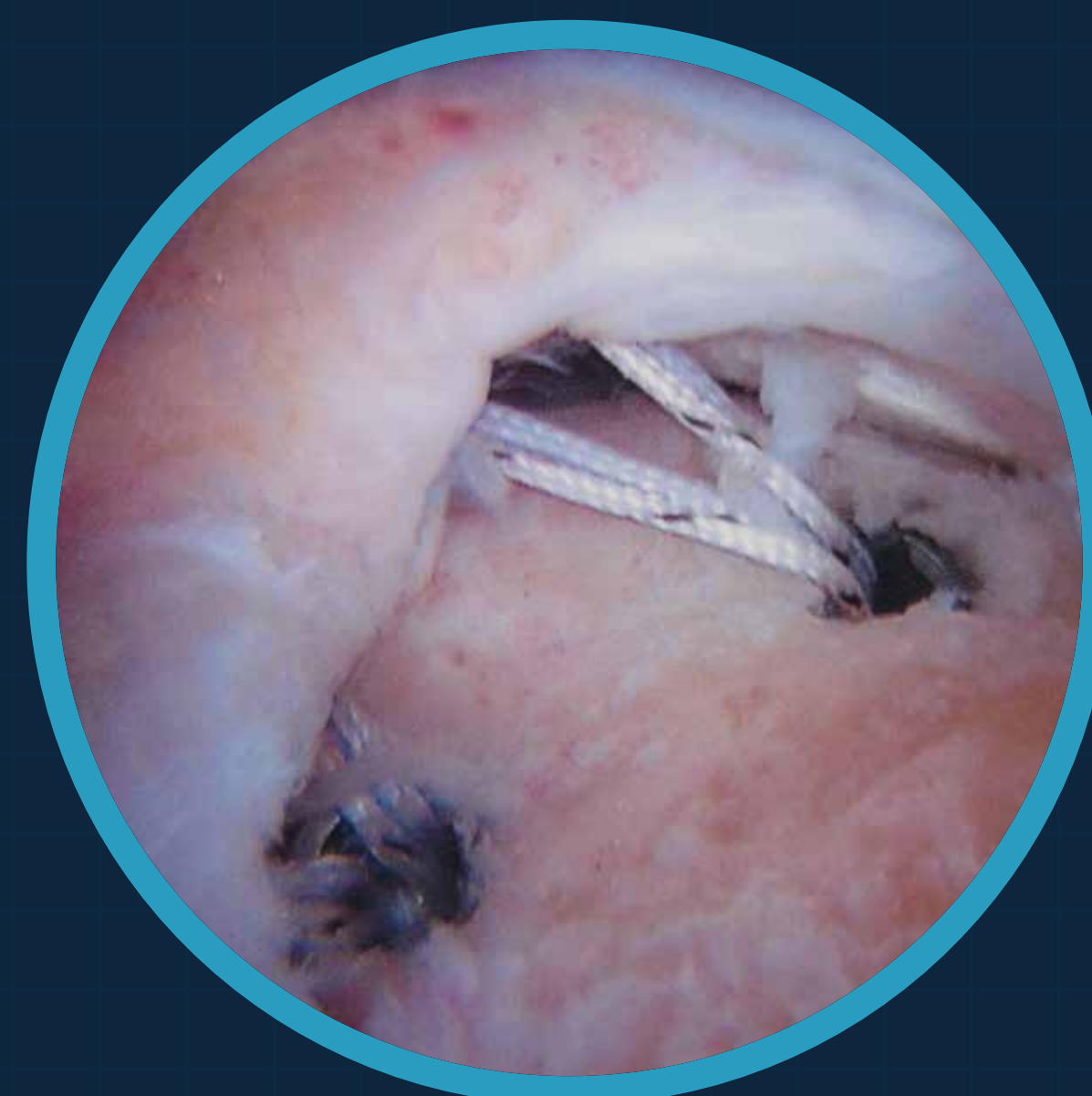
#### Normal Undersurface of Supraspinatus



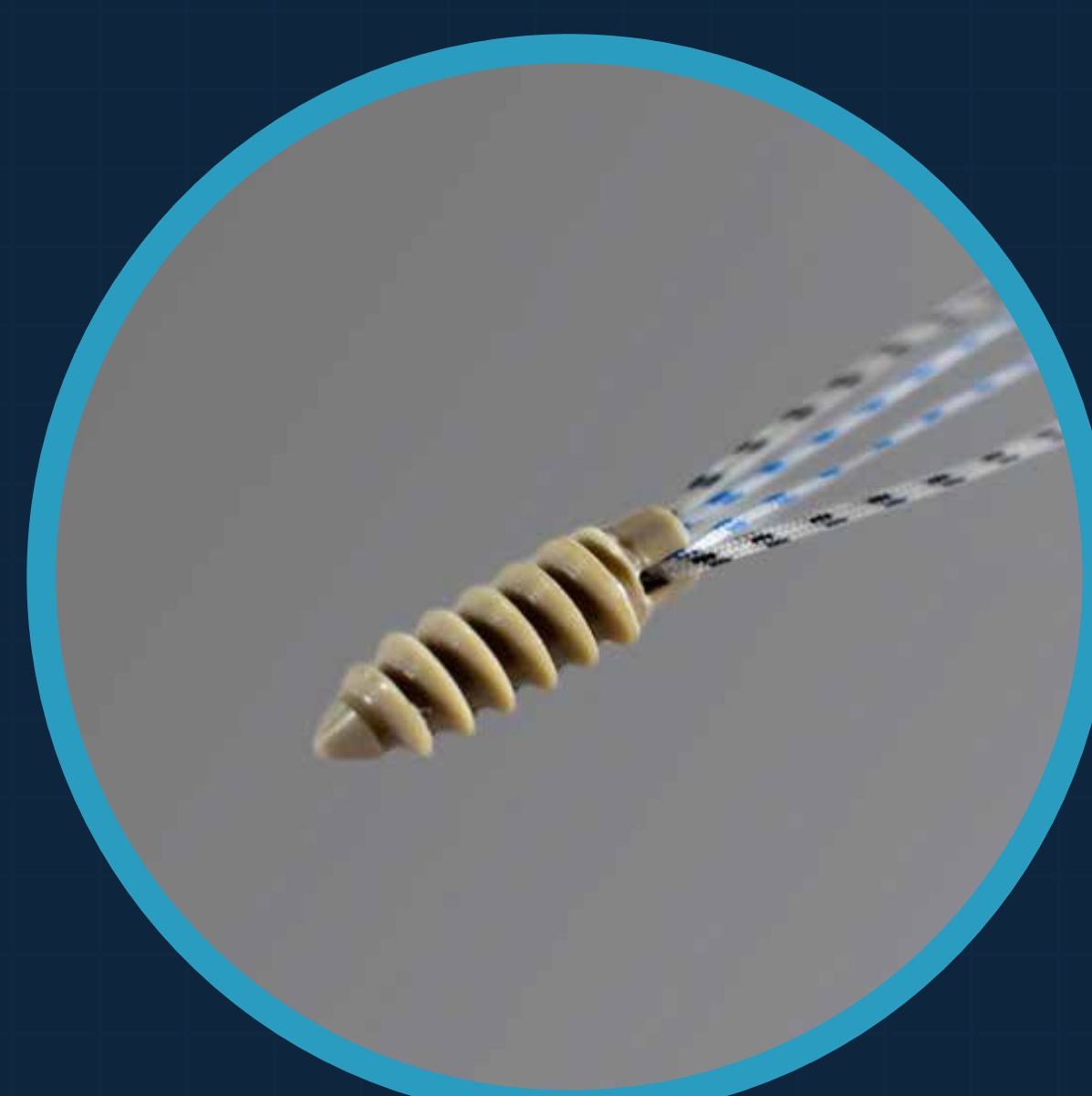
# Full Thickness Rotator Cuff Tears

- Can be from an acute injury, overuse, or from degeneration and age
- Can be small, medium, large or massive in size

## Large sized supraspinatus tendon tear



Repaired with suture anchor placed in the exposed bone





# Full Thickness Rotator Cuff Tears: Treatment

- Surgical Repair For Younger Patients

*Advanced arthroscopic techniques can limit risks of re-tear including double row repair and marrow stimulation*

- Conservative treatment has risk of increasing tear size in 50% within 1.5-2 years

## Double Row Rotator Cuff Repair Using Suture Bridge Technique

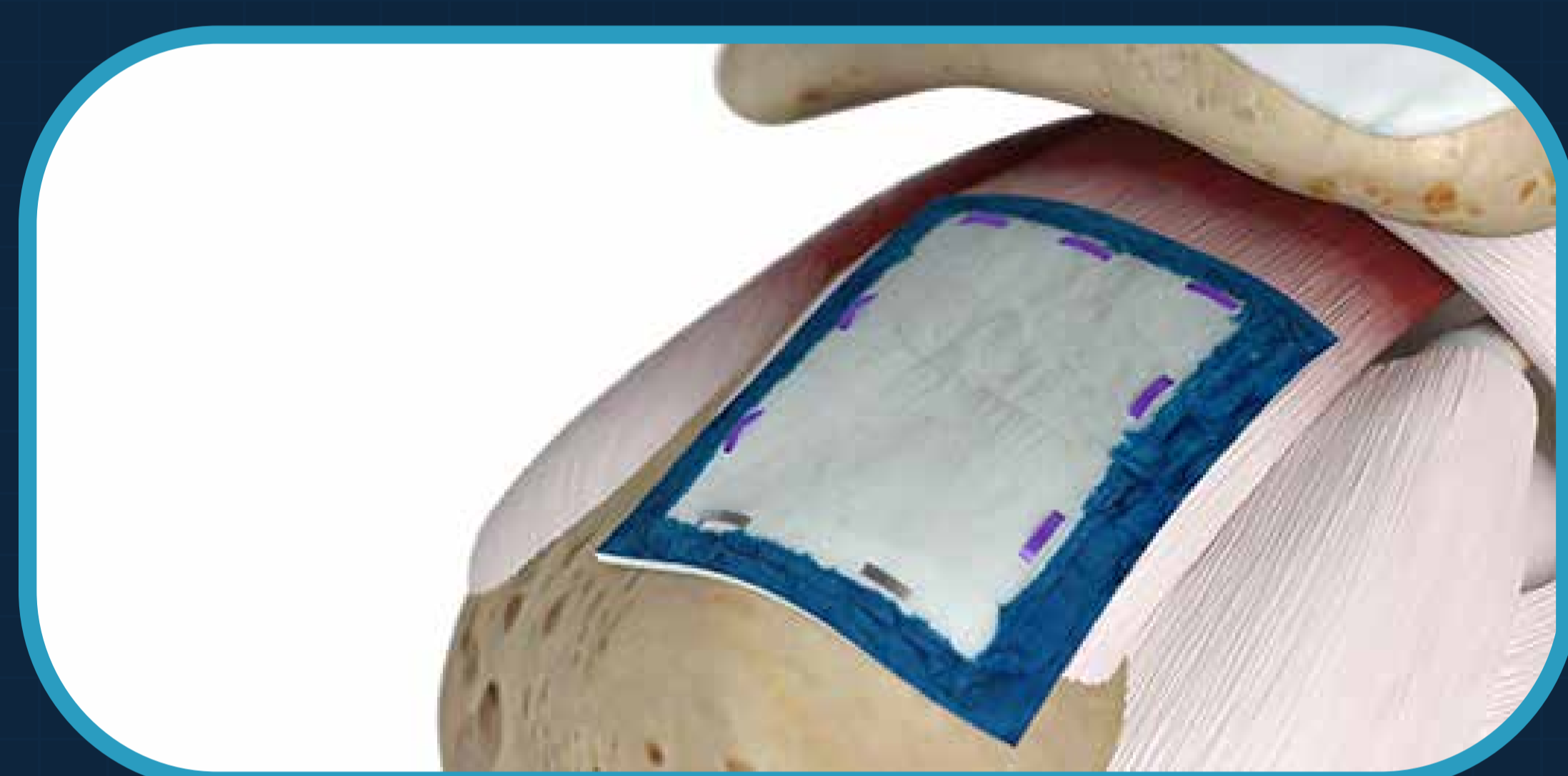
*Best outcome with lowest re-tear rate*



## Marrow Stimulation

Small holes are drilled into the bone where the tendon is going to be repaired. This allows bone marrow which has stem cells in it to leak underneath the repair site and aids in healing. This has been shown to improve healing by as much as 50%.

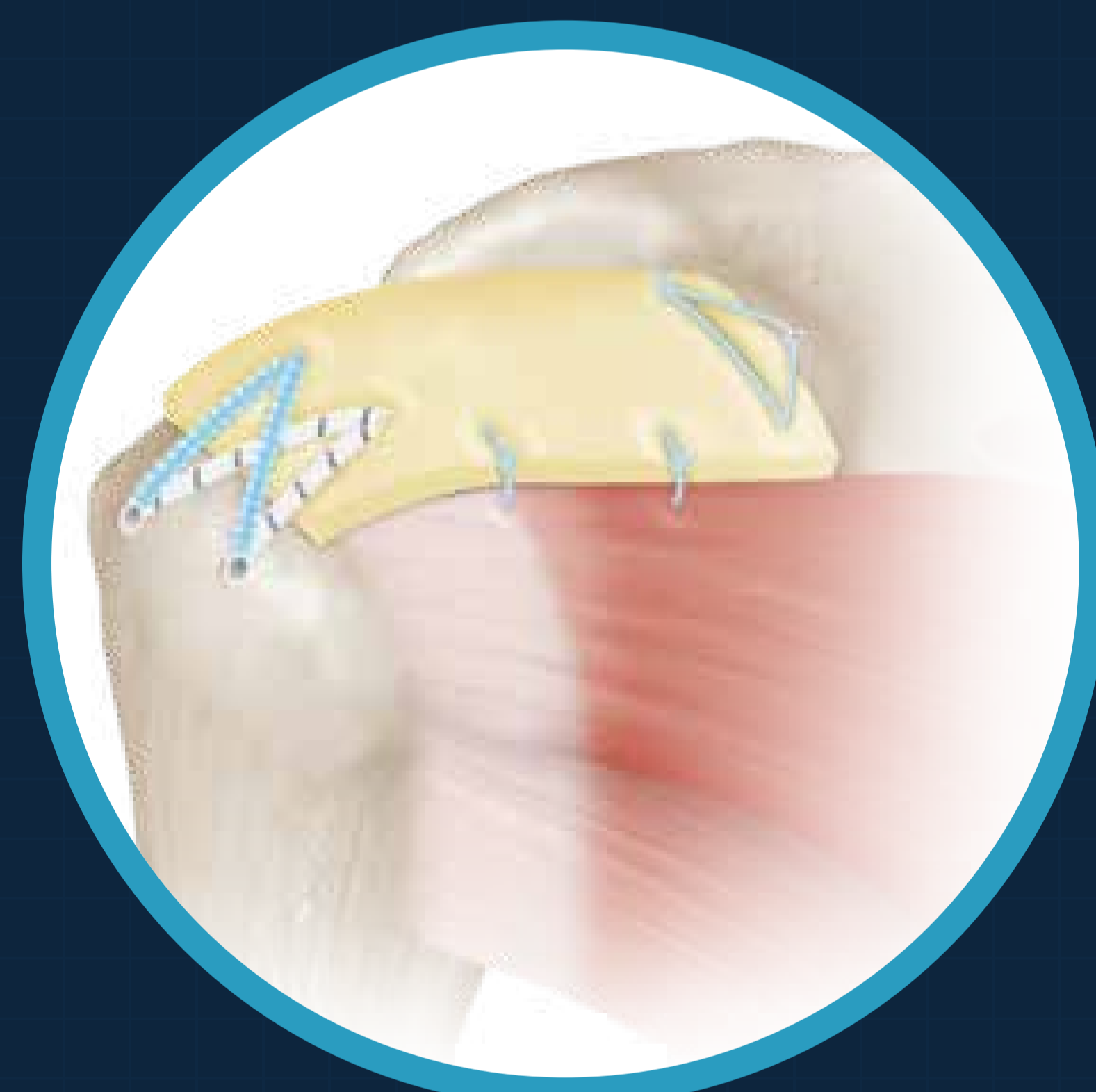
## Massive Rotator Cuff Tears Augmentation



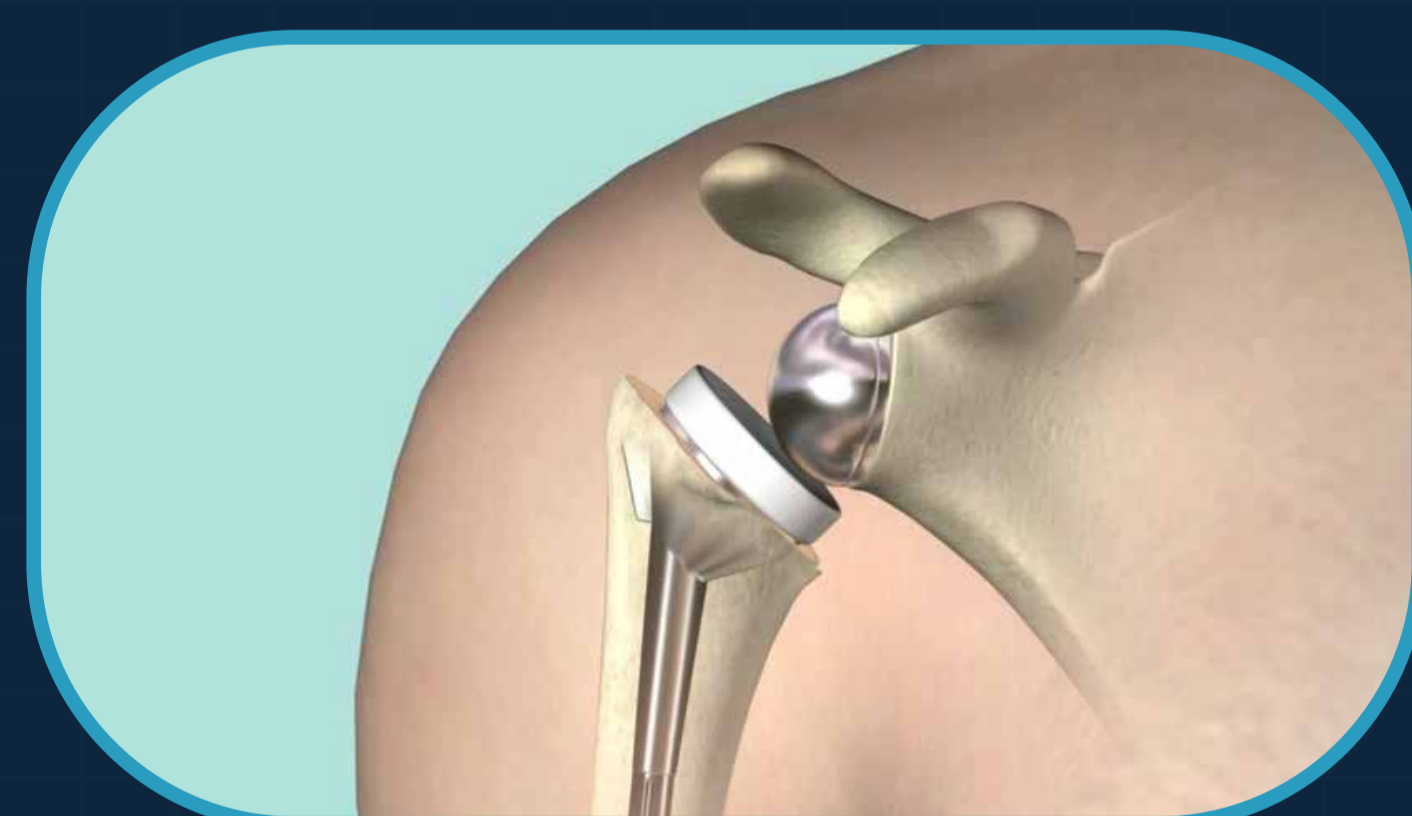
In patients with tears that can be repaired but the tendon quality is fair to poor augmentation patches can be used to thicken and strengthen the tendon

## Superior Capsular Reconstruction

In younger patients with massive tears that cannot be repaired a graft can be used to reconstruct the superior capsule of the shoulder to hold the humerus reduced to the socket.



## Reverse Shoulder Arthroplasty



In older patients where the tendon cannot be repaired a special shoulder replacement can be performed that maximizes the use of the deltoid muscle to elevate the arm and restore function.

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Risks of Rotator Cuff Repair Surgery includes re-tear, stiffness, continued pain and weakness and prolonged physical therapy

Overall success rates for repair of full thickness tears is 93%

Risks of re-tear can be as low as 7% using advanced arthroscopic repair techniques

