



THE UNIVERSITY OF TOLEDO  
**MEDICAL CENTER**

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THE UNIVERSITY OF TOLEDO MEDICAL CENTER

# ORTHOPAEDIC MONTHLY

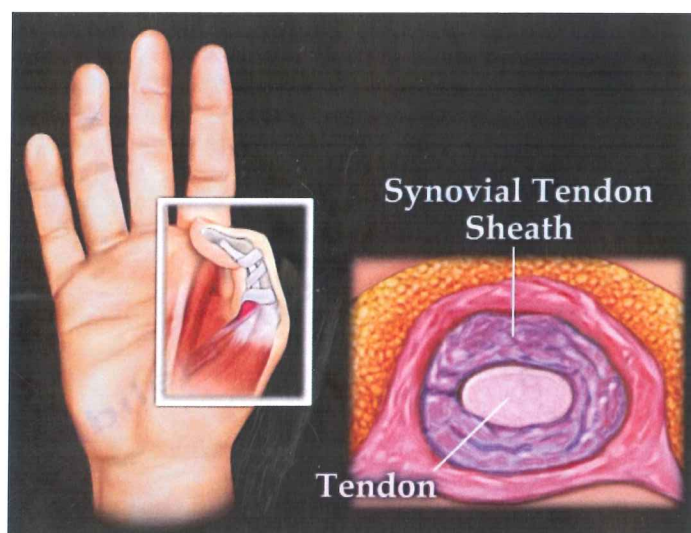
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**BY: NABIL EBRAHEIM, M.D.**

## Trigger Thumb

Stenosing tenosynovitis of the thumb, often referred to as trigger thumb, is one of the more common abnormalities of the hand. This condition is associated with painful triggering or locking of the thumb. When the patient tries to straighten the thumb, the nodule jams beneath the pulley proximally. This occurs with a painful snap, much like a trigger being pulled and released, with either flexion or extension of the thumb. Small changes in the tendon's diameter will have significant effect on the function of the thumb. The nodule is usually pulled proximally to the pulley with active thumb flexion.

Treatment for trigger thumb typically consists of anti-inflammatory medications and injections. Injections will be performed into the sheath and not the tendon. The needle should be placed obliquely towards the tendon and then withdrawn slightly so the physician can inject freely into the sheath. An ultrasound guided injection of the tendon sheath and pulley may be of benefit. The needle is inserted into the sheath above the tendon and fluid is then injected. If the symptoms persist, surgery will be considered. In surgery, the pulley will need to be released to allow active motion of the thumb without

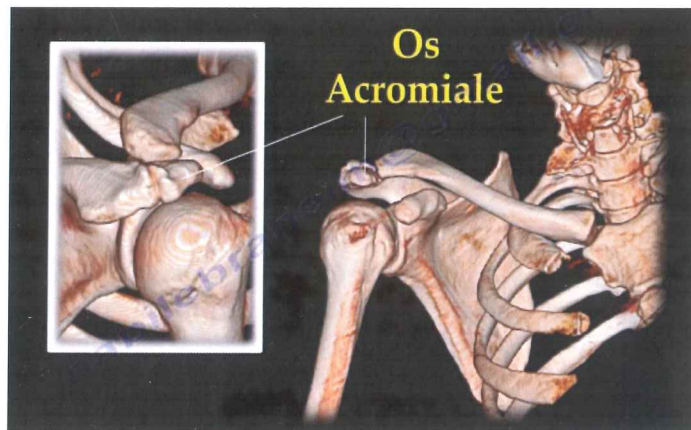


triggering. Note the position of the radial digital nerve close to the incision.

## Os Acromiale

The acromion is a continuation of the scapular spine which has four ossification centers. Four separate parts of the acromion appear by fourteen years of age and fuse by the age of 25. These four ossification centers are called the basi-acromion, meta-acromion, meso-acromion, and the pre acromion. Failure of the ossification centers to fuse to the acromion process is called Os Acromiale. A fusion failure between MTA and MSA is the most common scenario. The unfused segment is connected to the AC joint and to the coracoid—this may cause movement of the unfused segment.

Failure of the anterior ossification center to fuse to the acromion process occurs in less than 10% of people. X-rays are usually to diagnose os acromiale but, it is sometimes hard to see in an AP view x-ray.



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The axillary view is the best for viewing the unfused segment.

Symptoms of os acromiale include: localized tenderness and pain due to the motion of the fragment. Impingement of the rotator cuff due to the unfused fragment tilting forward or due to the contraction of the deltoid muscle and movement of the shoulder is common. The impingement does not cause a rotator cuff tear, however a tear may be associated.

Treatment of os acromiale include: physiotherapy, NSAIDs, injections, and surgery. Surgery is done in the form of a decompression with minimal removal of the bone, an excision of small unfused segment, or as an open fixation with bone graft for large fragments.

The physician will not do an acromionectomy as this will weaken the deltoid muscle and leave the patient with a very bad functional outcome.

## Bipartite Patella

Bipartite patella is the failure of the ossification centers of the patella to fuse. There are three types of bipartite patella (published data): the inferior pole, lateral margin, and superolateral pole. An example of bipartite patella at the superolateral pole; the accessory ossification center at the superolateral pole remains unfused. On an x-ray, you will be able to see that the patella consists of two bones, the smaller part is the unfused segment and it is rounded and usually located laterally—this can be confused with a fracture. It is often asymptomatic and an incidental findings, causing symptoms to mimic those of a fracture. Minor trauma or injury can cause the fibrous tissue to become inflamed and irritated.

Treatment of bipartite patella consists of:

- Rest
- Knee immobilizer
- Physiotherapy
- NSAIDs

If the fragment is small and very painful, you can excise the fragment. If the fragment is large, painful, and conservative treatments have failed, you can perform a lateral release of the

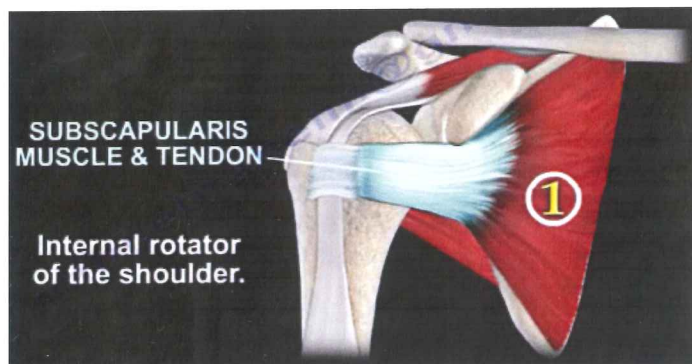


retinaculum to reduce the traction force if needed. Very rarely, it may be necessary for an internal fixation and bone graft if the fragment is large.

## Subscapularis Tendon Rupture

The subscapularis muscle is a large muscle that originates on the anterior surface of the scapula and lies in front of the shoulder. The subscapularis muscle is the largest of the four rotator cuff muscles and it provides about 50% of the total cuff strength. The subscapularis muscle inserts into the lesser tuberosity, while the other rotator cuff muscles have an insertion into the greater tuberosity. The biceps tendon lies in the groove and is held in place by the transverse humeral ligament.

A tear can be diagnosed by an MRI or ultrasound. During an ultrasound, the probe is usually placed transversely over the bicipital groove to identify the groove and the biceps tendon while the arm is in a neutral position. The arm is then externally rotated to view the subscapularis tendon.



The Subscapularis Muscle functions as an Internal rotator and acts as a dynamic stabilizer of the humeral head.

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The Subscapularis Muscle is supplied by the upper and lower subscapular nerves. The upper and lower subscapular nerves originate from the posterior cord of the brachial plexus.

Causes of a subscapularis tendon rupture include an anterior shoulder dislocations and may occur following anterior shoulder surgery. Usually, the mechanism of injury is due to a fall onto an outstretched arm during abduction. In traumatic situations, a subscapularis tendon avulsion can be associated with avulsion of the lesser tuberosity. A subscapularis tear may be associated with a rotator cuff tear.

Tears are rare and can be either chronic or acute. The patient will have: pain, anterior shoulder swelling, decreased range of motion, and weakness of internal rotation. The patient will also have an increase in passive external rotation. The diagnosis of a subscapularis tear could be difficult to find and may be missed! With complete rupture of the subscapularis tendon, the transverse humeral ligament will become torn, causing medial dislocation of the biceps tendon from its groove.

There are several different provocative tests that may be used in order to diagnose a tear to the subscapularis muscle. When performing The Lift-Off Test, the patient places their hand behind their back at the lumbar level and lifts the hand away from the back with an intact subscapularis tendon. If the patient is unable to lift the hand off of the lower back, then a tear of the subscapularis tendon is suspected.

During the Lift-Off Lag Test, the examiner will hold the patient's hand away from the back at the lumbar region and let go. The patient will be unable to keep the hand away from the back if the tendon is torn.

When performing the Belly-Press Test, the patient will press the palm of their hand against the abdomen with the wrist in a neutral position. This is an example of an intact subscapularis tendon. A positive sign will be noted if the patient is unable to press their belly without wrist volar flexion or the elbow falling posteriorly.

When performing the Belly-Off Test, the shoulder is placed in flexion and maximum internal rotation. The examiner positions the patient's hand on the belly while holding the flexed elbow. If the tendon is ruptured, the patient will not be able to maintain this position and the hand will lift off of the abdomen when the examiner lets go.

For a complete tear, a surgical repair of the tear will be done. This repair can be done either open or arthroscopic. Biceps tenodesis during repair is associated with improved outcomes. Biceps tenodesis is usually done if the biceps is involved in the process, otherwise subluxation of the biceps will stress and fail the repair.

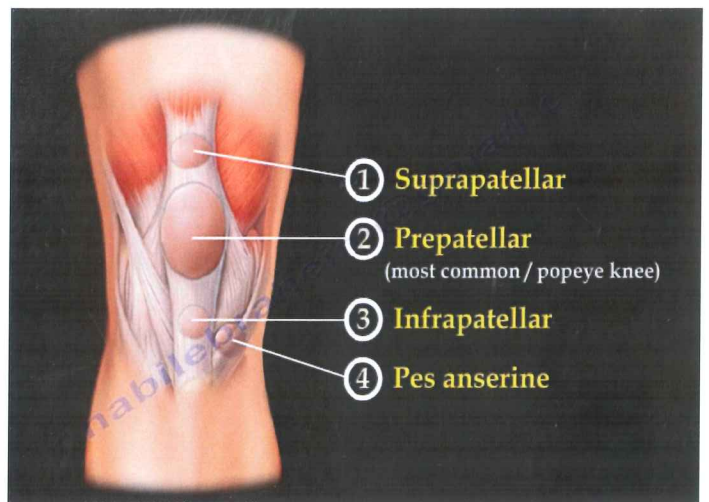
If the patient has a chronic muscle tear, a pectoral major muscle transfer is the procedure of choice.

## Bursitis of the Knee

The knee bursa is a small fluid filled sac located between the front of the knee cap (the patella) and the overlying skin. This bursa allows the knee cap to slide freely underneath the skin as we bend and straighten the knee. This bursitis causes pain, swelling, tenderness, and a lump in the area on top of the knee cap. It may be difficult to kneel down and put the knee on the floor due to the tenderness and swelling. There are several different types of knee bursitis: Suprapatellar, Prepatellar, Infrapatellar, and Pes Anserine.

Bursitis of the knee can be caused due to trauma. For example, a direct injury or fall onto the knee can damage the bursa and cause an individual to develop large amounts of swelling. Bursitis of the knee can also be caused from occupational kneeling, as in carpet layers, tilers, and wrestlers, etc. The physician should inspect the bursa for any breaks in the skin leading to infection. A red, hot, painful, and swollen bursa is a sign of possible infection. Inflammation is another cause of knee bursitis.

Treatment of patellar bursitis includes: anti-inflammatory medications, antibiotics (if infection is suspected or confirmed), ice therapy, aspiration (send the fluid for culture and crystals), and



surgery in the form of a debridement and excision of the bursa. A protective covering should be placed around the knee while avoiding activities that aggravate the condition.

## Stiff Knee

Stiff knee is an extension contracture of the knee resulting from different causes, but usually occurring from trauma. The patient is unable to bend the knee to a functional level. Trauma will cause

adhesions inside the knee, fibrosis, and shortening of the knee ligaments.

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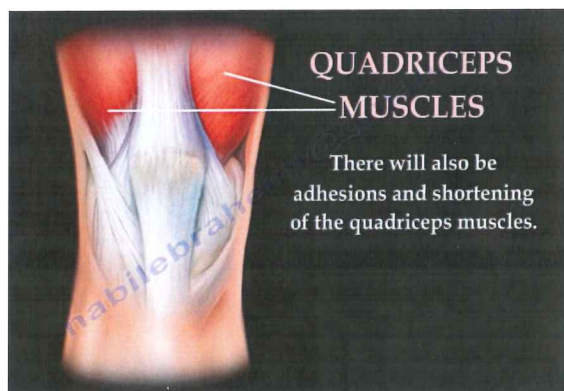
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*Stiff knee continued*

There will also be adhesions and shortening of the quadriceps muscles. Treatment of stiff knee typically starts with therapy. The first surgical option for Stiff Knee includes an arthroscopy and release of the adhesions. The second surgical options includes a quadricepsplasty (Thompson or Judet) or a combination of treatments.



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