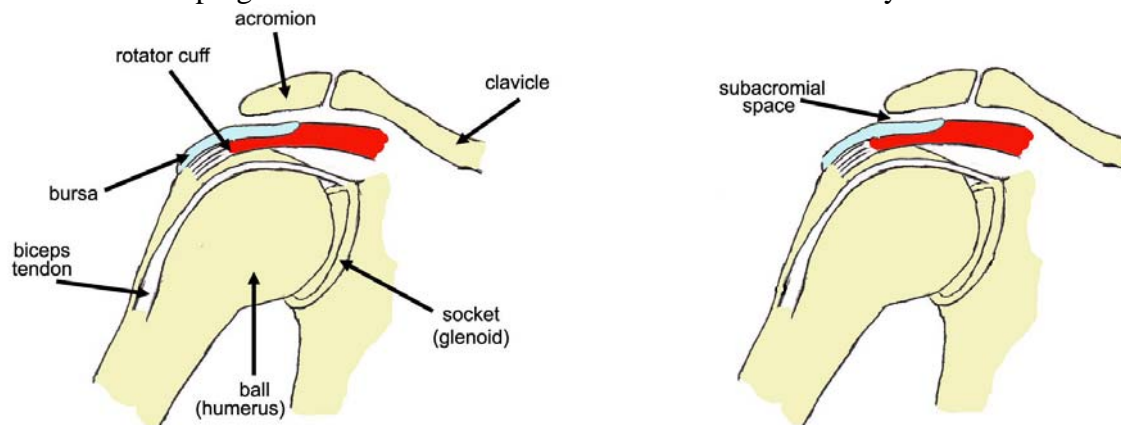


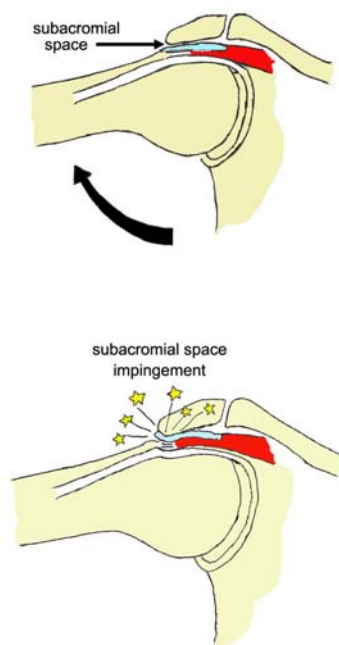
Feeling the “Pinch”

Understanding America’s Number One Shoulder Problem

Subacromial Impingement is the name given to a group of conditions including shoulder bursitis, rotator cuff tendonitis and biceps tendonitis. It is also widely accepted that subacromial impingement is the most likely cause of rotator cuff tears and biceps tendon ruptures. As is the case with many orthopedic afflictions, understanding subacromial impingement starts with a review of the relevant anatomy.



The shoulder is a ball and socket joint that sits under a bone called the acromion. The space directly beneath the acromion (and directly above the shoulder joint) is called the subacromial space, and packed into that space are a group of important structures: 1) the tendon of the long head of the biceps muscle, 2) the subacromial bursa, and 3) the rotator cuff.



Raising the arm = Closing the space

The problem we humans have is that as the arm is lifted, the humeral head and acromion draw near each other, narrowing the subacromial space. In a healthy shoulder, the subacromial space never gets narrow enough to pinch the structures in it between the shoulder joint and the acromion. But, several pathologic conditions (poor shoulder posture, growth of bone spurs on the underside of the acromion and trauma/inflammation/swelling of the cuff, biceps or bursa) can narrow the subacromial space and lead to the pinching phenomenon called subacromial impingement. Impingement is typically worse in the positions of the shoulder that close the subacromial space most (raising the arm overhead, for instance).

Classic Symptoms:

- Pain with overhead activities
- Pain at night
- Pain that radiates to the upper 1/3 of the humerus
- Pain reaching behind the back

3 Basic Physical Exam Tests:



Impingement sign #1: Abduction

Raise the arm from the patient's side to the overhead position in the coronal plane. A positive test reproduces the pt's pain.



Impingement sign #2: Forward Flexion

Now raise the arm in the sagittal plane. Again, a positive test reproduces the pt's pain.



Supraspinatus Test:

Have the patient extend his arms in front of him with his thumbs down, then have him push up against resistance. Check for pain and/or weakness.

Impingement Begets Impingement

Impingement can be a self propagating process, i.e.: swollen structures are pinched against the acromion when the arm is raised and that pinching makes them more swollen, which makes them more likely to get pinched beneath the acromion, etc. It is like biting the inside of your cheek, the more you do it, the easier it is to keep doing it.

Treatment Options:

Initial treatment is usually conservative. **Oral anti-inflammatory agents** work because they help decrease swelling in the bursa, biceps tendon and rotator cuff, allowing them to glide easily beneath the acromion as the arm is lifted.

Physical therapy to help patients retract their scapulas and strengthen their downward pulling rotator cuff muscles (infraspinatus, subscapularus) can open the subacromial space and lessen impingement. **Cortisone injections** are also useful in that they can decrease swelling in the subacromial space.

If non-surgical treatment is ineffective, an operation to increase the dimensions of the subacromial space is an option. The operation is known as a **subacromial decompression**, and it can be done arthroscopically as a same day outpatient procedure. In the operation, 5-10 mm of the underside of the acromion bone are removed, vastly increasing the dimensions of the subacromial space and eliminating impingement. Since the procedure is arthroscopic, no muscles are cut and there are no stitches to protect so recovery is usually quick (three to five days in a sling followed by aggressive physical therapy).

For some patients with advanced impingement, surgery can be more complicated. As a result of long term abrasion against the undersurface of the acromion bone, the rotator cuff and/or biceps tendon can fray or tear, requiring surgical repair. Depending on many factors, including the size and location of the tear, the patients age, bone and tissue quality, the surgeon may choose to repair these tears arthroscopically or through a small

incision in the skin. Typically, a subacromial decompression with the added step of rotator cuff repair requires a longer, more protracted rehabilitation. Expect 3-6 months for full recovery in most cases.



This photo shows an "irreparable rotator cuff tear" in the author's favorite pair of blue jeans.

The "irreparable" rotator cuff tear.

As mentioned above, most rotator cuff tears are thought to result from repeated impingement against the underside of the acromion. Over a period of months or years, the rotator cuff tissue starts to wear and fray. Over a period of years or decades, these tears can grow to be quite massive, just like the hole in the knee cap of a pair of old pants. In extreme cases of long term impingement, an area of the rotator cuff will be completely worn away, leaving a large defect of missing material with frayed, stringy edges that don't hold sutures well. The edges of these large, open holes are impossible to sew together, and, historically, attempts to patch them with grafts or artificial materials have not worked well. A new "reverse ball and socket" shoulder replacement may hold some promise for patients with irreparable rotator cuff tears.

Summary

Subacromial space impingement is the most common shoulder problem seen in patients over 30. It accounts for a host of different problems, including bursitis, rotator cuff and biceps tendonitis, and tears of the rotator cuff and biceps tendon. Its typical signs and symptoms make it relatively easy to diagnose, and most patients respond well to conservative treatment. Surgical repair is an excellent option for patients who fail conservative treatment, except those with massive, chronic rotator cuff defects secondary to long standing impingement.