Rotator Cuff Evaluation

Shoulder Evaluation

Charles Hooper, D.O.
Board Certified, Family Practice
Cell: 530-514-0135
Email: chooper714@aol.com

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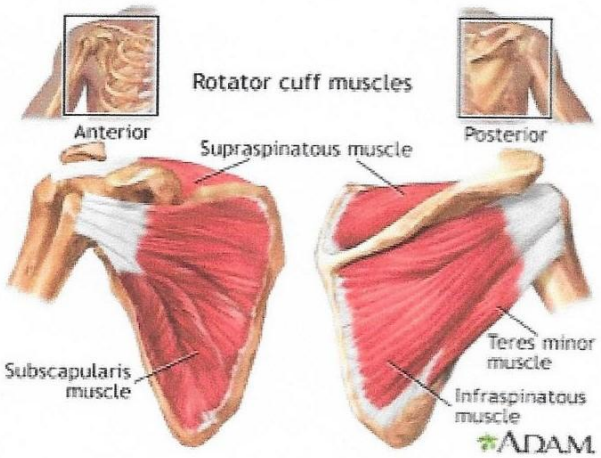
- I do not make any money from promoting any product.
- The purpose of this Presentation is purely educational and designed for Primary Care Providers
- I am available for future presentations.

Structure and Function of the Rotator Cuff

Muscle	Origin on scapula	Attachment on humerus	Function	Innervation
Supraspinatus muscle	supraspinous fossa	superior [2] face t of thegreater tubercle	abducts the humerus	Suprascapular nerve (C5)
Infraspinatus muscle	infraspinous fossa	posterior facet of the greater tubercle	externally rotates the humerus	Suprascapular nerve (C5-C6)
Teres minor muscle	middle half of lateral border	inferior facet of the greater tubercle	externally rotates the humerus	Axillary nerve (C5)
Subscapularis muscle	subscapular fossa	lesser tubercle	internally rotates thehumerus	Upper and Lower subscapular nerve (C5-C6)

Pictures

7/12/2016



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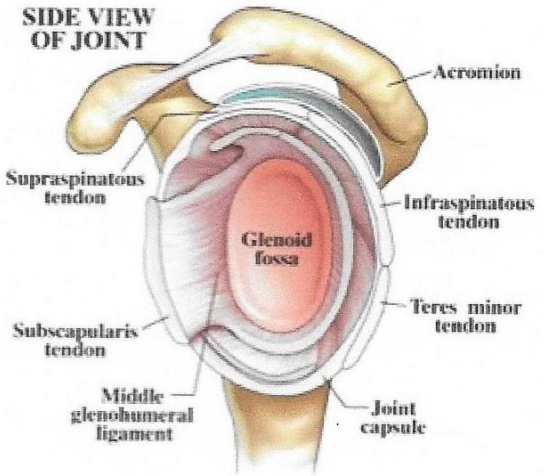


Rotator Cuff Evaluation

- Empty Can Test
- Neers Test
- Hawkins-Kennedy Test (Hawkins Test)

Empty Can Test

- Empty Can Test – Shoulder Orthopedic Examination
- The **Empty Can Test**, along with the Full Can Test is a commonly used orthopedic examination test for supraspinatus impingement or integrity of the supraspinatus muscle and tendon.
- **Involved Structures**
- **supraspinatus tendon**
- **supraspinatus muscle**
- **Starting Position**
- The test is usually easier in sitting or standing. On the side to be tested the one of the examiner's hands stabilizes shoulder girdle. The arm to be tested is moved into 90 degrees of forward flexion in the plane of the scapula (approximately 30 degrees of abduction), full internal rotation with the thumb pointing down as if emptying a beverage can.
- **Test Movement**
- The examiner's other hand applies downward pressure on the superior aspect of the distal forearm and the patient resists.
- **Positive Test**
- The Empty Can Test is considered positive if there is significant pain and/or weakness. Pain alone is less accurate than actual weakness, especially when arm is tested in full can position (45degrees of external rotation) as pain can be the result of supraspinatus tendonitis or other injured or inflamed structures. Weakness can be the result of a tear in the supraspinatus muscle or tendon but can also be the result of pain induced inhibition. Pain is usually felt in the subacromial region but can sometimes be felt into the upper arm.
- **Accuracy of Test**
- The test accuracy is questionable; pain may be result of multiple different structures and may not be indicative of actual muscle or tendon tear. The test is more accurate for detecting a tear in the muscle or tendon if very significant weakness is present.

Neers Test

- Neer Test – Orthopedic Shoulder Examination
- The **Neer Test** is commonly used in orthopedic examinations to test for subacromial impingement. The test is very simple to conduct and is quite reliable.
- **Involved Structures**
- **supraspinatus tendon**
- **infraspinatus tendon**
- **long head of biceps tendon**
- **Starting Position**
- The test is best performed with the patient in a relaxed standing position. The arm to be tested should be moved passively by the examiner. The patients arm of the shoulder to be tested is positioned such that the arm is relaxed at the side of the body and the elbow is fully extended.
- **Test Movement**
- From the starting position the examiner internally rotates the patients arm and forcefully moves the arm through the full range of forward flexion or until reports of pain.
- **Positive Test**
- The Neer test is considered positive if pain is reported in the anterior – lateral aspect of the shoulder.
- **Accuracy of Test**
- The Neer Test for shoulder impingement is commonly believed to be more accurate test for shoulder impingement than the Hawkins Test though some studies have found the reverse to be true.

Hawkins-Kennedy Test

- Hawkins Kennedy Test – Orthopedic Shoulder Examination
- The **Hawkins Kennedy Test** is one of the most common special tests used in orthopedic physical assessment and examination of the shoulder. The test is very simple to conduct and is quite reliable.
- **Involved Structures**
- **supraspinatus tendon**
  – the most likely involved structure in a positive test
- **long head of biceps tendon**
  – not as likely involved as supraspinatus tendon
- **a-c joint**
  – pain during this test may also be the result of an injury to the acromioclavicular joint
- **Starting Position**
- The test is best performed with the patient in a relaxed sitting position. The arm to be tested should be moved passively by the examiner. The examiner moves the arm of the should to be tested such that the arm is in 90 degrees of forward flexion and the elbow is flexed to 90 degrees.
- **Test Movement**
- In the starting position the examiner forcefully moves the patient's shoulder into internal rotation to the end or range of motion or until reports of pain.
- **Positive Test**
- The Hawkins Kennedy test is considered positive if pain is reported in the superior – lateral aspect of the shoulder.
- **Accuracy of Test**
- The Hawkins Kennedy test for shoulder impingement is commonly believed to be less accurate test for shoulder impingement than the Neer test though some studies have found the reverse to be true.

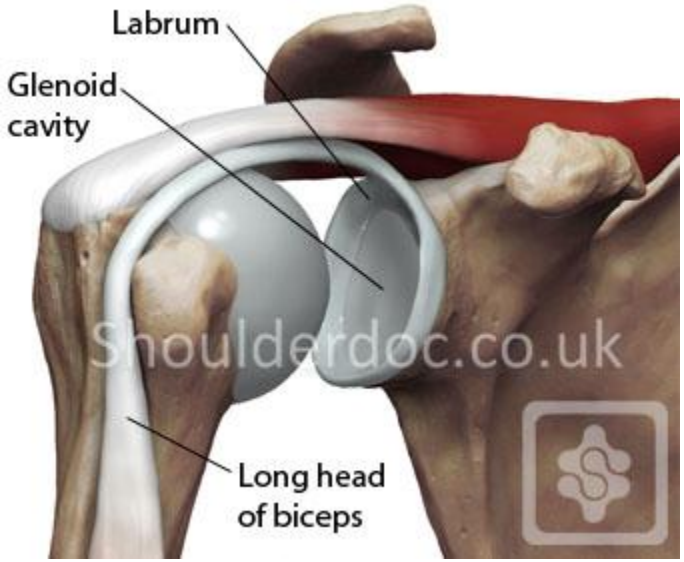
Primary Care Orders and Referrals for Rotator Cuff Injuries

- 1. Work Release
- 2. Rest Shoulder
- 3. Ice
- 4. Analgesia
- 5. X-ray of Shoulder
- 6. Physical Therapy Evaluation
- 7. MRI of Shoulder
- 8. Refer to Orthopedic Surgeon who specializes in Rotator Cuff Repairs, Find one in your Medical Community.
- 9. Follow up care after Surgery.

The Dislocated Shoulder

- The Glenoid Labrum
- SLAP TEARS (Superior Labrum Anterior-Posterior Tears)
- Bankart Tears
- Example of Drew Brees, Quarterback of the New Orleans Saints.

The Glenoid Labrum



SLAP TEARS

- Anatomy
- SLAP Tears
- A SLAP tear is an injury to the labrum of the shoulder, which is the ring of cartilage that surrounds the socket of the shoulder joint.
- Anatomy
- Your shoulder is a ball-and-socket joint made up of three bones: your upper arm bone (humerus), your shoulder blade (scapula), and your collarbone (clavicle).
- The head of your upper arm bone fits into a rounded socket in your shoulder blade. This socket is called the glenoid. Surrounding the outside edge of the glenoid is a rim of strong, fibrous tissue called the labrum. The labrum helps to deepen the socket and stabilize the shoulder joint. It also serves as an attachment point for many of the ligaments of the shoulder, as well as one of the tendons from the biceps muscle in the arm.
- The labrum deepens the socket of the shoulder joint, making it a stronger fit for the head of the humerus.

Causes of SLAP Tears

- Cause
- Injuries to the superior labrum can be caused by acute trauma or by repetitive shoulder motion. An acute SLAP injury may result from:
- A motor vehicle accident
- A fall onto an outstretched arm
- Forceful pulling on the arm, such as when trying to catch a heavy object
- Rapid or forceful movement of the arm when it is above the level of the shoulder
- Shoulder dislocation
- People who participate in repetitive overhead sports, such as throwing athletes or weightlifters, can experience labrum tears as a result of repeated shoulder motion.
- Many SLAP tears, however, are the result of a wearing down of the labrum that occurs slowly over time. In patients over 40 years of age, tearing or fraying of the superior labrum can be seen as a normal process of aging. This differs from an acute injury in a person under the age of 40.

FINDINGS IN SLAP TEARS

- Symptoms
- The common symptoms of a SLAP tear are similar to many other shoulder problems. They include:
- A sensation of locking, popping, catching, or grinding
- Pain with movement of the shoulder or with holding the shoulder in specific positions
- Pain with lifting objects, especially overhead
- Decrease in shoulder strength
- A feeling that the shoulder is going to "pop out of joint"
- Decreased range of motion
- Pitchers may notice a decrease in their throw velocity, or the feeling of having a "dead arm" after pitching

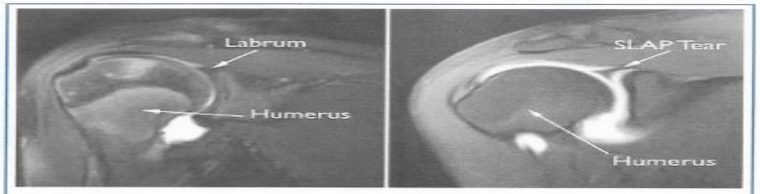
SLAP TEARS CONTINUED

- Doctor Examination
- ***Medical History***
- Your doctor will talk with you about your symptoms and when they first began. If you can remember a specific injury or activity that caused your shoulder pain, it can help your doctor diagnose your shoulder problem — although many patients may not remember a specific event. Any work activities or sports that aggravate your shoulder are also important to mention, as well as the location of the pain, and what treatment, if any, you have had.
- ***Physical Examination***
- During the physicial examination, your doctor will check the range of motion, strength, and stability of your shoulder.
- Your doctor will test your range of motion by having you move your arm in different directions.
- *Reproduced with permission from JF Sarwark, ed: Essentials of Musculoskeletal Care, ed 4. Rosemont, IL, American Academy of Orthopaedic Surgeons, 2010.*
- He or she may perform specific tests by placing your arm in different positions to reproduce your symptoms. Your doctor may also examine your neck and head to make sure that your pain is not coming from a "pinched nerve."
- The results of these tests will help your doctor decide if additional testing or imaging of your shoulder is necessary.

IMAGING FOR SLAP TEARS

- ***Imaging Tests***
- **X-rays.** This imaging test creates clear pictures of dense structures, like bone. The labrum of the shoulder is made of soft tissue so it will not show up on an x-ray. However, your doctor may order x-rays to make sure there are no other problems in your shoulder, such as arthritis or fractures.
- **Magnetic resonance imaging (MRI) scan.** This test can better show soft tissues like the labrum. To make a tear in the labrum show up more clearly on the MRI, a dye may be injected into your shoulder before the scan is taken.
- **(Left)** An MRI image of a healthy shoulder. **(Right)** This MRI image shows a tear in the labrum.

IMAGING SLAP TEARS



(Left) An MRI image of a healthy shoulder. **(Right)** This MRI image shows a tear in the labrum.

Treatment

Nonsurgical Treatment

In many cases, the initial treatment for a SLAP injury is nonsurgical. Treatment options may include:

Non-steroidal anti-inflammatory medication. Drugs like ibuprofen and naproxen reduce pain and swelling.

Physical therapy. Specific exercises will restore movement and strengthen your shoulder.

Flexibility and range-of-motion exercises will include stretching the shoulder capsule, which is the strong connective tissue that surrounds the joint. Exercises to strengthen the muscles that support your shoulder can relieve pain and prevent further injury. This exercise program can be continued anywhere from 3 to 6 months, and usually involves working with a qualified physical therapist.

Surgical Treatment

Your doctor may recommend surgery if your pain does not improve with nonsurgical methods.

Arthroscopy. The surgical technique most commonly used for repairing a SLAP injury is arthroscopy. During arthroscopy, your surgeon inserts a small camera, called an arthroscope, into your shoulder joint. The camera displays pictures on a television screen, and your surgeon uses these images to guide miniature surgical instruments.

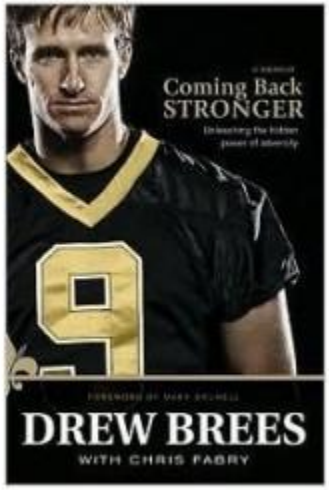
Because the arthroscope and surgical instruments are thin, your surgeon can use very small incisions (cuts), rather than the larger incision needed for standard, open surgery.

BANKART TEARS

- **Bankart lesion**

- **Bankart lesions** are a common complication of anterior shoulder dislocation and are frequently seen in association with a Hill-Sachs lesion.
- **Pathology**
- They result from detachment of the anterior inferior labrum from the underlyingglenoid as a direct result of the anteriorly dislocated humeral head compressing against the labrum. It may be labral only ("soft Bankart"), or involve the bony glenoid margin (impaction fracture) and this is called a "bony Bankart". Soft Bankart lesions are more common than bony Bankart lesions [5]. Additionally, labral tears may also be present.
- **Associations**
- The same mechanism of compression can result in a Hill-Sachs lesion. Bankart and Hill-Saches lesions are 11x more likely to occur together than be isolated injuries [5].
- **Variants**
- Perthes lesion of the shoulder: tear of the glenoid labrum, but with an intact scapular periosteum [2]
- anterior labroligamentous periosteal sleeve avulsion (ALPSA): mobilised labrum remains attached to the glenoid periosteum
- **Radiographic features**
- **Plain radiograph**
- bony Bankart lesion may be seen as a fracture of the anteroinferior aspect of the glenoid [4]
- **CT**
- on non-contrast CT, a fracture may be seen at the anteroinferior aspect of theglenoid (i.e. bony Bankart)
- CT arthrography may demonstrate labral avulsion (i.e. soft Bankart) [4]
- **MRI**
- displaced anterior glenoid labrum with bone
- linear high T2/PD intensity coursing through the normally low signal antero-inferior labrum
- abnormally small or absent anterior labrum [3]
- the double axillary pouch sign on coronal MR arthrogram is a specific sign for an anteroinferior labral tear
- **Treatment and prognosis**
- Bankart lesions do heal, and therefore early surgical intervention (if any) is not required. In Bankart repairs, the labral fragment is sutured back to the glenoid rim using suture anchors.
- **Differential diagnosis**
- A number of lesions are closely related have similar appearances, see anterior glenohumeral injury for discussion of the differences.
- **History and etymology**
- It is named after **Arthur Sydney Blundell Bankart**, British orthopedic surgeon.

DREW BREES CASE



DREW BREES ADVICE

- **Drew's advice**
- Drew has written an epilogue at the end of the book. In it he says that his purpose in writing the book was not to impress the reader about his career or about the Saints. He said his purpose was to inspire the reader to look at adversity, not as an enemy, but as an opportunity to find power and strength. He then leaves the reader with 11 pieces of advice:
- 1. Find a mentor and humble yourself to learn from them.
- 2. Don’t give up. If you get knocked down, get up.
- 3. Turn your defeats into triumphs.
- 4. Dream. Then mix the vision with hard work and commitment.
- 5. Hope. Believe in something bigger than yourself—specifically, God.
- 6. Be flexible to be able to see when you must change directions.
- 7. See adversity as an opportunity. God works everything together for good.
- 8. Don’t be afraid of taking a few steps back if needed to build momentum.
- 9. Don’t spectate—be ready for the next opportunity.
- 10. Remember who you are and have faith.
- 11. End strong—it’s not how you start but how you finish that counts.

CASE PRESENTATIONS

- 1. case of middle-aged Lady who has hurt since playing baseball
- 2. case of Laborer who can not raise his hand above his shoulder.
- 3. case of a younger Lady who chronically dislocates her shoulder 40 times a month
- 4. Your Cases
- 5. Comments and Questions?