



The Rounds on Rotator Cuff: *A Q&A on Consistent* Shoulder Pain

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Q: What is a rotator cuff tear?

A: The rotator cuff is comprised of four muscles, each having different movements and strengths. The tendons of these muscles come together prior to their insertion in the region of the greater tuberosity of the humerus.

The rotator cuff plays a key role in stabilizing the glenohumeral joint during shoulder movements. The muscles func-

tion along nearly all the axes of movement with varying intensity and the stabilization provided by the cuff minimizes translation, or sliding movements.

- *Complete tear:* Occurs when all the cuff layers are affected. While the resulting significant structural loss generally involves the supraspinous tendon, it may also involve one, two, or even three tendons.

Tears range from small to massive. It is surprising that many patients with structural damage to the cuff are entirely asymptomatic. In a study of asymptomatic volunteers aged 50 to 59, magnetic resonance revealed a 23% prevalence of partial or complete tear of the rotator cuff.² In fact, one study showed a 54% prevalence of rotator cuff tear among patients over 60.¹

Even today, we do not know exactly why one person with a torn rotator cuff will suffer, while someone else with a similar tear has no symptoms whatsoever.

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tion along nearly all the axes of movement with varying intensity and the stabilization provided by the cuff minimizes translation, or sliding movements.

The rotator cuff can be torn partially or completely.

- *Partial tear:* Occurs when some of the cuff's fibres or layers are torn on the joint



Table 1

Treatments for rotator cuff tears

Group	Treatment	Surgery
Tendonitis or Tendinosis	<ul style="list-style-type: none"> Strengthening muscle around medial and lateral shoulder rotators 	<ul style="list-style-type: none"> Limited to patients with signs of classic extra-articular or subacromial abutment after more than six to 12 months of treatment
Partial Cuff Tear	<ul style="list-style-type: none"> Treat conservatively; if conservative treatment fails, injury is likely to progress 	<ul style="list-style-type: none"> Arthroscopy with debridement and possibly acromioplasty (for smaller tears < 50% thick) Completing the tear and complete repair; for more significant tears (especially among young or active patients)
Complete Tear (single or number of tendons with major retraction and fatty)	<p>A- Young Active Patient</p> <ul style="list-style-type: none"> Treat conservatively <p>B- Older, inactive patients with significant cuff tear with retraction and onset of degenerative phenomena</p>	<p>A- Open or arthroscopic repair</p> <p>B-</p> <ul style="list-style-type: none"> Intra-articular debridement and debridement of the subacromial region with moderate acromioplasty and tuberplasty (if pain is significant) Arthroscopy is generally used to avoid destabilizing the humeral head or aggravating the problem secondarily

Q: What are the symptoms?

A:

In general, patients consult regarding pain in the anterolateral region of the shoulder. This pain usually increases with exertion and when the arm is in a position of sustained abduction, or is raised above shoulder level.

The patient may experience painful crepitations and frequently complain of being awakened during the night. "Relative" weakness may be attributed to the pain.

Symptoms vary considerably between patients. This symptomatology is influenced by certain factors,

including the importance of the tear and the compensation phenomenon, which provides the residual cuff with stabilization of the humeral head in its normal position.

The therapeutic decision must consider the individual's pain tolerance and the related psychosocial phenomena.

The symptomatology is influenced by the importance of the tear and the compensation phenomenon.



Q: What should I look for?

A: The physical examination allows the physician to distinguish pain that originates from the rotator cuff from pain caused by related pathologies. A complete exam of the scapular belt, including the cervical spine, is therefore required. It is necessary to check for the presence of a painful arc and subacromial crepitations. Alternating application of pressure in positions of abduction, medial rotation, and lateral rotation allows for pinpointing the pain's origin (cuff or trapezius).

This pain will often be exacerbated by specific tests (Neer's, Hawkins' or Jobe's manoeuvre).

When it is possible to relieve the pain caused by Neer's test (with eight to 10 cc of lidocaine injected subacromiously), the diagnosis of symptomatic impairment of the cuff becomes more likely. However, this test is not entirely precise.

Q: How should I investigate further?

A: The basic investigation remains radiography. Occasionally this procedure allows the physician to suspect a rotator cuff tear with a

Due to its sensitivity and specificity, MRI remains the best examination.

diminished acromiohumeral space, indirect signs of significant subacromial sclerosis, or a modified acromion.

Shoulder arthrography remains helpful in confirming the diagnosis, but is not instructive regarding the extent of the tear.

Increasingly precise echography often reveals whether there is a partial or complete tear.² Due to its sensitivity and specificity, magnetic resonance remains the best examination, allowing for a considerably accurate assessment of:

- the extent of the tear,
- the condition of the residual muscle, and
- the possible fatty degeneration.

Thus, it allows the physician to suggest a recuperation prognosis to the patient.

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Q: How should I treat this?

A:

The advantages and disadvantages of the different treatment options must be carefully explained to the patient.

When opting for conservative treatment, pain is relieved with a simple analgesic such as:

- acetaminophen,
- an anti-inflammatory, or
- a corticosteroid injection.

A program of rehabilitation exercises, based

on retraining the medial and lateral rotator muscles of the shoulder, can be useful. This allows the cuff to maintain glenohumeral stabilization and reduce subacromial rubbing.²

When conservative treatment proves ineffective, surgery relieves pain in 90% of cases.

When repair is possible, we also seek to improve function. In repairing the cuff, the orthopedist hopes to stop both the progression of the tear and any aggravation of the symptoms. It must therefore be emphasized that conservative treatment carries the risk of a reoccurrence of symptoms, a spread of the tear, and possible degenerative changes in the cuff over time.

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Take-home message



- Rotator cuff tears can be either partial or complete, and range from small to massive in size.
- Surprisingly, many patients with structural damage to the cuff are entirely asymptomatic.
- Conservative treatment relies on analgesics such as:
 - acetaminophen,
 - an anti-inflammatory, and
 - corticosteroid injection.
- Surgery is an option depending on the case at hand.

Q: What should I remember?

A:

We still do not know why certain patients with a tear become symptomatic, while others do not. However, we do know a cuff tear does not close spontaneously and that if the shoulder is not well compensated over time, through appropriate retraining, the disease may progress and the tear may thereby grow in size.

Since the cuff is a tendon, it may retract and form secondary adherence, rendering repair more difficult over time. When the torn cuff muscle is not used, muscular atrophy develops with secondary fatty degeneration, producing permanent changes.

When properly administered with appropriately selected patients, it allows for a significant improvement in symptomatology. **CME**

References

1. Tempelhof S, Rupp S, Seil R: Age-related prevalence of rotator cuff tears in asymptomatic shoulders. *J Shoulder Elbow Surg* 1999;8(4):296-9.
2. Lirette, R: Shoulder tendinitis. *Canadian Journal of CME*. August 1999.