Shoulder Rotator Cuff Pathology

Common Problems and Solutions

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KEYWORDS

• Rotator cuff repair • Retear • Stiffness • Adhesive capsulitis • SLAP lesion
• Biceps tendinitis • Septic arthritis

KEY POINTS

- There are many patient factors and technical factors which may increase the risk for retear.
- Dermal allograft augmentation or reverse total shoulder arthroplasty provide options for irreparable failed rotator cuff repairs.
- Always consider other sources of shoulder pain when evaluating a rotator cuff tear in order to rule out other pathology
- Infection should be considered in patients who have persistent pain postoperatively with no obvious source.

INTRODUCTION

Rotator cuff repair is one of the most common orthopedic procedures performed, with an estimated 200,000 to 300,000 cases worldwide each year.[1] An aging population and advancements in arthroscopic technique have led to a steady increase in the number of repairs performed annually. Although rotator cuff repair generally improves pain and function, studies have estimated a complication rate as high as 14%.[2] This review aims to outline the most common complications associated with arthroscopic rotator cuff repair, including retear, failure to heal, stiffness, failure to recognize concomitant pathology, and infection.

There are no personal conflicts of interests to disclose in the writing or publishing of this article.
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Clin Sports Med 37 (2018) 179–196
https://doi.org/10.1016/j.csm.2017.12.013 **sportsmed.theclinics.com**

RETEAR
Case Example

A 63-year-old right-hand-dominant man presented to clinic with 1 year of right shoulder pain after no inciting incident. His examination was notable for limited forward flexion and reduced strength on both supraspinatus and infraspinatus testing. MRI showed a full-thickness supraspinatus tear with retraction to the level of the acromion and mild fatty atrophy and a partial thickness subscapularis tear (Fig. 1A). He subsequently underwent arthroscopic repair of both the supraspinatus and subscapularis using a linked dual-row transosseous equivalent–type repair with knotless tape sutures (Fig. 1B). The patient was kept in a sling for 6 weeks total after surgery, with physical therapy beginning at 2 weeks postoperatively. He made excellent progress and was cleared to slowly resume work as a maintenance worker at 3 months after surgery. Four months after surgery, he felt a pop in his operative shoulder while lifting something at work. The examination was notable for reduced strength in both supraspinatus and infraspinatus testing. MRI showed a medially ruptured supraspinatus tendon with a healed footprint (type 2 failure) as well as interval development of a full-thickness infraspinatus tear. The anterior aspect of the supraspinatus and the subscapularis repair appeared to be intact (Fig. 1C). A revision rotator cuff repair was carried out using a single-row technique medialized to the margin of the footprint with margin convergence sutures (Fig. 1D).

One of the most important and potentially challenging complications after rotator cuff repair is retear of the repaired cuff. Historically, retear rates have been reported between 11% and 94%. The highest retear rate (94%) was found in a series of 18 patients who underwent arthroscopic repair of a massive rotator cuff tear.[3] The lowest retear rate (11%) was found in a prospective series of 105 consecutive shoulders undergoing arthroscopic double-row repair of the supraspinatus or supraspinatus and infraspinatus.[4] More recent studies have suggested that retear rates may actually be lower than previously thought, between 11% and 57%.[5] At any rate, retear of rotator cuff repair is a common complication.

Interestingly, many studies have suggested that rotator cuff repair provides a benefit to patients regardless of the repair integrity. For example, in the previously cited study with a 94% retear rate, patients had significant increases in pain and function at 12 months despite retear. At the 2-year follow-up, pain and function had deteriorated from the 12-month mark but were still higher than preoperative levels.[3] Several other studies have found similar results, both finding that postoperative cuff integrity has no significant effect on outcomes and that those with retear still show improvements in satisfaction, pain, and clinical function scores.[6,7]

Although data have failed to indicate that a retear of cuff repair leaves patients worse off than before surgery, most recent studies agree that intact repairs lead to better outcomes, especially over the longer-term. Kim and colleagues[8] found that among patients in their cohort with retears, all age groups had poorer satisfaction and American Shoulder and Elbow Surgeons' and Simple Shoulder Test scores compared with patients with no retear. In addition, they found that several demographic factors among patients with retears were associated with poorer outcomes. These factors included younger age, lower education level, and workers' compensation claim. Intact repairs have been correlated with more durable subjective and objective outcomes in other studies as well.[5]

A significant amount of research has been devoted to determining which patient factors and surgical techniques predispose one to a rotator cuff retear. Perhaps the most frequently implicated patient factor is advanced age. Although some studies have shown that age does correlate with higher retear rates, univariate analyses in other studies have failed to show significance. Other implicated patient factors have