Subacromial Internal Spacer for Rotator Cuff Tendon Repair: “The Balloon Technique”

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Abstract: Lateral reattachment of the rotator cuff and the more recent introduction of the double-row rotator cuff repair technique require adequate visualization to define the rotator cuff footprint and the greater tuberosity. In many cases extensive debridement in this area is required to remove the overlying subdeltoid bursa, which can impair visualization laterally on the proximal humerus. Inadequate visualization laterally may lead to improper placement of the lateral row of fixation, compromising the reduction and fixation of the repaired rotator cuff tendon. We describe a surgical technique used to improve lateral visualization of the proximal humerus for placement of lateral anchors during arthroscopic rotator cuff repair using a Foley catheter. The end of a 14F-diameter Foley catheter is cut just proximal to the balloon end. One to three catheters are introduced in the subacromial space through small anterolateral or posterolateral portals and inflated with 15 mL of air. Adequate distension of the subacromial space allows better visualization, triangulation of the arthroscopic instruments, and anatomic repair of the rotator cuff tendon. Key Words: Shoulder—Arthroscopy—Technique—Rotator cuff repair—Double row—Supraspinatus.

TECHNIQUE

Arthroscopic surgery of the subacromial space for rotator cuff repair requires adequate visualization and space. Lateral reduction, suture management, and fixation of the cuff are difficult in the subacromial and subdeltoid space because of the medial forces of the deltoid muscle, which compress the soft tissue toward the humerus. This report describes a new and simple method of deltoid retraction using a Foley catheter as a balloon to improve visualization in the subacromial space.

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hemostat just at the level of the skin. Fixation by pulling the tube and using the hemostat in this way helps to avoid leakage,\textsuperscript{1} to fix the balloon, and to retract the deltoid (Figs 4 and 5). The balloon can also be manipulated for better visualization during repair of the rotator cuff. The balloon may burst during surgery. If this happens, the catheter is simply replaced before completion of the rotator cuff repair.

**DISCUSSION**

Arthroscopic surgery of the subacromial space for rotator cuff repair and repairs by use of the recently introduced double-row technique require adequate visualization and space.\textsuperscript{2-5} Adequate distension of the subacromial space allows better visualization, triang-
lation of the arthroscopic instruments, and anatomic repair of the rotator cuff tendon.

Sartoretti et al.\textsuperscript{6} described the use of an angioplasty balloon catheter for ankle joint distraction during ankle arthroscopy in 11 patients. They reported satisfactory results, including sufficient distraction without any morbidity.

The Kyphon kyphoplasty balloon (Kyphon, Sunnyvale, CA) has also been used as a noninvasive controlled intra-articular distraction technique for ankle arthroscopy surgery.\textsuperscript{7} The authors reported no complications and easy manipulation of arthroscopic instruments.

Recently, the Expanula or Muscle Jack portal (Arthrex, Naples, FL) was introduced as a means to improve visualization of the subacromial space. These device can retract the deltoid muscle in a tight subacromial space and provides 1 to 2 cm of space in which to work.\textsuperscript{8} Overall, the Foley catheter technique is safe, simple, and cost-effective.
REFERENCES


