

Technical Note

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.

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.

TECHNIQUE

The angle between the deep side of the deltoid and the lateral cortex of the humerus is narrow. The balloon technique allows a better visualization of the subacromial space by increasing this angle (Fig 1). The location of one or more catheters is determined by the location of the rotator cuff tear and the area of exposure required for repair. The first step is to complete the subacromial decompression. The end of a 14F-diameter Foley catheter is then cut just proximal to the balloon end (Fig 2). The portals for insertion of the Foley catheters are established. These portals are typically 2 cm inferior to the corresponding instrument portals, established just off the anterior and posterior corners of the acromion superiorly (Fig 3). The anterolateral catheter is placed first, followed by the posterolateral catheter. After both catheters are confirmed to be in the correct location, they are inflated with 15 ± 5 mL of air. A third balloon can be placed when extensive visualization is needed during massive rotator repair. The outer segment of the catheter is held in place with traction by use of a Kocher

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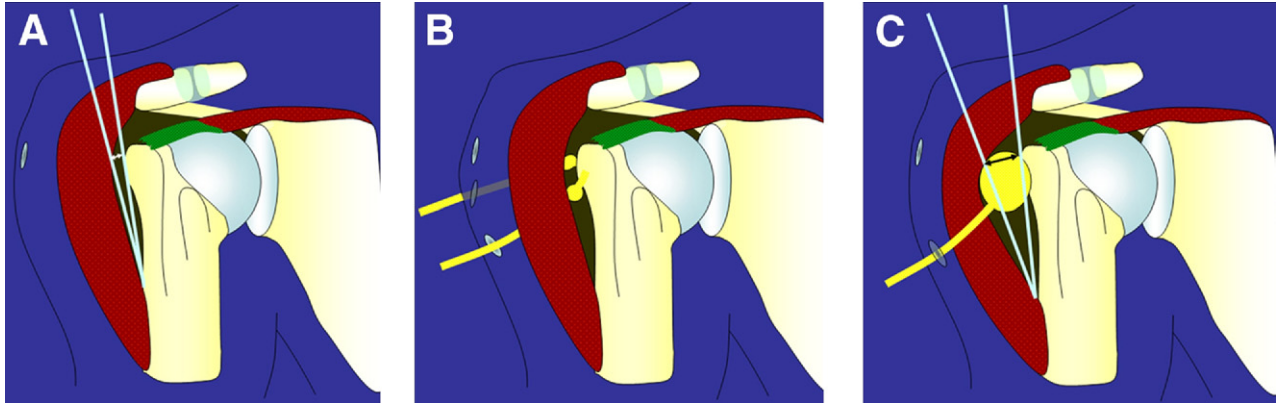


FIGURE 1. Principles of balloon technique used as an internal subdeltoïd distractor. (A) The subdeltoïd space is anatomically narrow. Two Foley catheters are introduced through small anterolateral and posterolateral portals (B) and inflated with 15 mL of air (C). The angle between the deep side of the deltoïd and the lateral cortex of the humerus is narrow. The balloon technique allows a better visualization of the subacromial space by increasing this angle.

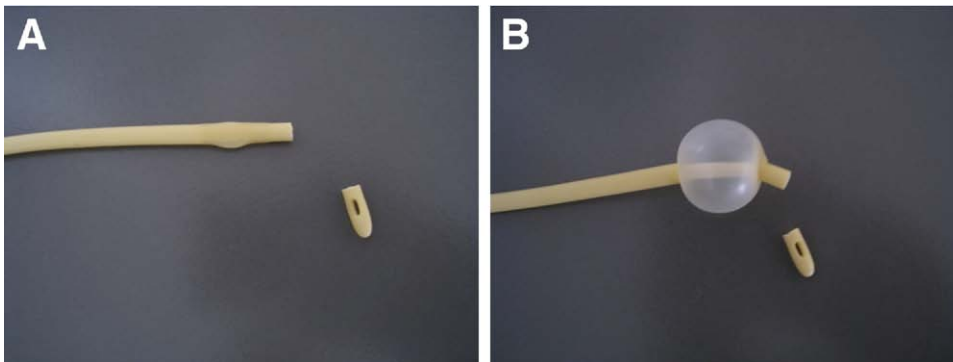


FIGURE 2. (A, B) The end of a 14F-diameter Foley catheter is cut just proximal to the balloon end.



FIGURE 3. The portals for the balloon are typically 2 cm inferior to the corresponding instrument portals, established just off the anterior and posterior corners of the acromion superiorly.

hemostat just at the level of the skin. Fixation by pulling the tube and using the hemostat in this way helps to avoid leakage,¹ to fix the balloon, and to retract the deltoïd (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.²⁻⁵ Adequate distension of the subacromial space allows better visualization, triangu-

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