

Anterolateral Mini-open Approach to Repair Rotator Cuff tears: Mini Review



Ricardo Monreal*

Medica Vial Orthopedic Clinic, Alvaro Obregon, Mexico

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***Corresponding author:** Ricardo Monreal, Medica Vial Orthopedic Clinic, Alvaro Obregon No.151, Mexico

Abstract

The rotator cuff tear was repaired by mini-open anterolateral approach using a single- or double row suture anchors technique. This technique represents a smaller deltoid-sparing version of standard open repair, preserving the deltoid origin by splitting the anterolateral raphe of the deltoid muscle and still allowing adequate exposure for rotator cuff repair. The purpose of this short review is to introduce the anterolateral approach for mini-open rotator cuff repair.

Introduction

With advances in shoulder arthroscopy, repair techniques for rotator cuff tear have evolved from open techniques to arthroscopically assisted mini-open techniques [1-4]. Its potential advantages include less postoperative pain, an extremely low deltoid morbidity and faster rehabilitation. Satisfactory clinical outcomes for mini-open technique have been well documented and compared favorably with those for open or arthroscopic repair technique [1,2,5,6] therefore many surgeons still consider the mini-open technique to be the gold standard for rotator cuff repair [3,4,6]. Mini-open repair with a lateral deltoid-splitting approach is commonly used and generally produces good long-term results but attempts to repair a large or massive tear can still lead to significant deltoid and axillary-nerve injury from excessive traction. Assessment of medially retracted tendons or subscapularis tears is also difficult. Although the anterior approach provides good visualization and avoids axillary nerve injury, whereas assessment of posterior cuff tears by the anterior approach is difficult [7-9]. Mini-open repair using modified deltoid-on approach preserving the deltoid origin by splitting the anterolateral raphe of the deltoid muscle and still allowing adequate exposure for rotator cuff repair [10].

Surgical Technique

With patients placed in the decubitus supine position and given general anesthesia, the rotator cuff tear was repaired by mini-open technique using an anterolateral approach. A 3- to 4-cm skin incision was made from the anterolateral edge of the acromion distally, and dissection was made to the raphe between

the anterior and middle deltoid (Figure 1). A stay suture was placed distally to prevent propagation of the deltoid split and potential injury to the axillary nerve. A deltoid retractor is placed for direct visualization of the rotator cuff and humeral head. As the torn tendon was tagged by traction sutures after removing the hypertrophic bursal tissue, the involvement and configuration of the torn tendon is confirmed and attempted anatomical reduction on the footprint of the greater tuberosity (Figure 2). After preparing the footprint using a ring curette or rasp, the torn tendon was repaired by single- or double row technique using suture anchors (Figure 3). If pathology of the long head of the biceps tendon was found, tenodesis was performed under direct visualization. Wearing an abduction brace, patients began pendulum and passive range-of-motion exercises one day after surgery. They began active range-of-motion exercises six weeks after surgery, muscle-strengthening exercises at three months and occupational or sports activities at six months (Figure 4).

Clinical Assessment

Clinical outcomes for all patients were evaluated using the American Shoulder and Elbow Surgery (ASES) scoring system (shoulder index: excellent ≥ 90 ; good 80-89; fair, 70-79; poor < 70) [11].

Conclusion

Anterolateral approach for mini-open rotator cuff repair produces satisfactory results. It may also provide better visualization for rotator cuff tears of all sizes.



Figure 1: A 3- to 4-cm skin incision was made distally from the anterolateral edge of the acromion, with dissection to the raphe between the anterior and middle deltoid.



Figure 2: Placement of traction sutures after removing the hypertrophic bursal tissue and direct visualization of the torn rotator cuff (RC) and humeral head (HH).

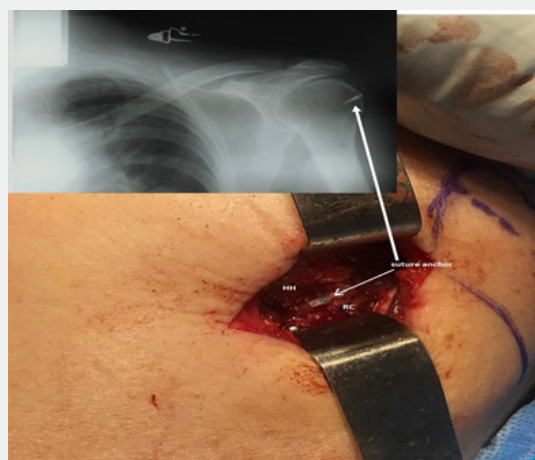


Figure 3: The torn tendon was repaired anatomically with single- or double row technique using suture anchors: Rotator cuff (RC) and humeral head (HH).



Figure 4: Clinical outcome: Shoulder index: excellent 92.

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