

Arthroscopic Treatment of Rotator Cuff Lesion

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Arthroscopic acromioplasty

- . resect the coracoacromial ligament
- . clear the bursa
- . flatten the acromion
- . resect the anterior protuberance
- . remove acromial osteophyte
- . resect ACJ, if needed

Goals of the arthroscopic treatment

- . relieve pain
- . restore the functional range of motion
- . improve the normal activity of daily living

Considerations

- . age
- . activity
- . integrity of RC
- . involvement of RC
- . operative technique

Options

- . arthroscopic acromioplasty

- . mini-open repair
 arthroscopic repair
 without repair

Advantages of arthroscopic acromioplasty

- . preserve the origin of the deltoid
- . reduce morbidity
- . start rehab sooner
- . inspect GHJ
- . identify asso. intra-articular lesion

Indications for arthroscopic acromioplasty

- . moderate or severe pain
- . persistent pain more than 6 months
- . unable to elevate the arm
- . positive impingement sign and test
- . curved or hooked type of the acromion
- . prominent anterior protuberance including the osteophyte
- . torn rotator cuff

Indications for rotator cuff repair

- . active patients
- . unable to elevate the arm
- . partial tear involving above 50% thickness or 3cm
- . small and large-sized full thickness tear
- . repairable massive tear

Indications for arthroscopic repair

- . less than 3cm
- . less retracted
- . mobile
- . good integrity of RC
- . good quality of GT

Indications for mini-open repair

- . 3cm to 5cm
- . retracted
- . less mobile
- . poor integrity of RC
- . osteoporotic GT

Technique

- . beach chair position
- . EUA

record the range of motion (FF, ERS, ERA, IRA and CBA)
feel crepitus or defect
check GH laxity

- . portals

posterior
anterior
lateral

- . control bleeding

hypotension
high-flow gravity elevation
epinephrine
pumping system
electrocautery

. inspection of GHJ

. entrance to subacromial bursa

anatomic location of subacromial bursa
lying anteriorly under the acromion
good visualization
posterior bursal curtain
fatty tissue btw. the bursa and acromion

do not insert too superior
do not insert too posterior

. coracoacromial ligament

release from anterior acromion with electrocautery or shaver
do not resect ligament
be sure to release to lateral aspect of acromion
be sure to release to CAL attached on the undersurface of ACJ

. excoriate soft tissue on the undersurface of acromion
remove soft tissue with shaver or electrocautery

. performance of acromioplasty
consider the acromial shape

- . type
- . anterior protuberance
- . Thickness
- . ACJ

acromioplasty burring

through the lateral portal
through the posterior portal

from lateral to medial
from anterior to posterior

- . flatten the undersurface of acromion (type I)
- . resect anterior edge of acromion to just behind the anterior aspect of ACJ
- . parallelize undersurface of the acromioplasty entirely to lateral margin
- . round off the anterolateral edge of the acromion
- . trim the undersurface of ACJ
- . arthroscopic repair

inspect the integrity and involvement of RC
mobilize the retracted RC
make trough on GT
capture sufficient soft tissue
make sure knot-tying tight

- . mini-open repair

split deltoid 2-4cm in the line with the lateral portal
create drill holes on trough
secure nonabsorbable suture

Rehabilitation

- . exercise program reviewed always prior to surgery
- . immediate passive ROM exercise
 - with patient-controlled anesthesia (PCA)
 - assisted forward flexion
 - assisted external rotation
- . active assisted ROM exercise after 4 weeks
- . active resisted ROM exercise after 6 weeks

Overall results

- . arthroscopic acromioplasty for stage II impingement

Esch (1988)	78% satisfied in 45 Pts
Altchek (1990)	83% in 24
Gartsman (1990)	88% in 89
Ellman (1991)	89% in 65

- . arthroscopic acromioplasty for rotator cuff tear (UCLA score)

Levy (1991)	84% success in 25 Pts
Burkhart (1993)	88% in 25
Zvijac (1993)	68% in 25
Ellman (1993)	55% in 40

. ASD only in FTRCT (Ellman & Kay,1993)

small sized (10)	90% satisfactory
large and repairable (8)	50%
irreparable (22)	86%

. open acromioplasty with rotator cuff debridement in irreparable massive tear (Rockwood & Burkhead,1995)

83 % satisfactory in 53 Pts
90% increased strength

. comparison of arthroscopic acromioplasty and surgical repair (Montgomery & Savoie,1994)

ASD	61 % satisfactory in 38 Pts
Open repair	78 % in 50

surgical repair of FTRCT provided results superior to those of arthroscopic debridement and subacromial decompression

. ASD with mini-open repair

Levy (1990)	80% success in 25 Pts
Paulos (1994)	88% in 18
Liu (1994)	82% in 44
Blevins & Warren (1996)	83% in 64

Algorithm

- . impingement syndrome - arthroscopic acromioplasty (ASD)

- . PTRCT- small, elderly, inactive - ASD
large, strenuous, active - ASD with arthroscopic or miniopen repair

- . FTRCT - small, less retracted, mobile - ASD with arthroscopic repair
large, retracted, less mobile - ASD with miniopen repair
massive, good integrity of RC, repairable
- open acromioplasty with open repair
massive, poor integrity of RC, irreparable, elderly, inactive
- only ASD

Summary

The arthroscopic treatment may prove to be the desirable method, but this arthroscopic technique cannot be applicable to all surgeons and all patients. It should be determined on the base of type of lesion, effectiveness of arthroscopic procedure, and the surgeon's skill. The Key to an excellent result in arthroscopic treatment of rotator cuff lesion is doing a proper diagnosis, well-established arthroscopic technique and following through a well-designed rehabilitation program.