A TECHNIQUE OF SUBACROMIAL DECOMPRESSION FOR OUTLET IMPINGEMENT BASED ON THE ARTHROSCOPIC CLASSIFICATION OF THE SUBACROMIAL SPACE

Said Kareem MD, Basim Fleega MD

Shoulder Service Global Orthopedic Clinic Giza Cairo, EGYPT

Aim

The determination of the appropriate amount of bone to resect is a common technical difficulty in performing arthroscopic subacromial decompression.
We describe a technique that simplifies the procedure while providing more precise bone resection and contouring in cases of outlet Impingement. This technique founded by the second Author, is based on arthroscopic classification of the subacromial space by using a special measuring needle device for measuring the subacromial space and monitoring the decompression.

Methods

The subacromial space is divided into four types based on arthroscopic measuring of the space between the anterior acromion and the rotator cuff (Type III space: no space, Type II: 1-6 mm, Type I: 6-12mm, Type 0: more than 12mm). 289 cases of outlet impingement had a subacromial decompression to achieve type 0 space. First, the coracoacromial ligament is released by sectioning the anterior margin of the acromion. An acromioplasty is then performed with the arthroscope in the posterior lateral portal and the burr in the lateral anterior portal. The cutter is rested against the acromion. Bone resection is done by sweeping the cutter from posterior to anterior progressively till the marking of 12 mm or more on the measuring needle is visualized.

SUBACROMIAL DECOMPRESSION FOR SUBACROMIAL NARROWING

SUPERIOR CAUSES

- Anterior 1/3 Acromion (95%Neer)
- Open Acromial Epiphysis
- AC-joint bone spurs
- Superior Coracoacromial ligament ossification
- Scapular rotation

INFERIOR CAUSES

- Calcium
- Greater Tuberosity Prominence
  - Malunion
  - Erbs Palsy deformity
  - Low head height after TSR
- Supraspinatus thickening

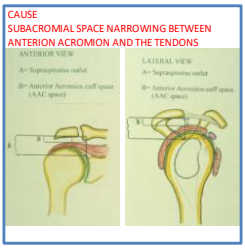
SHAPE OF THE ACROMION AND IMPINGEMENT

- Bigliani et al (1984)

Radiological Assessment (more in hooked acromion)

1- Flat
2- Curved
3- Hooked

- Cuff tear and impingement can hapen in all types aproximetly in equal proportions



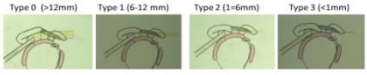
ARTHROSCOPIC STUDY OF THE SUB- ANTERIOR ACROMIAL ROTATOR CUFF SPACE (AAC-space) USING SPACE MEASURMENT

- Patient in a sitting position
- Arm is hanging
- Arthroscopic assessment
- Using measuring needles

- PURPUSE OF THE STUDY
- Relation between the size of a rotator cuff **tear** and shape of the acromion
  size of Rad. ant. acromiohumeral space (AH)
  size of the anterior acromion-cuff space (AAC)
- Relation between the shape of the acromion and the space between the ant.acromion and the cuff (AAC)
- Relation between the ant. acromion humeral space (AH-space) and the (AAC – space)

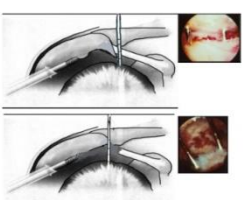
Classification of the Space between the anterior acromion and RC supraspinatus tendon AAC-space (410 cases)

Impingement taer	133
Impingement stage II	156
Calcium	97
Instability impingement	24

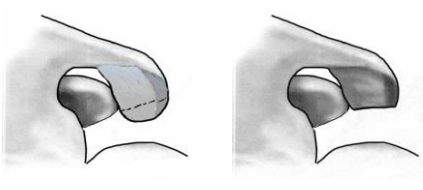


Pathology of the subacromial space and It's relation to impingement syndrome
Article
Journal of Shoulder and Elbow Surgery
Basim Fleega

MEASURE-BASED SUBACROMIAL DECOMPRESSION TECHNIQUE



REMOVAL OF THE ACROMION PROTUBERANCE IF PRESENT



Results

All the 289 cases with outlet impingement who had a standardized subacromial decompression were followed for more than ten years. All cases were satisfied with the surgery and had a normal shoulder function. This study showed no relation between the shape of the acromion or the radiological subacromionl space size and outlet impingement. A direct relation between impingement syndrome pathology and the arthroscopic subacromial space classification was found. No impingement was found in type 0.

RESULTS: 133 cases of Impingement tears

- Average x-ray measure AH- space ant.acromion h-head space — 7.9 mm (bet.1 and 15)
- Average AAC-space — 6.0 mm (bet. 0 and 15)
- Spur formation (ant.acromion) — 17/133 cases
- Flat — 28 %
- Curved — 38 %
- Hooked — 34 %

Conclusion

- No Subacromial Pathology when SPACE >12mm
- No relation between the shape of the acromion and the rotator cuff tear or the AAC-space
- No relation between the radiological AH-space and the rotator cuff tear or the AAC-space
- **Increased narrowing of the AAC-space is associated with increases in the incidence of rotator cuff tear**

Conclusions

Conclusion according to this study in treating outlet impingement syndrome the subacromial bone removed with an acromionizer with the patient in a sitting position has to be enough to create a space between the anterior acromion and the tendon of more than 1.2 cm (Type III space) .