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Suprascapular Nerve Arthroscopic Release Outcomes

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Summary:
Arthroscopic release of the suprascapular nerve is another therapeutic option for persistent shoulder pain in massive irreparable rotator cuff tears.

Abstract:
Introduction:
Suprascapular nerve (SSN) entrapment at the suprascapular notch is a well-known cause of persistent chronic shoulder pain in patients with irreparable massive rotator cuff tears. Exploration of the SSN and release of the superior transverse scapular ligament have recently been proposed as treatment, achieving good functional outcomes and pain relief.
Natsis classified suprascapular notches based on anatomic measurements of vertical and transverse diameters. According to him, types III, IV and V are more likely to cause a suprascapular nerve entrapment.
We performed an all-arthroscopic technique for SSN decompression and presented our outcomes for this procedure. We also correlated the Natsis' suprascapular notch classification with SSN entrapment.

Methods:
A series of 20 patients with massive rotator cuff tears and consistent findings for SSN compression were operated between May 2008 and November 2011.
All patients had undergone an unsuccessful physiotherapy for a minimum of 6 month.
All had MRI, EMG and positive SSN Stretch Test (Lafosse) confirming SSN entrapment.
Our surgical technique uses different portals from other authors, a 30º angled lens arthroscope and we do not use traction to the arm.
We use a postero-medial portal for releasing the SSN.
Using a calibrated probe we measured the transversal and vertical diameters of suprascapular notches so we can classify them as Natsis' types.
The clinical outcomes were assessed preoperative and 6 months after surgery with UCLA scale, SF-36, raw pain scale and Simple Shoulder Test.
Results were compared using the non-parametric Wilcoxon T test, with a level of significance of 0,1% (P<.001).

Results:
We operated 20 shoulders from 19 patients: 14 female and 5 male; 15 right and 5 left sided shoulders. Two patients had lost follow-up and were excluded.
The mean age was 65,50 year-old (range, 42 to 81). The mean follow-up was 32,60 months (range, 6 to 56 months).
All patients had an unsatisfactory preoperative UCLA (lower than 27).
The mean preoperative and postoperative UCLA scores had risen from 13,27 to 28,27 (P<.001).
All patients were satisfied with the surgery, except one, which had increased only 2 points in postoperative UCLA and graded her outcome as poor. This patient had a Natsis type II notch.
Fourteen out of seventeen patients (82,35%) had satisfactory postoperative UCLA score (greater than 27).
The two patients, whose postoperative UCLA were below 27, rated their surgical outcome as good (satisfied). Both

had a preoperative UCLA lower than 8. We believe these cases were more severe and, in spite of having elevation ROM above 70 degree, would have probably been a better indication for reverse total shoulder prosthesis.
The raw pain scale improvement was 86,07% (P<.001) and the mean
postoperative SF-36 was 122,90 (P>.001).
The mean postoperative Simple Shoulder Test was 8,84 (P<.001).
We performed 10 arthroscopic Mumphord procedures and 11 biceps tenodesis in association with the SSN release.
We found one Natsis Type II notch (transverse diameter greater than vertical), fifteen Type III (vertical diameter greater) and two Type IV (osseous foramen).

Conclusion:
Arthroscopic release of the SSN can be performed and reproduced safely and effectively. It is another therapeutic option for persistent shoulder pain in massive irreparable rotator cuff tears with the benefits of been minimally invasive and having a nice esthetic outcomes.
SSN release seems to be related to the anatomic aspect of the suprascapular notch. Natsis believes notches types III, IV and V are more likely to SSN entrapment.
We confirmed that in our study. We found 94,44% notches types III and IV in our series.
The only Natsis type II notch in our study had a poor outcome. We believe there was a misdiagnose at this case. Despite of the positive electromyographic findings for SSN entrapment, the pain origin might not had been the SSN entrapment, but arthrosis.
Probably type II notches are a contraindication to SSN decompression.
Further controlled studies comparing biceps tenodesis, arthroscopic Mumphord and SSN release will be necessary to identify which association of procedures has the better outcome.