Outcomes of Arthroscopic Dorsal Scapular Nerve Decompression

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Introduction: Medial scapular border pain refractory to conservative management can be debilitating. Compression of the dorsal scapular nerve (DSN) is a potential cause of pain and can be associated with abnormal scapular motion such as from pectoralis minor syndrome, or scapulothoracic bursitis and snapping scapula syndrome. Our hypothesis is that arthroscopic DSN decompression is effective at improving medial scapular border pain.

Materials & Methods: A retrospective chart review was performed of all patients diagnosed with persistent medial scapular border pain and receiving arthroscopic DSN decompression at a single institution, performed by two surgeons between 2020 and 2024. Patient demographics and patient pre-and post-operative patient reported outcome measures (PROMs) were collected.

Results: Forty-nine patients receiving arthroscopic DSN decompression were identified and included for analysis. The average follow-up was 24.1 +/- 13.3 months and the average patient age was 42.7 +/-16.3 years. Nineteen (n=19/49; 38.8%) had prior ipsilateral shoulder surgery including labral repair (n=5/19; 26.3%), thoracic outlet decompression including pectoralis minor release and/or rib resection (n=7/19; 36.8%), axillary neurolysis (n=2/19; 10.5%), rotator cuff repair (n=2/19; 10.5%), scapulothoracic decompression (n=2/19; 10.5%), and acromioclavicular (AC) joint reconstruction (n=1/19; 5.2%). Twenty-six (n=26/49; 53.1%) patients received concomitant arthroscopic pectoralis minor release, thirty (n=41/49; 83.7%) arthroscopic scapulothoracic decompression, and six (n=6;49; 12.2%) arthroscopic superomedial border scapula resections. Visual analog pain scores (VAS) (8.1 +/- 1.9 vs 4.2 +/- 3.0; $p<0.001$) and subjective shoulder value (SSV) (38.5 +/- 20.5% vs 88.0 +/- 4.5%; p=0.05) significantly improved after surgery. Patient PROMIS short form (SF) 7a (35.2 +/- 11.2 vs 34.2 +/- 6.5; p=0.64), PROMIS global physical (41.4 +/- 10.6 vs 38.2 +/- 6.5; p=0.71), PROMIS mental health (45.1 +/- 13.4 vs 46.1 +/- 8.9; p=0.67) and quick disabilities arm, shoulder, and hand (qDASH) (47.7 +/- 28.8 vs 50.1 +/- 22.2; p=1.0) did not significantly change. Measured shoulder abduction (118 +/- 34 vs 130 +/- 22; p=0.02) significantly improved after surgery, while forward elevation (140 +/- 43 vs 147 +/- 23; p=0.17), external rotation (ER) (57 +/- 17 vs 56 +/- 7; p=0.90), and internal rotation (IR) (T11 +/- 3 levels vs T12 +/- 3 levels; p=0.56) were unchanged. There were four complications characterized as persistent pain (n=4/49; 8.1%). There was no predictive patient (age, body mass index (BMI), American Society of Anesthesiologists (ASA) score, smoking status, diabetes, sex, prior ipsilateral surgery, injection prior to surgery) or surgical (operating room time) factors predisposing to surgical complications using logistic regression.

Discussion: Dorsal scapular nerve compression is an unrecognized cause of medial scapular border pain. Arthroscopic decompression in the scapulothoracic space improves pain and PROMs with minimal complication rates. Further study is required to determine long term pain relief.