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Thickening of the Middle Glenohumeral Ligament as a Risk Factor for Subscapularis Tendon Tears: An Arthroscopic Analysis

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Introduction and Background

The middle glenohumeral ligament (MGHL) demonstrates various anatomical variations, including thickening, which may be associated with subscapularis tendon tears. However, a comparative arthroscopic study investigating this relationship has been lacking. This study aims to evaluate the association between MGHL thickening and subscapularis tendon tears and to assess the potential benefit of prophylactic MGHL resection.

Material and Method

We conducted a cross-sectional study of 119 patients who underwent arthroscopic shoulder surgery between 2021 and 2024. Patients were categorized based on MGHL morphology into thick-MGHL and thin-MGHL groups. The presence of subscapularis tendon tears and other arthroscopic findings, including SLAP lesions, subacromial impingement, supraspinatus tears, and long head of the biceps (LHB) tears, were analyzed. Chi-square tests and multivariate ANOVA were used for statistical analysis, with a significance threshold of $P < 0.05$.

Results

Thick-MGHL was observed in 56.3% (67/119) of patients. A statistically significant association was found between thick-MGHL and subscapularis tendon tears compared with thin-MGHL (67.2% vs. 44.2%, $P = 0.02$; OR = 2.58; 95% CI: 1.22–5.45). Thickened MGHL was also significantly associated with subcoracoid soft tissue impingement, observed in 50.7% of patients with thickened MGHL compared to 28.8% with thin MGHL ($P = 0.016$). Subscapularis tears were also significantly associated with increasing age, LHB tears, supraspinatus tears, and subacromial bursitis. No significant associations were found between thick-MGHL and SLAP lesions, LHB tears, supraspinatus tears, or adhesive capsulitis.

Conclusions

MGHL thickening is significantly associated with subscapularis tendon tears. Prophylactic arthroscopic MGHL resection may be considered in patients with thickened MGHL to reduce the risk of future subscapularis tendon pathology.

