The Coracoacromial Falx
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Introduction: The coracoacromial ligament (CAL) extends between the anterior margin of the acromion and posterior aspect of the coracoid process (Galino et al., 1995). Previous studies have noted that the lateral band of the CAL is continuous with fibres of the joint tendon of coracobrachialis and the short head of the biceps: this is the coracoacromial falx (CAF) (Brodie, 1890; Fealy et al., 2005; Hunt et al., 2000 and Renoux et al., 1986) (Figure 1).

The CAL plays an important role in the development of subacromial impingement syndrome, especially in patients lacking bony abnormalities (Fremerey & Bastian, 2000). As a result, the CAL is resected during arthroscopic acromioplasty to relieve the impingement (Neer, 1972).

Aim: The purpose of this study was to determine whether a relationship exists between the coracoacromial falx and CAL morphology or impingement syndrome

Method: Dissection was undertaken on 147 shoulders, the median age was 82 years (range 37 to 102 years). There were 40 male and 41 female cadavers. Twenty shoulders were discarded due to either damage to the CAL or the joint tendon lateral to the coracoid process. The remaining 127 shoulders were examined for presence of CAF, ligament type of CAL, and presence of rotator cuff tendon tear.

In addition, callipers and a goniometer were used to measure the width of CAF at the posterolateral corner of the coracoid process, CAL dimensions, lateral deviation angle of acromion, and anterior deviation of the coracoid. The data were collected and analysed using Sigma Plot statistical programs with P<0.05 considered as being statistically significant.

Results: The CAF was found in 65 (51%) of the specimens with an average width 4.68 mm. It was continuous with the short head of the biceps at the lateral aspect of the coracoid process. A greater CAF incidence was found in males (36) than females (29), and on the left (35) than the right (30). Nine specimens were rejected due to damage to one or other shoulder, following which the CAF was observed bilaterally in 48 (74%) specimens and unilaterally in 8 (12%) specimens. Regarding the type of CAL, the CAF was found most commonly in shoulders with multiple-banded CAL (Figure 2).

In only 78 of 127 shoulders could the rotator cuff tendons be examined for the presence of tear. The CAF was found in 51 of these shoulders. A rotator cuff tear was present in 28 (55%) shoulders with CAF compared to 10 (37%) shoulders without CAF.

Finally, no significant difference was found in the average width of CAF regarding sex, side, type of CAL, and presence or absence of rotator cuff tendon tear. However, the ratio of CAL attachment width to coracoid length and the lateral deviation angle of the acromion were significantly increased in shoulders with CAF (P< .05).

Conclusion: The CAF was found more commonly in shoulders presenting with a multiple-banded ligament type of CAL.

Higher incidences of rotator cuff tear were found in shoulders with CAF than in shoulders without CAF.

Finally, attention should be paid to the coracoacromial falx during surgery.

References:

Figure 1. Coracoacromial falx present as connection of the coracoacromial ligament to the short head of biceps.

Figure 2: The incidence of coracoacromial falx (CAF) regarding types of coracoacromial ligament (CAL).