Normal variants of the bicipitolabral complex in MRI of the shoulder

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Citation

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Abstract

Variants of the bicipitolabral complex in MR imaging of the shoulder are important to recognise due to their close simulation of labral tears. Three types of the same are described.

CASE REPORT

We report a series of three patients who presented with varying symptomatologies in relation to the shoulder joint and underwent MR imaging for the same. Incidental normal variants of the bicipitolabral complex were identified and are presented. The paucity of data concerning this stimulated our interest in this report.

DISCUSSION

Variants of the bicipitolabral complex in the shoulder are important to recognise due to their close simulation of labral tears. The superior labrum is a vital structure and functions in the stability of the glenohumeral joint along with the biceps tendon with which it is continuous (the bicipitolabral complex or BLC). Above the epiphyseal line the attachment of the glenoid labrum is variable. Inferior to the epiphysis, the labrum is continuous with the glenoid cartilage anchors the insertion of the inferior glenohumeral ligament (IGHL). The anterosuperior portion of the labrum can be variably attached to the glenoid [$_1$] There are three different types of attachment of the BLC to the glenoid [$_2$]

Type 1 BLC (Figure 1) The BLC is firmly attached to the superior pole of the glenoid. There is no associated sublabral foramen in the anterosuperior quadrant.

Type 2 BLC (Figure 2): The BLC is attached medial to the sagittal plane of the glenoid. This configuration has a small sulcus at the superior pole of the glenoid with partial peripheral detachment: the sulcus may be continuous with the more anterior variation of a sublabral foramen and communicate with the subscapularis bursa.[$_1$] This type of BLC attachment has a triangular superior labrum and a free central edge.

Type 3 BLC (Figure 3): The labrum is meniscoid in shape and has a large sulcus that projects under the labrum and over the cartilaginous pole of the glenoid.

Figure 1

Figure 1: Axial MR -T2 SPAIR fat suppressed sequence showing a type 1 bicipitolabral complex

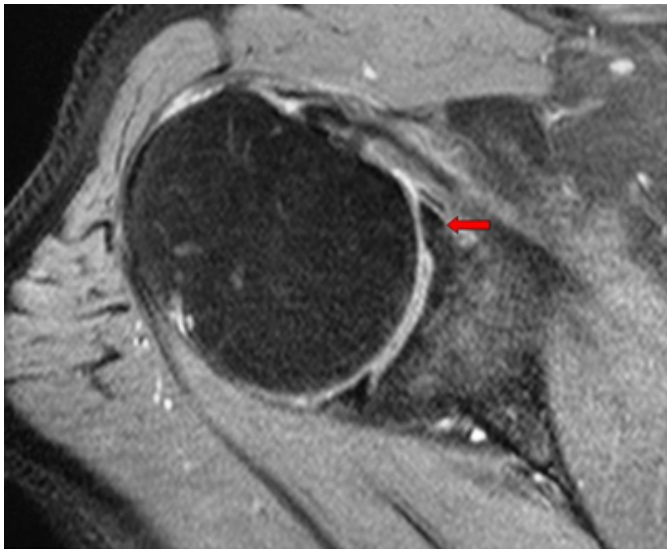


Figure 2

Figure 2: Axial MR -T2 SPAIR fat suppressed sequence showing a type 2 bicipitolabral complex with partial peripheral detachment.

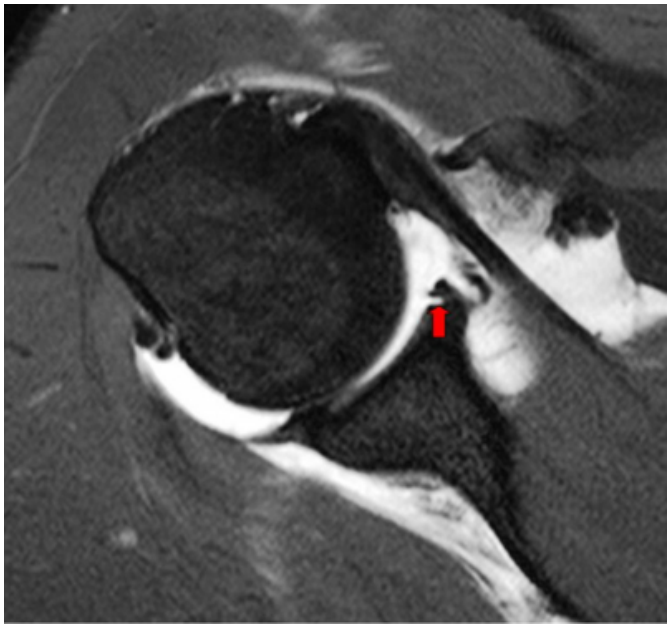
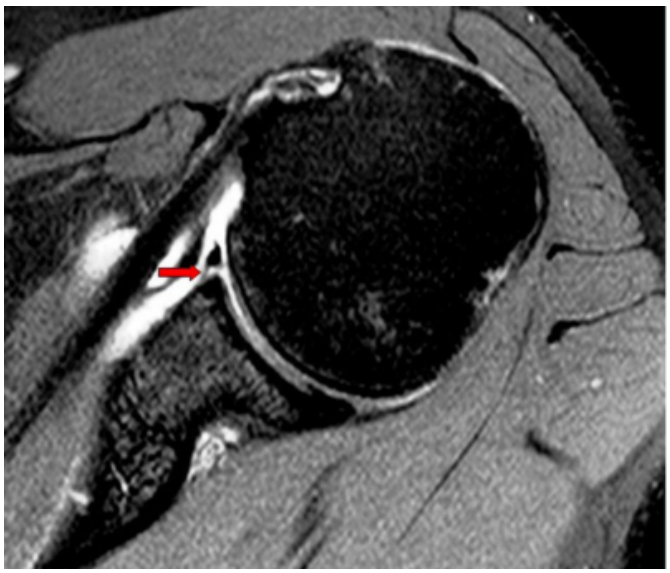


Figure 3

Figure 3: Axial MR -T2 SPAIR fat suppressed sequence showing a type 3 bicipitolabral complex with a complete sublabral foramen



Cadaveric studies done in the past indicate that the presence of an unattached anterosuperior labrum and loose attachment of the superior labrum, referred to as a sublabral hole and a sublabral recess, are often incidentally encountered, with frequencies of up to 73% [34]. The anteroposterior extension of sublabral recesses is controversial and has been subject to much debate in the past.[5] Kreitner et al. [3]said that sublabral recesses are confined to the anterosuperior labrum and extension posterior to the biceps anchor should be regarded as an imaging criterion of a SLAP lesion. Some other authors described the posterior extension of sublabral recesses as a normal variant [4].

Postulated distinction criteria between a sublabral recess and a SLAP lesion are as suggested: a sublabral recess is defined as a sulcus with smooth borders and medial extension between the superior labrum and the bony glenoid, whereas extension of a labral tear into the superior labrum with lateral or superior extension is diagnostic of a SLAP lesion. [5]. Sublabral holes are characterised by an unattached anterosuperior labrum (10 to 12 o'clock) in contrast to the loose attachment of the superior labrum in sublabral recesses. [5]. Detailed studies to differentiate the two are required.

In summary, the attachment of the superior labrum to the glenoid rim and bicipito labral complex shows a great variability and it is important for radiologists to bear this in mind in routine practice to avoid mistaking the above for labral pathology.

References

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