

Long biceps tendon: normal position, shape, and orientation in its groove in neutral position and external and internal rotation

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PURPOSE

To characterize the position, shape, and orientation of the long biceps tendon (LBT) on transverse magnetic resonance (MR) images acquired in neutral position and in maximal external and internal rotation of the shoulder in asymptomatic volunteers.

MATERIALS AND METHODS

Informed consent was obtained from all volunteers for this institutional review board-approved study. Fifty-three asymptomatic volunteers (mean age, 33 years; age range, 21-58 years) were included. The position of the LBT with respect to the bicipital groove was measured by two musculoskeletal radiologists on three levels along the bicipital groove on axial MR images in neutral position and in external and internal rotation of the shoulder. The shape of the LBT was classified as round, oval, flat, or comma shaped, and the orientation of the LBT was measured.

RESULTS

The position of the LBT changed significantly at the entrance into the bicipital groove in the mediolateral and anteroposterior directions ($P < .01$). The changes of LBT position in external rotation and internal rotation compared with the neutral position were markedly small (< 1.5 mm). Medial eccentricity of the LBT was greatest in the neutral shoulder position at all measurement levels. Differences in LBT shape and orientation were found between the neutral position and external or internal rotation and between the three measurement levels.

CONCLUSION

The position of the LBT is only slightly dependent on shoulder rotation. LBT eccentricity is maximal in the neutral position. Rotational misplacement during image acquisition does not increase LBT eccentricity.

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