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Anatomical Study to Indicate Landmarks Around the Glenoid for Improving the Learning Curve of the Shoulder Arthroscopy

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Summary:

This is an anatomical study for indicating the landmarks of the shoulder arthroscopy, which are shown by the clock time position of the right glenoid; center of the attachment of the long tendon 11:59, anterior edge of the supraspinatus 11:59, posterior edge of the coracoid process 12:13, etc. The distance from the labrum surface to spinoglenoid notch was 23.17mm irrespective of the scapula size.

Abstract:

Introduction:

The view field of the arthroscopy is intrinsically limited and surgeons must expect hidden surrounding structures. It should be one of the reasons the shoulder arthroscopy is difficult for beginners. The purpose of this anatomical study was to propose several spots indicating the location of structures around the glenoid in order for beginners of the shoulder arthroscopy to improve their skill.

Material and Method:

The scapula of 15 embalmed shoulders (average age 82.2) was removed and the clock time position of several structures around the glenoid was measured in units of 30 minutes according to our original reference. In addition, the distances from the labrum surface to spinoglenoid notch and from the superior angle of the scapula to the inferior one were measured by standard calipers. The correlation between these two distances was evaluated by Pearson correlation coefficient. All measurements were performed by two independent examiners. Interobserver variability of structure locations around the glenoid and the two distances were evaluated by kappa statistic and intraclass correlation coefficient respectively.

Result:

The average clock time positions of several structures around the glenoid were shown below as viewed in the right shoulder; center of the attachment of the long tendon 11:59, anterior edge of the supraspinatus 11:59, border of the supra and infraspinatus 10:27, superior edge of the subscapularis 1:03, , border of the infraspinatus and teres minor 7:43, inferior edge of the teres minor 6:21, inferior edge of the subscapularis 5:27, anterior edge of the coracoid process 1:25, posterior edge of the coracoid process 12:13, center of the scapula spine 10:06. Kappa statistic of the results was ranged from 0.45 to 0.88 and they were considered reproducible. The average distance from the labrum surface to spinoglenoid notch was 23.17mm, and the distance from the superior to inferior angle was 144.93mm. Pearson correlation coefficient of these distances was 0.007, and the correlation was not admitted between them. Intraclass correlation coefficients of the measured two distances were 0.771 and 0.996, and the results were considered reproducible.



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Discussion:

This study can be applied for arthroscopic shoulder surgeries. According to our result, for example, the anterior edge of the supraspinatus should be just above the center of the long tendon attachment and the posterior edge of the coracoid process should exist a little more anteriorly to them. As surgeons make sure of the long tendon anchor and the coracoid process by watching and probing, they can imagine the location of the anterior edge of the supraspinatus. Therefore in rotator cuff repair they can safely start at the portion to detach the torn supraspinatus from the scapula neck and proceed posteriorly. Furthermore, this study showed that the distance between the surface of the labrum and spinoglenoid notch is about 23mm irrespective of the size of the scapula, and the result should be profitable for avoiding surgeons from injuring the suprascapular nerve running at the spinoglenoid notch. The current study should be useful for beginners of the shoulder arthroscopy to improve their learning curve.