

Arthroscopic perspective of the axillary nerve in relation to the glenoid and arm position: A cadaver study

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Purpose

To describe the morphologic features of the axillary nerve and its relationship to the glenoid under true arthroscopic setup, and to determine the changes in nerve position according to different arm positions.

Methods

Twenty-three fresh-frozen four-quarter cadaveric shoulder specimens were used for evaluations in arthroscopic setup with lateral decubitus position. The main trunk of axillary nerve with or without some of its branches was exposed after careful arthroscopic dissection. Morphologic features and course of the axillary nerve from the anterior and posterior portal were documented. The closest distances from the glenoid rim were measured using a probe by distance range system. The changes in nerve position were determined in four different arm positions. At the end of arthroscopic examination the nerves were marked and verified by open dissections.

Results

The axillary nerve appeared in the joint near inferior edge of the subscapularis muscle. With reference to inferior glenoid rim horizontally, the nerve ran with the mean 23° running angle (α , $14\sim 41\pm 8^\circ$). The closest points from the glenoid were between 5:30~6:00 (right) or 6:00~6:30 (left) o'clock position. The closest distance range varied from 10~25 mm in neutral arm position. Abduction-neutral position helped the nerve move away from the glenoid most.

Conclusions

The axillary nerve entered the arthroscopic field around the 4:00 (right) or 8:00 (left) o'clock position just below the subscapularis muscle and passed the inferior glenoid rim with a mean angle of 23° and distance of 10~25 mm near the 6:00 o'clock position. Abduction-neutral position seemed to be most practical position in performing arthroscopic anteroinferior procedure, which made the axillary nerve most far away from the glenoid and provided maximum intraarticular space.

Clinical Relevance

This study gives some practical knowledge on the course of axillary nerve during arthroscopic procedures.

Key Words: Anatomy, Arthroscopy, Axillary nerve, Glenoid, Cadaver Shoulder