HYPOTHESIS

Axillary nerve dissection is uneasy due to its specific course: forward to the shoulder in the medial part and backward to the shoulder in the lateral part. Indeed, an open neurolysis may necessitate 2 approaches, an anterior and a posterior one.\textsuperscript{1,2,3,4}

Our objectives were:
- to precise the arthroscopic anatomy and anatomic relations of the axillary nerve all along its course (origin from the posterior cord, passage through the quadrangular space, final sensitive and motor divisions)
- performing a full arthroscopic release

METHODS

6 specimens were used on both sides (n=12).
All measurements were performed in casual shoulder arthroscopy conditions; a beach chair position, a 50mmHg pump pressure, a 4mm arthroscope, a graduated probe for measuring. We used 7 arthroscopic portals (3 dorsals and 4 volars).
The observational margin of error was 1mm. (5 measurements with 3 surgeons)
Analysis criteria were:
- anatomic nerve relations, distance to the nerve were measured with the probe from various spots (coracoid process, humerus, insertion of the sub-scapularis tendon...)
- influences of pectoralis minor tenotomy and external rotation on the shortest distance from the coracoid to the nerve were measured
- numbers and positions of the terminal divisions

RESULTS

The origin of the nerve from the posterior cord was 4 cm (3.6-4.7) medial to the coracoid process. The nerve passes 15mm (13-18) from the inferior-medial edge of the coracoid process, which is the shortest distance. The nerve crosses beneath the sub-scapularis muscle 4.5cm (4-5.2) medial to the sub-scapularis tendon insertion.
After pectoralis minor tenotomy, the distance from the coracoid to the nerve increased of 3mm (1-4).
External rotation of the shoulder didn’t influence the distance from the coracoid to the nerve (<1mm).
None division was observed proximal to the quadrangular space. There were at least 3 final divisions in all specimens, 4 divisions in 10 cases.

SUMMARY POINT

Applications of this anatomical work are various:
-making the anterior shoulder surgery safer, especially the arthroscopic Latarjet
-simplifying the surgery of the axillary nerve by enabling arthroscopic nerve
assessment and full release

Photos:

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