

ORAL PRESENTATION 3-3

신경근육재활 및 전기진단

발표일시 및 장소 : 10 월 19 일(토) 14:00-14:10 Room C(5F)

OP3-3-1

The relationship between medial head of triceps brachii and ulnar nerve excursion at the elbow

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Introduction

The ulnar nerve tends to move to the anteromedial side and flattened as the elbow is flexed. Hypertrophy of the triceps brachii muscle was associated with the ulnar nerve dislocation at the elbow. Previous studies only have focused on the triceps brachii muscle. But the ulnar nerve transverse the medial intermuscular septum in the upper arm and pass through anterior to the medial head of the triceps muscle. Thus medial head of triceps brachii maybe influence the movement of ulnar nerve at the elbow. The aim of this study was to evaluate that ulnar nerve disposition at the elbow will be more relevant to the medial head of triceps brachii muscle than entire triceps brachii muscle.

Methods

Total 15 healthy volunteers were enrolled in this study and we reviewed 30 arms of those. The exclusion criteria were: (1) impairment of sensory function (2) weakness of muscles innervated by the ulnar nerve (3) history of upper extremity trauma (4) peripheral neuropathy. All arms of those are received sonographic assessment: the ultrasonographic parameters of the ulnar nerve were measured with the elbow in the three different positions: extension, 90-degree flexion, maximal flexion. And those parameters are ulnar CSA, flattening ratio and horizontal distance from the medial epicondyle tip to the medial margin of the ulnar nerve. The thickness of triceps brachii muscle is measured in elbow extension position. The thickness medial head of triceps brachii muscle is measured in elbow 90-degree flexion position, when the transducer is placed in the horizontal plane of medial epicondyle. (Fig. 1) The length of the ulnar nerve movement was calculated as the difference in horizontal distance from the tip of medial epicondyle to the middle of the ulnar nerve at each position.

Results

The mean cross-sectional area (CSA) were 8.17 mm², 7.45 mm² and 7.75 mm², respectively, according to position. The mean flattening ratio (FR) were 1.36, 1.71 and 1.81 respectively, according to position. (Table. 1) The movement of the ulnar nerve were more significantly

correlated with medial head of triceps brachii thickness than triceps brachii muscles thickness. (Fig. 2)

Conclusion

Our data suggest that the thicker medial head of triceps brachii muscle, the more the movement of the ulnar nerve as the elbow is flexed. And Hypertrophy of medial head of triceps brachii can be potential mechanism for subluxation or dislocation of ulnar nerve.

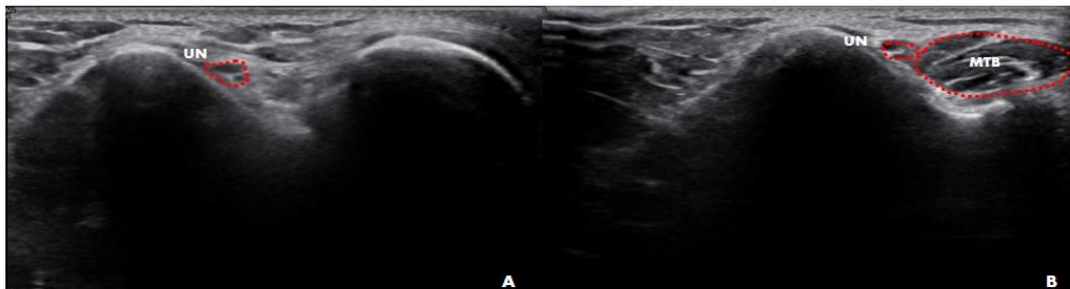


Fig1. Sonographic view of ulnar nerve and medial head of triceps brachii

A: Elbow extension, B: Elbow 90 degree flexion

UN = ulnar nerve, MTB = medial head of triceps

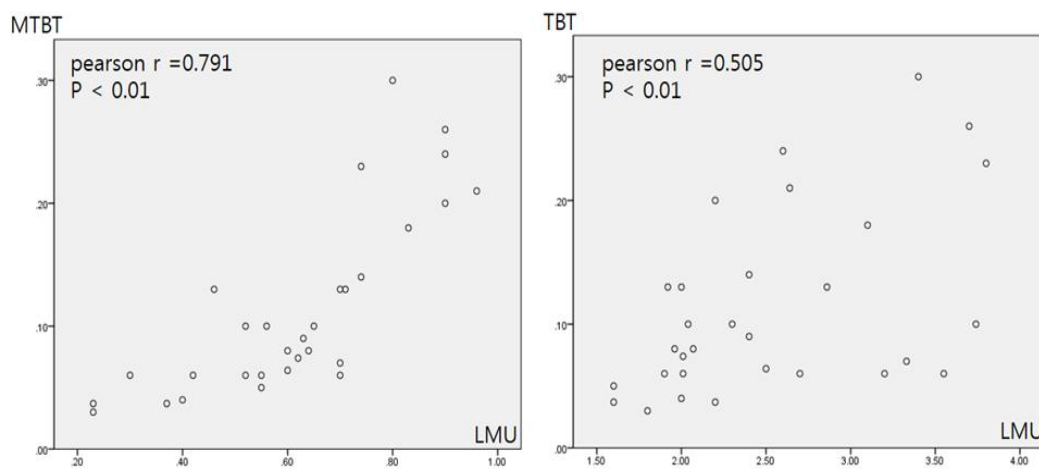


Figure 2. Correlation of ulnar nerve movement with triceps brachii mass and medial head of triceps brachii muscle mass

MTBT: medial head of triceps brachii thickness, TBT: triceps brachii thickness, LMU: length of ulnar movement

Table 1. CSA and FR of ulnar nerve in the each position

	Extension	90° flexion	Maximal flexion
CSA(mm ²)	8.17	7.45	7.75
FR	1.36	1.71	1.81

CSA: cross sectional area, FR: flattening ratio