

뇌신경재활

발표일시 및 장소 : 10 월 27 일(토) 10:40-10:50 Room C(5F)

OP2-3-5

Ultrasound guided needle insertion technique into the cricopharyngeus muscle

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BACKGROUND

Although cricopharyngeus muscle (CP) electromyography is used for diagnosis of swallowing disorder or botulinum toxin injection to treat CP muscle dysfunction, the risk of blind injection still remains. There are some important anatomic features around CP muscle, which are recurrent laryngeal nerve, thyroid gland, superior and inferior thyroid artery. Thus the aim of this study is to discuss the safe injection technique of CP muscle in the guidance of ultrasonography.

METHODS

This was a prospective study of 11 healthy volunteers (3 women and 8 men) aged 26 to 47 years. Neck ultrasonography was performed in supine position with neutral (targeting left CP muscle), right (targeting left CP muscle), and left neck rotation (targeting right CP muscle) each (figure 1). The safety injection angle was calculated which does not disrupt the important anatomic features around the CP muscle.

RESULTS

The optimal needle injection site was set up at the level of the superior border of the cricoid cartilage, vertically. The horizontal approach site one third point between just lateral to the cricoid cartilage and anterior border of the sternocleidomastoid muscle was superior to that of just lateral to the lateral margin of cricoid cartilage. The mean safety angle for injecting left CP muscle in right neck rotation position was between 68.6 ± 8.6 and 78.5 ± 6.7 degree, while range of mean approach angle was 9.8 ± 3.6 degree (Table 1). The number of unapproachable subject due to narrow injection angle was 5, 3 and 2 with neutral (Targeting left CP muscle), right (Targeting left CP muscle), and left neck rotation (Targeting right CP muscle) each. The optimal patient posture and approach technique were left CP muscle injection with right neck rotation.

CONCLUSION

Our Results show that this method can be useful for the practical application of ultrasound-guided bilateral CP muscle injection. Knowledge of the anatomical location of CP muscle and surrounding features can help clinicians to better access the target site bilaterally, thus prevent causing injury of important structures.

Table 1. Safety injection angle to CP muscle Abbreviations: Lt. CP_Neutral: Left cricopharyngeal muscle injection with neutral position, Lt. CP_Rt. neck rotation: Left cricopharyngeal muscle injection with right neck rotation position, Rt. CP_Lt. neck rotation: right cricopharyngeal muscle injection with left neck rotation position

	Lt. CP_Neutral	Lt. CP_Rt. neck rotation	Rt. CP_Lt. neck rotation
Angle (°)	72.4 ± 7.1 - 80.0 ± 3.9	68.6 ± 8.6 - 78.5 ± 6.7	65.9 ± 9.8 - 75.0 ± 7.4
Range (°)	7.6 ± 3.4	9.8 ± 3.6	9.1 ± 3.2

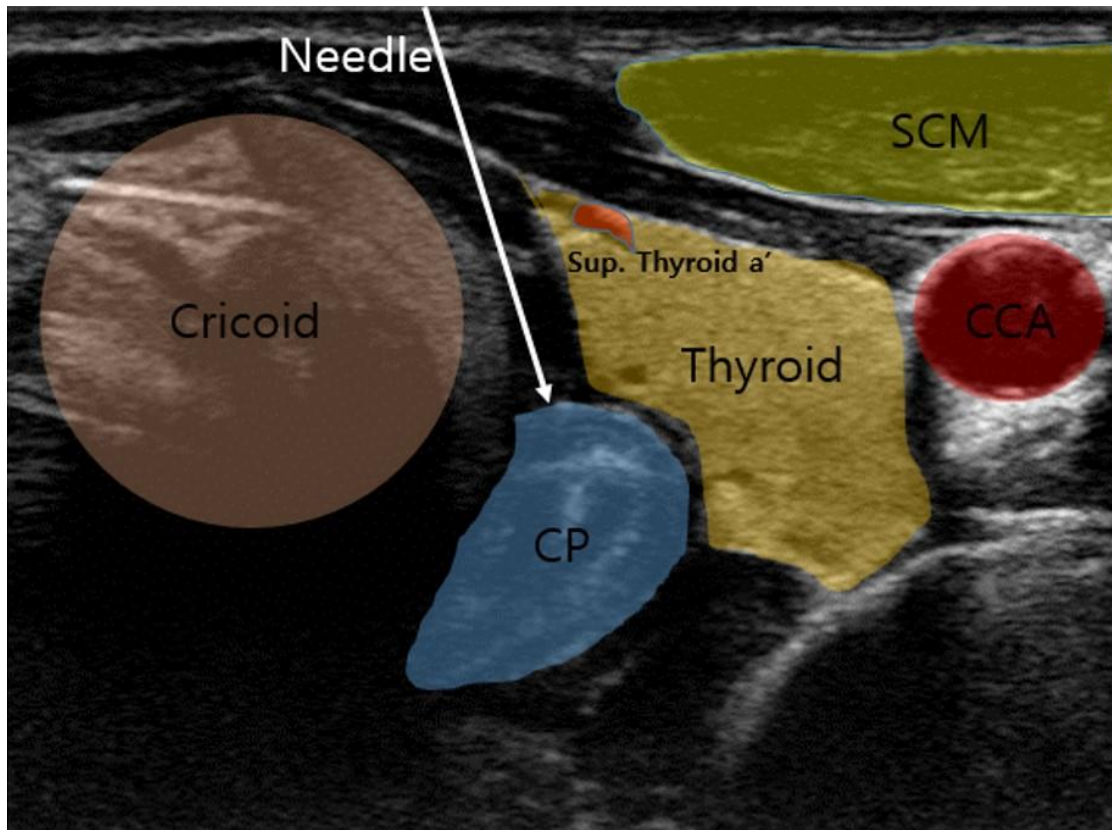


Figure 1. Ultrasound-guided injection to the cricopharyngeal muscle image. Axial view in right neck rotation position. The white arrow indicates the advancement course of the needle. SCM: sternocleidomastoid muscle, CCA: common carotid artery, CP: cricopharyngeal muscle.