

신경근육재활 및 전기진단

게시일시 및 장소 : 10 월 18 일(금) 08:30-12:20 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 10:00-10:45 Room G(3F)

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Appropriate electromyographic needle insertion site for the flexor digitorum longus

Ki Hoon Kim^{1*†}, Dong Hwee Kim¹, Chae Hyeon Ryou¹

Korea University Ansan Hospital, Department of Rehabilitation Medicine¹

Objective

Electromyographic needle access to the flexor digitorum longus (FDL) is often challenging due to small muscle size and the overlying soleus muscle. Also, there is a concern about saphenous nerve injury during needle insertion to the FDL, because the saphenous nerve runs close to the FDL. This study aimed to investigate the FDL anatomy associated with the saphenous nerve using ultrasonography and to determine the appropriate needle insertion point for needle electromyography of the FDL.

Materials and Methods

The FDL and the saphenous nerve in 32 legs of 16 healthy subject were evaluated using high-resolution ultrasonography. Three levels were defined in the leg. Level 1 is the junction of the middle and distal third of the leg, level 3 is the midpoint of leg length measured from the medial tibial plateau to the medial malleolus, and level 2 is the midpoint between two levels. At each level, the cross sectional area (CSA) of the FDL and the distance between the saphenous nerve and the medial margin of the tibia were measured.

Results

The mean age and body mass index were 34.4 ± 10.6 years and 21.8 ± 2.0 kg/m², respectively. The CSA of the FDL was 102.8 ± 45.1 mm² in level 1, 137.1 ± 47.9 mm² in level 2, and 117.0 ± 36.6 mm² in level 3. The saphenous nerve was observed at a mean distance of 7.9 ± 2.8 mm in level 1, 10.8 ± 4.0 mm in level 2, and 13.5 ± 4.6 mm in level 3 from the tibia. The FDL was covered by the soleus in 2, 10, and 21 legs in level 1, level 2, and level 3, respectively.

Conclusion

The appropriate needle insertion point to the FDL is the midpoint between level 1 (the junction of the middle and distal third of the leg) and level 3 (midpoint of the leg) within approximately 5 mm from the medial margin of the tibia.