

## C17

### **Congenital mirror movements : Ten-year follow-up of transcranial magnetic stimulation(TMS) study.**

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#### **Introduction**

To our best knowledge, there are few studies about existence of ipsilateral motor evoked potentials(iMEP) of proximal arm and forearm muscles in congenital mirror movement patients. In this report, however, we performed 10-year follow-up TMS study not only in distal hand muscles, but in forearm, proximal arm and lower extremity muscles to clarify their tendency.

#### **Case report**

An 19-year-old boy presented with mirror movement since he was infant. He was a full term baby and there was no noticeable family history. He presented gross motor developmental delay and mild mental retardation. He has no other congenital deformity. We performed follow-up hand function test which showed improvemet of the score even though mirror movent persist. In the Nine-Hole Peg Test, the score was 26 seconds (normal: 16.41±1.65sec) for the right hand and 26 seconds (normal: 17.53±1.73) for the left hand. In this patient, we performed TMS study almost every other year during 10 years, since he was 9. Recordings of ipsilateral and contralateral MEPs(cMEP) were made with bilateral distal hand muscles (first dorsal interosseous muscle, FDI muscle), forearm muscles (extensor carpi radialis, ECR), proximal arm muscles (biceps brachii, BB and deltoid) and lower extremity muscles (tibi-alis anterior, TA, gastrocnemius, GCM, vastus medialis,VM). The follow-up iMEP/cMEP ratio was more than 1 in the FDI muscle like the past results. Similar pattern was shown in the ECR even though iMEP/cMEP ratio was smaller than those in the FDI muscle. In contrast, iMEP/cMEP ratio was lower than 1 in the BB and the deltoid. There were no ipsilateral motor evoked responses in lower extremities.

#### **Discussion**

This study is a long term follow-up TMS study in a congenital mirror movement patient to investigate motor organization in distal hands, forearms, proximal arms and lower extremities. In conclusion, this case report indicates that motor organization patterns of proximal arm muscles might be different from those of distal hand and forearm muscles even in the same upper extremity. In addition, the mechanism of menifestation of iMEP is different between mirror movement patients and hemiplegic cerebral palsy patients. Moreover, motor organization patterns of lower extremities seem to follow the same pathway with those in normal children.