UTILITY OF SINGLE FIBRE ELECTROMYOGRAPHY IN THE CONFIRMATORY DIAGNOSIS OF MYASTHENIA GRAVIS – A CASE REPORT

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Background and Purpose

The diagnosis of myasthenia gravis (MG) may not be readily substantiated by investigations despite strong clinical suspicion. Single-Fiber Electromyography (SFEMG) is a sensitive modality to diagnose, or give supporting evidence, to myasthenic syndromes and other neuromuscular junction disorders.

Methods

We describe a 66 years old gentleman who presented with subacute onset multidirectional diplopia, dysphagia and dyspnoea. The anti-acetylcholine receptor antibody titre was not elevated, and repetitive nerve stimulation test was negative. Magnetic resonance imaging of brain, lumbar puncture, nerve conduction study and positron-emission tomography and computed tomography were unrevealing. He later developed malnutrition, aspiration pneumonia and presumed myasthenic crisis, for which he received intravenous immunoglobulin, therapeutic plasma exchange and rituximab. His visual, bulbar and respiratory symptoms eventually improved with immunosuppression. He later underwent SFEMG over frontalis and extensor digitorum communis.

Results

Jittering analysis with Mean Conduction Difference (MCD) showed marked prolongation, which is highly sensitive for neuromuscular junction disorders (**Figure 1**). The frontalis muscle SFEMG showed that (in selected MCD after quality control) the MCD was between 56-57 (reference value: MCD<38). The extensor digitorum communis SFEMG showed that the MCD was between 45-66 (reference value: MCD<40). Anti-MuSK antibody titre was found elevated subsequently and the diagnosis was hence revised to Seropositive Generalised MG.

Conclusions

To elaborate on the utility of SFEMG in aiding the diagnostic process, technical aspects and result interpretation is essential. With training and increased adoption of such technology, diagnostic uncertainty can be reduced, and one may be prompted for early MG treatment.

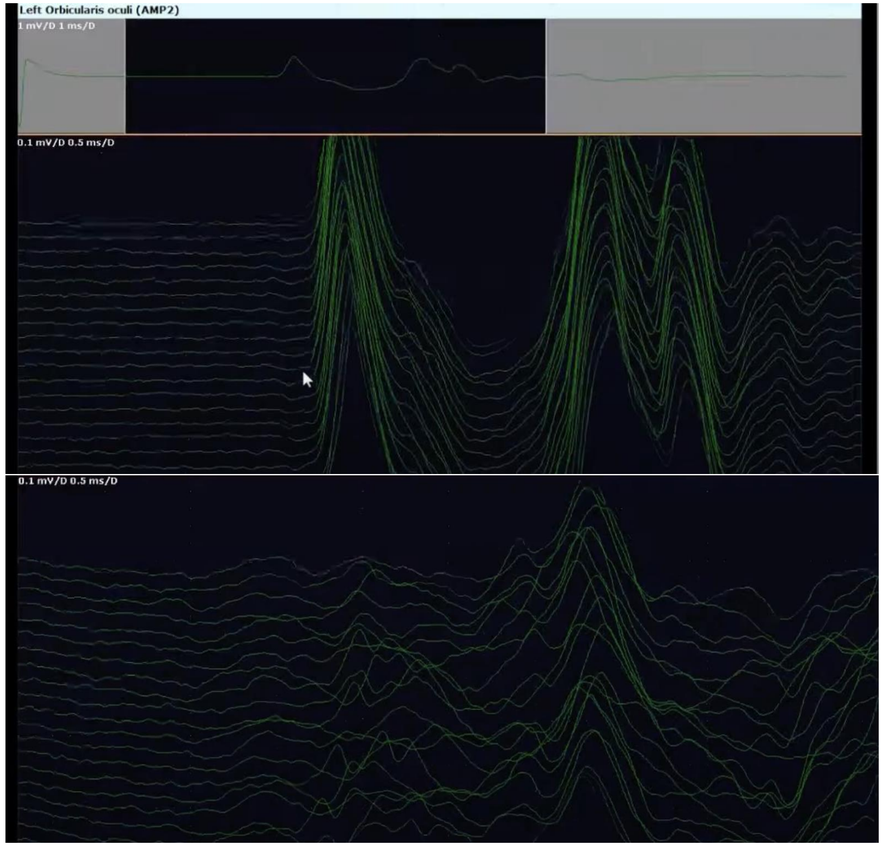

Figure 1 – Single-Fiber EMG showing normal (top) and abnormal (below) jittering and Prolonged MCD

Reference

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