A Case of Cortical Tremor as a Variant of Cortical Reflex Myoclonus

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Myoclonus sometimes represents rhythmical movement and cortical tremor has been defined as a rhythmical movement accompanied by cortical reflex myoclonus [1]. We examined a patient with cortical tremor who demonstrated rhythmical muscle discharges evoked by a peripheral nerve stimulation. A 64-year-old man had a 9-year history of postural tremor involving the hands and fingers. The patient also had generalized seizure, but there were no other neurological findings including dementia. Oral administration of valproate only had the effect of controlling his epileptic attack but had no effect on his tremor; neither had propranolol. Family history involved tremor of the hands, generalized epilepsy or both.

Laboratory tests including urinalysis, blood cell count, and serum electrolytes were normal. Thyroid function, lactate and pyruvate levels in serum as well as CSF were all normal. Cranial MRI was normal. Surface EMG of the postural tremor recorded on his forearm revealed rhythmical discharges, which had a reciprocity and in part a co-contraction between antagonists (fig. 1). The frequency of mechanical movement, monitored with an accelerometer attached to the hand and estimated through a fast Fourier transformation, was around 7.4 Hz and ranged from 6.3 to 9.4 Hz (fig. 2b). EEG showed...
Fig. 1. a Surface EMG from wrist flexor (middle row) and wrist extensor (lower row), and movement monitor by accelerometer (upper row; ACC). These were reciprocal, and partially co-contracted muscle activity between antagonists, and the movement was sinusoidal. b Frequency spectrum of the sinusoidal movement calculated by fast Fourier transformation. Each line shows the result of every 30-second sampling.

Fig. 2. Compound muscle action potentials from APB evoked by single electrical shock of median nerve. Each record shows raster mode and the bottom is displayed by superimposed mode. Reflex potentials demonstrate repetitive responses. C1 is seen at 40 ms after M-wave, C2 and C3 are seen at around 200 and approximately 350 ms, respectively.

References