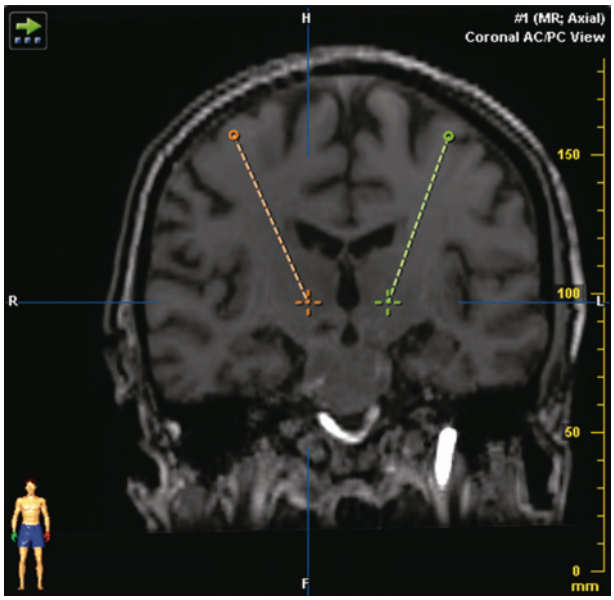
Deep Brain Stimulation in Essential Tremor



A man in his 70's had ever since his youth developed essential tremor in his hands and forearms, and after many years also head tremor like a yes movement. The condition had progressed over time. In the course of the last few years, there had been worsening with increased tremor amplitude. He had not had benefit worth mentioning from medications such as propranolol, primidone, or gabapentin, nor with injections with botulinum toxin. The condition involved a considerable handicap – he had problems with bringing a cup to his mouth and difficulties with eating and dressing. He was referred with the thought of deep brain stimulation.

The video shows a pronounced postural tremor when the right upper extremity is held out from the body, and a kinetic tremor particularly in the form of intention tremor at the end of the finger-nose test on the right side. The illustration, a T1 weighted MRI in the coronal plane, shows the planned placement of electrodes in the VIM nucleus (nucleus ventralis intermedius). Left and right electrodes are visualized in green and orange, respectively. Implantation of the electrodes bilaterally in the VIM nucleus gave distinct improvement for the patient. There was complete tumour suppression, something which is seen in the second part of the video.

Essential tremor is common (0.4–3.9 %), but likely underdiagnosed in the population (1). Thalamus stimulation is indicated if the patient has a strongly crippling tremor which has not responded satisfactorily to therapy with medications. In deep brain stimulation for essential tremor, electrodes are placed in the VIM nucleus in the thalamus and high frequency electric current is delivered with the help of a pulse generator which is implanted subcutaneously in the thorax. The method was first taken into use by Rikshospitalet in 1996, and 12–14 patients yearly are operated upon for this indication. The impulse generator can be turned on and off, and the current field's power and exact location can be changed by external programming.

The patient has given consent for the article to be published.

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