Title:	Recording and Stimulation of the Pathologic Brain Cavity Wall in a Rat Model for Thalamic Syndrome
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Introduction:	The thalamic syndrome, first described by Dejerine and Roussy, is a central neuropathic pain syndrome occurring after thalamic stroke, often associated with a mild paresis. It is a form of central post-stroke pain. Treatment is challenging and often not satisfying.
Methods:	30 rats were tested for thermal and mechanical pain and motor performance, and were then randomly allocated into a lesion group (L; electrolytic thalamic lesioning; n=22) and a sham group (S; sham surgery; n=8). Pain and motor tests were repeated weekly over the next 4 weeks. Next, after CT and MR imaging, 3 bipolar electrodes were implanted. L was randomly divided into a cavity wall electrode group (E; electrodes aiming for the ventral cavity wall; n=11) and a random electrode group (C; electrodes aiming for a random brain target not related to motor or pain behaviour; n=11). In S, electrodes were implanted at the same coordinates as in W. Motor tests were then repeated during deep brain stimulation (DBS; biphasic, 130Hz, 200µs at 0%-50%-75%-100% of the highest tolerated amplitude (HTA; amplitude above which side effects are observed)). Afterwards, local field potentials (LFPs) were recorded in resting state.
Results:	After but not before lesioning, motor scores were significantly ($P<.05$) worse in L vs. S, while pain scores did not differ. In C, DBS at 50%, 75% or 100% HTA did not improve motor scores significantly as compared to 0% HTA in W or to DBS in C or S. LFPs obtained from identical anatomical locations in C and S rats differed significantly.
Conclusions:	In a thalamic syndrome rat model with motor deficits but no mechanical or thermal hyperalgesia, the tested DBS parameters did not alleviate symptoms.