

**Supplementary figure 1.** A 23-year-old with medically refractory epilepsy. During video-EEG, interictal abnormalities were very frequent in the form of left frontal slowing, left frontal spikes and left frontal-temporal spikes (\*) which spread over to the right side (A, B). During his hypermotor seizures, there was generalized attenuation of the background without any clear lateralizing changes (arrow).



**Supplementary figure 2.** Intraoperative corticography (1-500Hz, 2000Hz sampling) performed with subdural grids, lines and depths showing very frequent focal spikes that extended beyond the MRI abnormality, frequent electrographic seizures, evolving spikes and polyspikes from the left orbitofrontal and dorsal lateral frontal areas –inferior frontal gyrus (A, red dot in C). Frequent low-voltage fast activity localized to the frontal pole and spread to the ventrolateral frontal region (arrows in B, blue dot in D).

