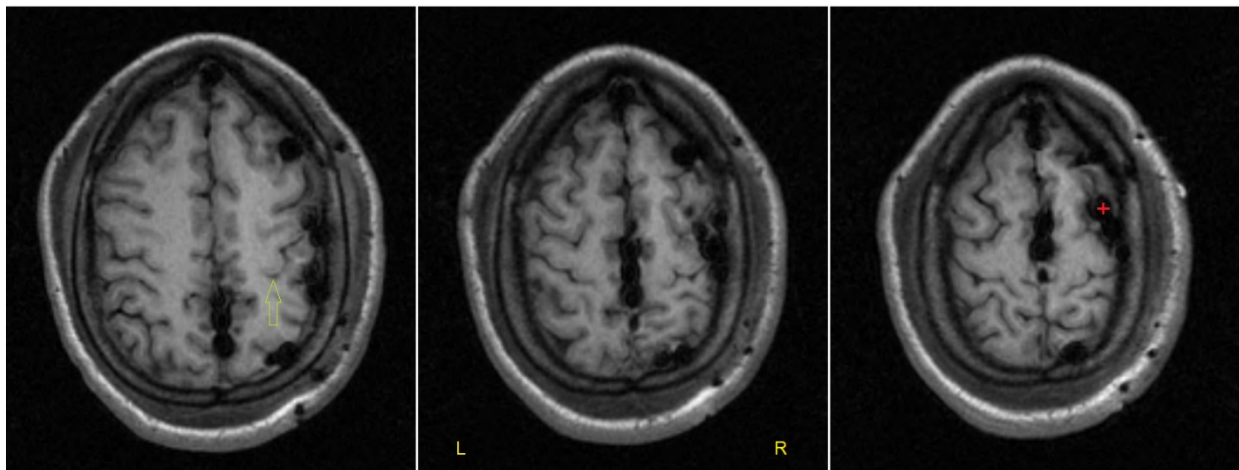


Supplementary Material

Previous intracranial EEG investigation (9 years earlier)

Nine 4- or 6-contact subdural strip electrodes were implanted over the right lateral frontal, parietal and temporal convexities, medial frontal and parietal cortices and basal temporal cortex (44 total contacts). Some of the contacts can be seen on the axial MR images below, in particular those overlying the central region (green arrow in the left image indicates the motor hand area of the precentral gyrus).



Multifocal interictal epileptiform discharges were recorded independently from the lateral and medial frontal and parietal cortices, as well as the lateral and basal temporal cortices. More widespread, higher amplitude interictal spikes were recorded synchronously from all contacts of the lateral and medial frontal and medial parietal electrodes, with inversion of the electrical field in more posterior electrodes and those situated below the Sylvian fissure.

Ictal onsets of typical clinical seizures were difficult to time with certainty, commencing with increased spiking in the posterior lateral region of the superior frontal gyrus, before clinical onset, evolving into a rhythmic ictal pattern in the same area (recorded maximally at the contact marked by the red cross in the right image above, the most anterior of a 6-contact electrode running posteriorly and inferiorly from the superior frontal gyrus to the inferior parietal lobe posterior to the postcentral gyrus). During seizure progression, ictal activity propagated widely

throughout the hemisphere, although remained of maximal amplitude over the medial and lateral aspects of the posterior superior frontal gyrus and the posterior middle frontal gyrus.

In addition to the ictal recordings obtained with the clinical seizures, frequent subclinical seizures were also recorded, arising independently from three different areas posterior to the central sulcus: the posterior lateral temporal cortex, the superior lateral parietal cortex and the lateral temporo-parietal junction.

After much consideration, a surgical resection was decided upon and performed six months later, targeting the non-eloquent areas of maximal ictal and interictal epileptiform activity that had been identified anterior to the precentral gyrus, in the hope of providing benefit in terms of decreased frequency or severity of the major clinical seizures. The resection was undertaken in acceptance of a guarded prognosis for seizure control, given the multifocal, multilobar interictal epileptiform activity and the independent areas of ictal onsets recorded posterior to the central sulcus.

Acknowledgements

Taufik Valiante performed the subdural electrode implantations and surgical resection.