

Cortical surface intracranial electrodes identify clinically relevant seizures missed on scalp EEG after traumatic intracranial hemorrhage

Chris R. Marcellino¹, Samuel Lapalme-Remis²,
Alejandro A. Rabinstein², Jamie J. Van Gompel¹,
Gregory A. Worrell², Eric T. Payne², Sara Hocker²

¹ Department of Neurologic Surgery

² Department of Neurology, Mayo Clinic, Rochester, Minnesota, USA

Received June 20, 2018; Accepted September 04, 2018

32-year-old male with traumatic left subdural hematoma

and other TBI-associated intracranial hemorrhages and skull fractures

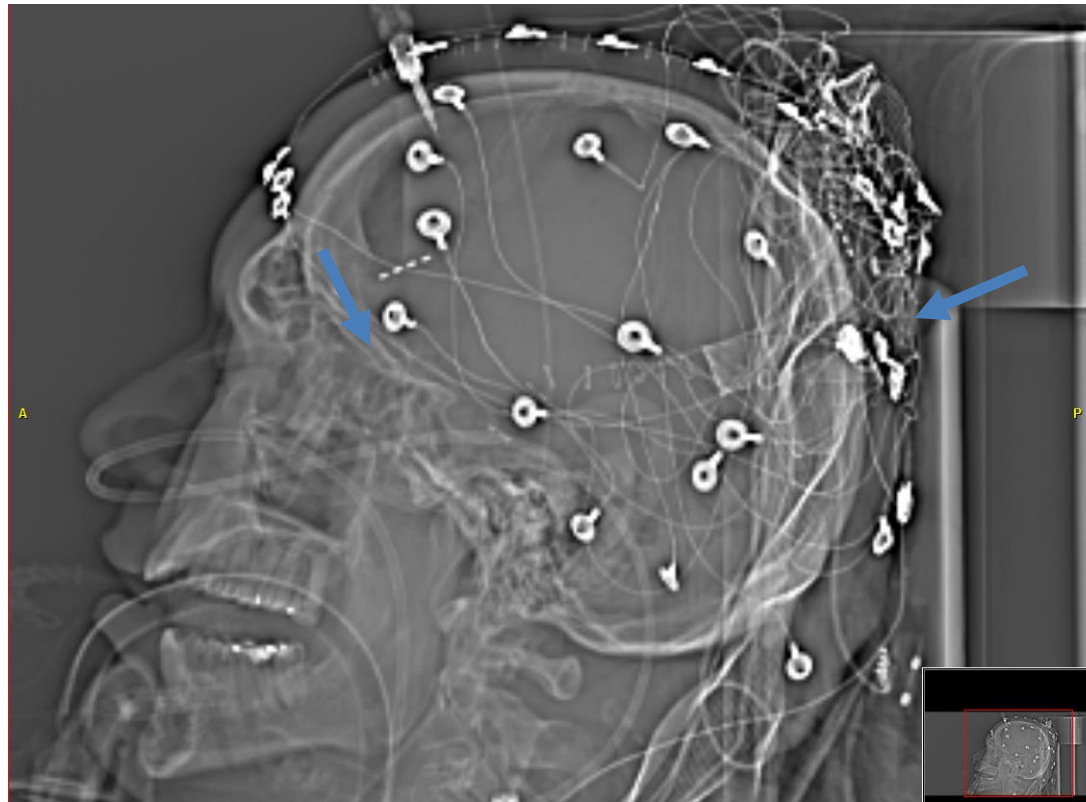


Note that the crescentic-appearing left hematoma appears misleading as an epidural hematoma, as the dura skull insertions were disrupted by fracture.

Hematoma evacuated and depth electrode placement on the surface of the frontal and parietal lobe

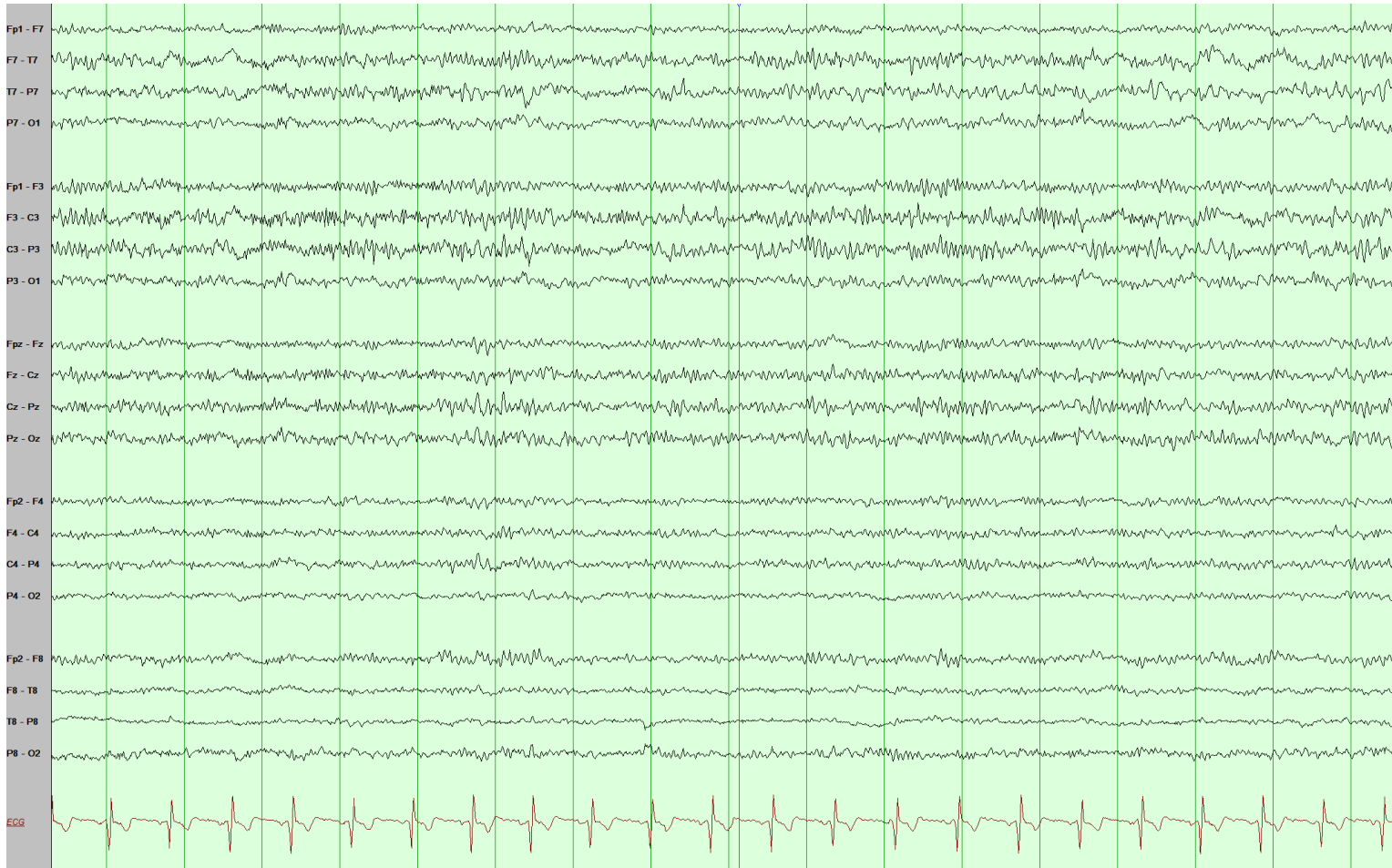


Hematoma evacuated and depth electrode placement on the surface of the frontal lobe

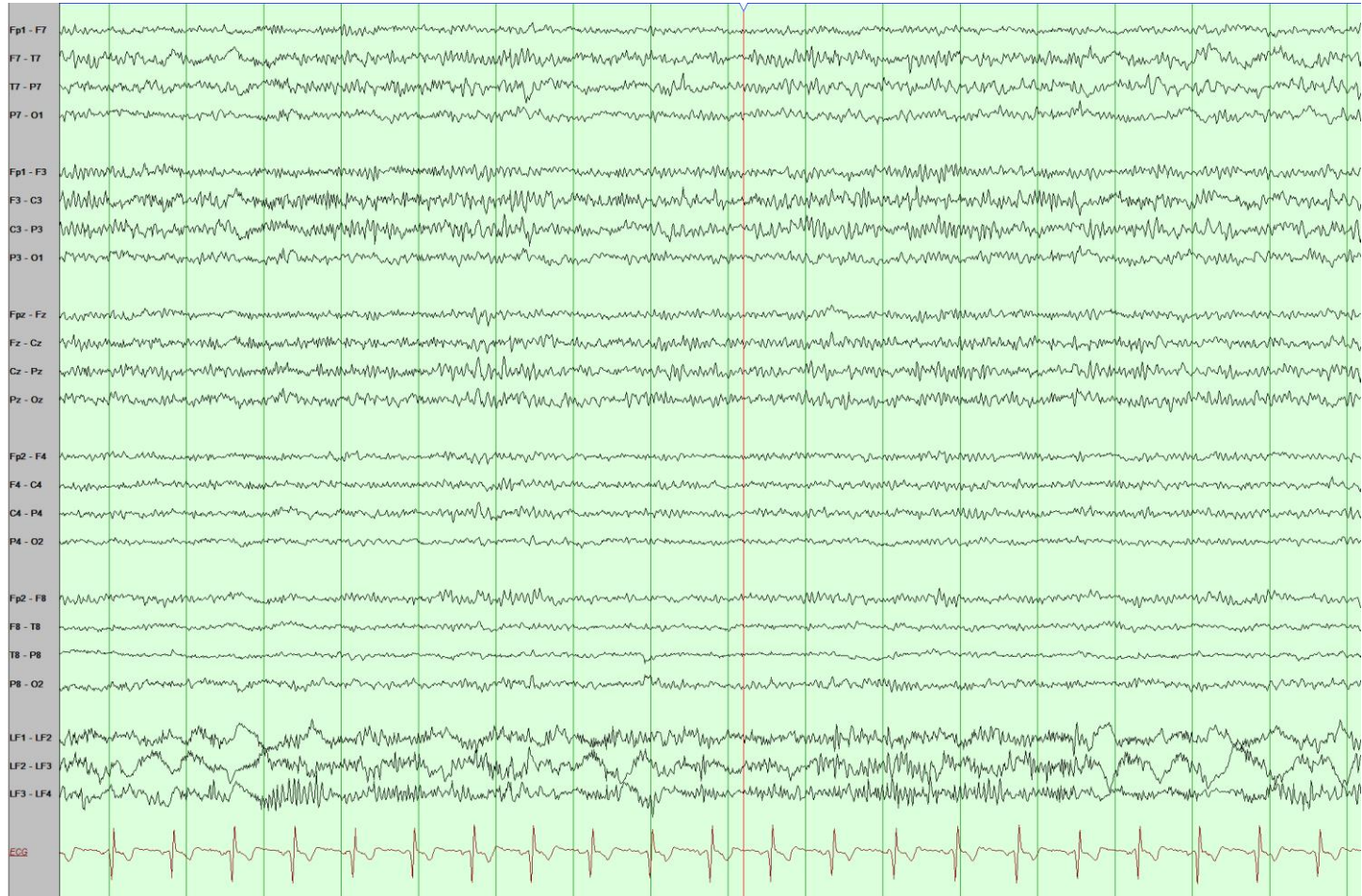


Blue arrows point to 4-contact intracranial "depth" electrodes which are, in this case, lain upon the cortex (not placed intraparenchymally)

EEG shows diffuse slowing, worse on the left with increased left hemisphere amplitude, consistent with breach



Same page with electrode



Electrode shows LPDs that appear as non-specific theta on surface



Evolves into subclinical seizure (SIRPIDS) and appears as non-specific rhythmic delta slowing on the surface

