Operculo insular epilepsy

see also insular lobe epilepsy.

Operculo-insular seizures are heterogeneous and may resemble seizures originating from the temporal, frontal, or parietal lobe. Although surface and invasive EEG recordings are often necessary to detect operculo-insular seizures, electrophysiological features of operculo-insular epilepsies remain poorly characterized.

A study of Levy et al. describes the EEG findings of patients with operculo-insular epilepsy.

Levy et al. reviewed electrophysiological data of all patients (n = 9) with operculo-insular seizures revealed by intracranial EEG and for whom operculo-insular epilepsy was confirmed by good seizure outcome after resective or radiosurgery at the CHUM Notre-Dame, Université de Montréal, Canada. between 2005 and 2013. Patients were divided according to whether their seizure focus involved the anterior (group 1; n = 4) or posterior (group 2; n = 5) portion of the insula.

Interictal scalp EEG was lateralizing and showed distinct topographical spike patterns between groups: frontal and temporal in group 1, temporal in group 2. Intracranial recordings showed abundant spikes limited to the operculo-insular region or involving distant areas in the frontal/temporal (group 1) and temporal/parietal lobes (group 2). Ictal intracranial EEG revealed discharges limited to the insula or simultaneously involving extrainsular contacts at onset, notably the orbitofrontal cortex (group 1) and the frontal and parietal opercula (group 2), and propagating to the frontal and temporal lobes in group 1 and to parietal and temporal lobes in group 2.

Spike distribution and seizure propagation in operculo-insular epilepsy follows an anterior-to-posterior pattern mirroring an anterior or posterior insular focus localization. When presented with frontal and/or temporal epileptiform abnormalities, an operculo-insular focus should be considered [1].

Diagnosis

Operculoinsular epilepsy is heterogeneous and may resemble seizures originating from the temporal, frontal, or parietal lobe. Although surface and invasive EEG recordings are often necessary to detect operculo-insular seizures, electrophysiological features of operculo-insular epilepsies remain poorly characterized. A study of Levy et al., described the EEG findings of patients with operculo-insular epilepsy.

They reviewed electrophysiological data of all patients (n = 9) with operculo-insular seizures revealed by intracranial EEG and for whom operculo-insular epilepsy was confirmed by good seizure outcome after resective or radiosurgery at our center between 2005 and 2013. Patients were divided according to whether their seizure focus involved the anterior (group 1; n = 4) or posterior (group 2; n = 5) portion of the insula.

Interictal scalp EEG was lateralizing and showed distinct topographical spike patterns between groups: frontal and temporal in group 1, temporal in group 2. Intracranial recordings showed abundant spikes limited to the operculo-insular region or involving distant areas in the frontal/temporal (group 1) and temporal/parietal lobes (group 2). Ictal intracranial EEG revealed discharges limited to the insula or simultaneously involving extrainsular contacts at onset, notably the

orbitofrontal cortex (group 1) and the frontal and parietal opercula (group 2), and propagating to the frontal and temporal lobes in group 1 and to parietal and temporal lobes in group 2.

Spike distribution and seizure propagation in operculo-insular epilepsy follows an anterior-to-posterior pattern mirroring an anterior or posterior insular focus localization. When presented with frontal and/or temporal epileptiform abnormalities, an operculo-insular focus should be considered [2].

Treatment

Operculo insular epilepsy treatment.

Case series

Operculo insular epilepsy case series

References

[1], [2]
Levy A, Yen Tran TP, Boucher O, Bouthillier A, Nguyen DK. Operculo-Insular Epilepsy: Scalp and Intracranial Electroencephalographic Findings. J Clin Neurophysiol. 2017 Sep;34(5):438-447. doi: 10.1097/WNP.0000000000000391. PubMed PMID: 28520631.