Supplementary Table 1. Detailed clinical, electroencephalographic, imaging, and treatment characteristics of patients who developed status epilepticus or seizure clusters during video-EEG monitoring

Patient no.	Age/sex	Epilepsy duration (years)	Electroclinical epilepsy type	Etiology	Prior SE/ cluster history	Day of VEM	ASMs and dose reduction (%)	Interictal EEG	Ictal EEG	Provocation	Seizure/SE pattern	Acute treatment	Semiology	MRI findings	Follow-up/outcome
1	18/M	6	Temporal plus	Structural	Yes	Day 3	CBZ, LTG (-68.9%)	Rare spikes in right centroparietal region	Rhythmic activity in right centroparietal region	ASM withdrawal	Postconvulsive NCSE (1 h)	i.v. diazepam, i.v. midazolam infusion (intubation)	Left hand paresthesia, leftward eye deviation, visual blurring, eyelid fluttering, postictal confusion	Right medial temporal cortical dysplasia, right hippocampal sclerosis	13 years, medical follow-up
2	41/F	31	TLE	Structural	Yes	Day 5	PRM, TPM (-70%)	Bilateral temporal sharp and slow waves (L>R)	3-4 Hz bilateral temporal spike-wave complexes	ASM withdrawal	Postconvulsive NCSE (50 min)	i.m. diazepam	Facial grimacing, left hand automatism, right arm posturing, rightward head/eye deviation, fear, aphasia	Left hippocampal sclerosis	1 year, left ATL
3	28/M	25	Temporal plus	Structural	Yes	Day 3	LEV, LCM, CLB (-44.4%)	Independent bilateral temporal sharp/slow waves	4-5 Hz rhythmic activity in left posterior temporoparietal region → generalized discharges	ASM withdrawal	Convulsive SE (14 min)	i.v. LCM, i.v. LEV	Forced rightward deviation, nystagmoid eye movements, right upper limb tonic-clonic posturing	Marked left hippocampal atrophy	4 years, VNS + left ATL+AHK
4	36/F	25	FLE	Unknown	Yes	Day 3	LEV, LCM, CBZ, RFN (-30%)	Left frontal sharp/spike activity	2.5 Hz spike-wave in left anterior hemispheric regions	Hyperventilation + ASM withdrawal	NCSE (20 min)	i.v. LEV	Confusional state, aphasia	Normal MRI	18 years, VNS
5	35/M	25	FLE	Structural	Yes	Day 1	LEV, TPM, LCM, CBZ, CLB (0%)	Rare sharp slow waves in left frontal-temporal regions	Bilateral fast activity predominating on the left	None	Seizure clusters (<4 h)	i.v. diazepam	Asymmetric posturing, right eye deviation, brief behavioral arrest	Left frontoparietal cystic encephalomalacia	16 years, VNS
6	23/F	20	FLE	Structural	Yes	Day 1	LTG, CLN (0%)	Multiple sharp/spike discharges in left frontocentral regions (HFO-like)	Generalized spike-sharp activity with brief attenuation, L>R	None	Seizure clusters (<4 h)	Oral LCM	Non-versive right turn, left arm prominent movements, vocalization, oral automatisms	Right posterior sylvian developmental venous anomaly	5 years, VNS
7	29/F	15	TLE	Structural	NA	Day 4	LEV, CBZ (-83.3%)	Intermittent rhythmic theta-delta in left temporal region	Rhythmic 5-6 Hz theta in left frontotemporal region → sharp/ slow waves	ASM withdrawal	Postconvulsive NCSE (20 min)	i.v. diazepam	Derealization, oral automatisms, right dystonic posture, confusion	Left hippocampal sclerosis	1 year, left ATL+AHK
8	22/F	14	ETLE	Genetic (ring chromosome 20 mosaicism) + Structural	Yes	Day 2	VPA, LEV, ZNS, CLB (-16.7%)	2.5 Hz bilateral frontocentral spike-wave, background theta-beta	Diffuse rhythmic slowing with frontal spike-waves	ASM withdrawal	NCSE (36 min)	i.v. diazepam, i.v. LEV	Confusional state	Pineal cyst, mild right temporo-occipital gyral dysplasia	1-year, medical follow-up
9	24/F	24	ETLE	Structural	Yes	Day 3	LTG, CLB, DPH, TPM (0%)	Bilateral temporo-occipital and frontal sharp/spike discharges	Bilateral frontal sharp waves (R>L)	None	Convulsive SE	i.v. VPA	Bilateral extensor posturing, upward eye deviation, left arm clonus	Subcortical venous angioma near right temporal operculum	9 years, medical follow-up
10	18/M	16	TLE	Structural	Yes	Day 2	OXC, LEV (-66.7%)	Right temporal TIRDA	Right frontotemporal semi-rhythmic delta → temporal sharp slow-wave build-up	ASM withdrawal	Convulsive SE	i.v. diazepam, i.v. DPH	Vocalization, oral automatisms, right arm extension, secondary generalization	Right mesial temporal sclerosis	3 years, medical follow-up
11	36/M	18	PLE	Structural	NA	Day 9	LEV, TPM, VPA (-75%)	Left temporal sharp and spike-wave discharges	Rhythmic theta activity in left temporoparietal region	ASM withdrawal	Seizure clusters (<4 h)	i.v. diazepam, i.v. LEV, i.v. VPA	Right arm paresthesia followed by left leg automatisms	CSF-isointense lesion adjacent to left parietal ventricle	1-year, medical follow-up
12	27/F	9	ETLE	Unknown	Yes	Day 5	VPA, LEV, CBZ, LCM (-86.7%)	Independent sharp/spike discharges in left temporal and right frontotemporal regions	Fast activity in right posterior temporal region → left temporal rhythmic slowing	ASM withdrawal	Seizure clusters (<4 h)	i.v. diazepam, i.v. LEV	Rightward head turning, bilateral hand and oral automatisms, postictal unresponsiveness	Normal MRI	1 year, VNS
13	22/F	15	TLE	Structural	NA	Day 3	LTG, CBZ, LEV (-66.7%)	Independent spike/spike-wave discharges in left temporal and frontal regions	High-amplitude 2-2.5 Hz sharp-wave complexes in left temporal region	ASM withdrawal	Postconvulsive NCSE (10 min)	i.m. diazepam	Left automatisms, right posturing, forced head deviation	Bilateral hippocampal malrotation; left temporal cortical dysgenesis	7 years, medical follow-up
14	31/M	30	TLE	Structural	Yes	Day 2	CLB, LEV, OXC, TPM, LTG	Bilateral frontotemporal sharp and slow waves (L>R)	Bilateral frontotemporal delta rhythmicity	None	Postconvulsive NCSE (30 min)	i.v. LEV	Left hand automatisms, naming impairment, confusional state	Right temporal-occipital cortical dysplasia	13 years, VNS
15	31/F	12	TLE	Structural	NA	Day 2	LTG, CBZ, LEV (-58.3%)	Right temporo-occipital spikes and sharp waves	Rhythmic discharges in right temporo-occipital region	ASM withdrawal	Postconvulsive NCSE (20 min)	i.v. diazepam	Oral automatisms, left arm posturing, unresponsiveness	Right hippocampal sclerosis with developmental anomaly	2 years, right ATL+AHK
16	40/F	34	TLE	Structural	Yes	Day 2	OXC, GBP (-75%)	Sharp-contoured slow waves in right temporal region	7-8 Hz build-up in right temporal region → generalized spread	ASM withdrawal	Convulsive SE	i.m. diazepam	Sleep-related seizure with head turning and secondary generalization	Right hippocampal sclerosis	19 years, right ATL+AHK
17	20/M	15	Generalized epilepsy	Unknown	Yes	Day 2	VPA, LTG, CBZ, ZNS (-25%)	Generalized sharp delta and spike-wave discharges	Generalized 3-3.5 Hz spike-wave activity	ASM withdrawal	NCSE (40 min)	i.v. diazepam, i.v. VPA	Confusional state	Normal MRI	2 years, medical follow-up
18	35/M	23	TLE	Structural	Yes	Day 3	OXC, LEV, PRM (-33%)	Phase-reversing sharp/spike discharges in bilateral temporal regions	Rhythmic activity starting in left temporal region with shifting laterality	ASM withdrawal	Seizure clusters (<4 h)	i.v. diazepam	Left hand/toe movements, oral automatisms, rightward head deviation	Bilateral frontal encephalomalacia and left hippocampal sclerosis	2 years, medical follow-up
19	38/F	22	ETLE	Unknown	Yes	Day 1	VPA, LEV, CBZ (-23.3%)	Sharp and spike discharges in left frontocentral and centrotemporoparietal regions	Fast activity in left centroparietal region	ASM withdrawal	Seizure clusters (<4 h)	i.v. LEV	Fear expression, vocalization, right arm posturing, leftward turning	Normal MRI	3 years, VNS
20	31/F	23	Temporal plus	Structural	Yes	Day 2	LEV, LTG, CLB	Slow and sharp waves in right temporal region	Rhythmic alpha-beta activity with spikes in right posterior temporal/ parietal regions	None	Seizure clusters (<4 h)	i.v. LCM	Leftward turning tendency, right proximal limb movements, oral automatisms	Right hippocampal sclerosis	2 years, medical follow-up
21	35/F	35	TLE	Structural	Yes	Day 2	LCM, VPA, CBZ, ZNS (-33.3%)	Theta slowing with sharp discharges in right temporal region	Right centrotemporal slowing → temporal sharp discharges → bilateral spread	ASM withdrawal	Convulsive SE (8 min)	i.v. diazepam	Dizziness, left hand paresthesia, head/eye deviation, secondary generalization	Right hippocampal sclerosis, bilateral occipital polymicrogyria	1-year, medical follow-up
22	18/F	15	ETLE	Structural	Yes	Day 2	LTG, LEV (-50%)	Alpha background with frequent 5-6 Hz slowing and independent spikes in left frontocentroparietal region	Multispike-wave activity in left frontocentral region with hemispheric spread	ASM withdrawal	Postconvulsive NCSE (40 min)	i.v. diazepam, i.v. LEV, i.v. DPH	Frequent blinking, smiling, slowed responses, prolonged fluctuating confusion	Left hemispheric atrophic lesion compatible with perinatal hypoxia	7 years, left functional hemispherectomy + amygdalohippocampectomy
23	23/M	11	TLE	Unknown	NA	Day 4	VPA, LEV, CBZ, TPM, CLB (-50%)	Left-predominant frontotemporal sharp/spike discharges	Voltage suppression with left temporal rhythmic slowing	ASM withdrawal	Postconvulsive NCSE (20 min)	i.v. LEV	Unresponsiveness, right leg movements, oral automatisms, confusion	Focal diffusion restriction in right occipital-temporal-parietal regions	2 years, VNS
24	19/M	12	ETLE	Structural	Yes	Day 2	LTG, LEV, VPA, CLB, ETX	Generalized 2.5 Hz spike-wave and paroxysmal fast activity	Generalized rhythmic fast activity evolving to prolonged spike-wave discharges	None	Seizure clusters (<4 h)	i.v. LTG, i.v. VPA	Brief tonic-atonic seizures	Minor developmental anomaly of left hippocampus	3 years, medical follow-up
25	38/M	23	TLE	Unknown	Yes	Day 9	VPA, LEV, PGB, ZNS (-87.5%)	Sharp and spike discharges maximal at right temporal electrodes	Rhythmic delta-theta with generalized spike-wave evolution	ASM withdrawal	Seizure clusters (<4 h)	i.v. LTG	Staring, forced head deviation, clonic head movements during sleep	Normal MRI	3 years, medical follow-up
26	32/M	22	TLE	Structural	Yes	Day 4	LEV (-75%)	Rare bilateral temporal slow-wave paroxysms	Right centroparietotemporal sharp-slow discharges	ASM withdrawal	Postconvulsive NCSE (30 min)	i.v. diazepam	Autonomic aura, oral automatisms, gaze deviation, unresponsiveness	Right mesial temporal sclerosis	1 year, right ATL+AHK
27	25/M	13	PLE	Structural	Yes	Day 5	LTG, LCM (-75%)	Occasional rudimentary spikes in left temporal region	Left frontotemporal onset with secondary generalization	ASM withdrawal	Convulsive SE (5 min)	i.v. diazepam	Right leg movements, swallowing, right arm clonus, secondary generalization	Left precuneus glioneuronal tumor	5 years, lesionectomy
28	34/M	32	ETLE	Structural	Yes	Day 7	LEV, LTG, CBZ (-43.8%)	Sharp/spike discharges in bilateral temporal regions (L>R)	Rhythmic sharp activity in right temporoparietal region	ASM withdrawal	Postconvulsive NCSE (47 min)	i.v. diazepam, i.v. DPH, i.v. MDZ (intubation)	Head deviation, oral automatisms, secondary generalization, confusion	Bilateral occipital sequelae (L>R)	1 year, VNS planned
29	22/M	19	ETLE	Structural	Yes	Day 4	CLB, LTG, LCM	No epileptiform abnormality; clobazam-related fast rhythms	Bilateral rhythmic fast activity without lateralization	None	Seizure clusters (<4 h)	i.v. LEV, i.v. LCM	Brief myoclonus, tachycardia, bilateral extensor posturing	Left parietal sequela lesion	8 years, VNS
30	24/F	24	ETLE	Unknown	Yes	Day 1	LEV, ZNS, VGB, CLB	Beta background with 6-7 Hz slowing and bilateral frontal-temporal spikes	Right frontocentral rhythmic sharp activity	None	Seizure clusters (<4 h)	i.v. VPA	Rightward head/eye deviation, right hand clonus	Cerebellar atrophy	14 years, anterior callosotomy
31	28/F	26	TLE	Structural	Yes	Day 2	LEV, LTG, CBZ, LCM, CLB (-40%)	Sharp-contoured slow and sharp waves in left temporal region	Irregular sharp slow waves with contralateral spread	ASM withdrawal	Convulsive SE (5 min)	i.v. diazepam	Aura, oral automatisms, dystonic posturing, secondary generalization	Left hippocampal sclerosis, pineal microcystic lesion	4 years, left ATL+AHK
32	23/M	18	ETLE	Structural	Yes	Day 3	OXC, LTG, PRG, CLN (-60.4%)	Rhythmic alpha-theta sharp waves in parietal region	Posterolateral parietal onset with hemispheric spread	ASM withdrawal	Seizure clusters (<4 h)	i.v. DPH	Aura with head flexion, bilateral arm flexion	Left hemispheric atrophy; parietal lesion (polymicrogyria)	15 years, left parietal lesionectomy
33	22/M	14	FLE	Structural	Yes	Day 8	LTG, VPA (-60%)	Right frontal sharp/spike discharges with secondary synchrony	Brief generalized suppression followed by spike-wave complexes	ASM withdrawal	Seizure clusters (<4 h)	i.v. diazepam, i.v. VPA	Behavioral arrest, limb movements, postictal confusion	Right frontal cavitary lesion (FCD type 3d)	5 years, right frontal lesionectomy
34	22/F	16	Temporal plus	Structural	Yes	Day 1	LCM, TPM, LTG, LEV, CLB	Right temporal > frontocentral sharp/spike discharges	Frequent right temporal sharp/ spike activity with rapid contralateral spread	None	Seizure clusters (<4 h)	i.v. LEV, i.v. VPA, i.v. DPH	Left proximal limb extension, right wrist clonus, head/eye deviation	Right hippocampal atrophy with ventricular enlargement	1 year, surgical conference (lesionectomy/VNS planned)

SE: Status epilepticus, VEM: Video-EEG monitoring, ASM: Anti-seizure medication, EEG: Electroencephalography, MRI: Magnetic resonance imaging, CBZ: Carbamazepine, LTG: Lamotrigine, NCSE: Non-convulsive status epilepticus, TLE: Temporal lobe epilepsy, PRM: Primidone, TPM: Topiramate, ATL: Anterior temporal lobectomy, LEV: Levetiracetam, LCM: Lacosamide, CLB: Clobazam, VNS: Vagus nerve stimulation, AHK: Ammon's Horn sclerosis, FLE: Frontal lobe epilepsy, RFN: Radiofrequency neurotomy, CLN: Clonazepam, HFO: High-frequency oscillations, L>R: Left>right, ETLE: Extratemporal lobe epilepsy, VPA: Valproic acid, ZNS: Zonisamide, PLE: Parietal lobe epilepsy, OXC: Oxcarbazepine, GBP: Gabapentin