Supplementary Table 1. Demographic, clinical, EEG, MRI, CSF and follow-up characteristics of patients presenting Status Epilepticus as an expression of Neurosyphilis.

Study	N of patients	Gender	Age	Clinical Presentation	New onset SE	Syphilis diagnosed at SE presentation	Immuno-compromised	EEG	Neuroimaging	CSF	SE Treatment	Response	Outcome
Lo Vecchio et al., 1994	1	F	52	Rapid onset progressive dementia then GCSE	yes	yes	no	focal spikes, sharp waves and LPDs	diffuse atrophy	WBC: 35 (lymphocytes 95%), RBC: 6, protein: 79 mg/dL, glucose: 132 mg/dL. Gram stain, bacterial antigens, Toxoplasmosis, india ink, and bacterial and fungal cultures: negative. VDRL 1:4.	DZP, LZP, PHT	RSE	Improvement: dementia improved, no seizures
Heald et al., 1996	1	M	43	Alteration of mood and behavior then NCSE (CPSE)	yes	yes	no	right T LPDs	diffuse atrophy	Increased protein content (0.8 g/l), normal glucose (3.6 mmol/L) no pleocytosis. TPHA 1:2560; VDRL, FTA-ABD positive	PHT, CBZ	Reponsive SE	Recovery
Perri et al., 1996	1	M	45	NCSE (CPSE)	yes	yes	N/R	sharp-wave discharges on the anterior areas	N/R	Syphilis tests positive	AEDs	Reponsive SE	Improvement: incomplete recovery with memory impairment
Suarez et al., 1996	1	M	47	FMSE	yes	yes	no	L F slowing	L F syphilitic gumma	Protein: 117 mg/dl, glucose: 69 mg/dl, WBC of 11 mm^3 (82% lymphocytes and 18% polymorphonuclear cells). No red cells. VDRL 1:2. Cultures negative.	PHT	Reponsive SE	Improvement
Rinkel et al., 1997	1	M	40	epilepsy, a previous	no	yes	no	N/R	Diffuse atrophy and	leucocytosis and increased protein content	N/R	N/R	Disorientation,

				GCSE, drowsiness and confusion. Admitted for another GCSE					periventricular white matters lesions				hemianopia, cerebellar ataxia, anisocoria, dysartria progressively recovered
Primavera et al., 1998	1	M	44	minimal personality changes then NCSE (CPSE)	yes	yes	no	left emispheric LPDs and ED	multiple subcortical small ischemic lesions	Pleocytosis (cell count, 72/mm^3) and elevated protein (1.07 g/L). VDRL 1:1, TPHA 1:128.	CLZ and anesthesia	RSE	Improvement: memory impairment
Thomas et al., 1999	1	M	47	disinhibition, hypomanic state, NCSE	yes	yes	N/R	F right LPDs and seizures	atrophy	N/R	BDZ, CBZ	Reponsive SE	Improvement: mild subcortical dementia
Lauria et al., 2001	1	M	62	previous development of apahsia then NCSE (CPSE)	yes	yes	no	N/R	hyperintensity in the R gyrus cinguli, inferior frontal lobe, temporal lobe, insula, amygdala, hippocampus, and head of the caudate nucleus	5 lymphocytes per milliliter. Intrathecal IgG synthesis, VDRL and FTA-ABS positive. TPHA 1:2048. HSV1-2 negative.	CBZ	Reponsive SE	Improvement
Camacho-Salas et al., 2002	1	M	N/R	GCSE, confusion and aphasia	yes	yes	N/R	L FT LPDs	L T stroke	positive luetic test	PHT	Reponsive SE	Improvement of language disorder
Jirsch et al., 2002	1	M	44	GCSE-FMSE	yes	yes	no	L posterior LPDs	L-sylvian region arachnoid cyst	pleocytosis (WBC count, 22/mm3, 15/mm3 mononuclear cells) and elevated protein (1.2 g/L). VDRL positive	LZP, PHT, PB, PRO	RSE	Severe disability: global aphasia and short-term memory problems,

													seizures free
Vojvodic et al., 2003	1	M	45	3 episodes of NCSE (CPSE)	no	yes	no	delta activities over both FT regions	bi-T hyperintensities	Mononuclear pleocytosis (9/mm^3), increased protein (0.53 g/L), presence of oligoclonal bands. VDRL positive.	CBZ (third episodes with PB)	Reponsive SE	Complete recovery
Ubogu et al., 2003	1	M	44	epilepsy and previous SE and FTD related to already diagnosed syphilis GCSE - NCSE	no	no	no	L F LPDs	Diffuse atrophy	N/R	LZP, PHT, VPA, LTG, PRO, KET	SRSE	Severe disability: persistent global aphasia and ataxia; nonambulatory. No other seizures.
Ances BM et al., 2004	1	M	41	GCSE - NCSE	yes	yes	no	LPDs and seizures L and R T	L T hyperintensity and bi-T atrophy	elevated opening pressure (38mmHg), elevated protein (1.17 g/L), elevated glucose (89 mg/dL), pleocytosis (43WBC/mm^3), negative viruses, VDRL: 1:16.	LZP, PHT, PB	RSE	Severe disability: physical and mental sequelae (emotional labiliy, amnesia, low limbs spasticity)
Marano et al., 2004	1	M	48	NCSE (CPSE)	yes	yes	no	N/R	R FT hyperintensity	Normal glucose, 12 lymphocytes/mm^3, proteins: 63 mg/dL, positive Link's index (3.5), 5 IgG oligoclonal bands, positive VDRL, Mycobacteria, cryptococcus, HSV 1-2.	CBZ	Reponsive SE	N/R
Chang et al., 2006	1	M	51	fever, memory impairment,	yes	yes	no	R FT sharp waves	R FT hyperintensity and hydrocefalus	Elevated opening pressure (220 mm H2O), pleocytosis (41 leukocytes/uL), glucose level: 76 mg/dL, elevated	LZP, PTH, VPA	Reponsive SE	Improvement except for mild amnesia

				general malaise then GCSE - FCSE						protein (101 mg/dL), VDRL: 1:32, negative HSV and cryptococcal antigen			
Li et al., 2006	1	M	41	GCSE	yes	yes	no	diffuse slowing (under MZM infusion)	hyperintensity in the L cingulate gyrus, T lobe and peri-rolandic area	Mild pleocytosis (WBC, 25/mm^3; PMN/Mono=5/95%), high protein level (120mg/dL), normal glucose ratio. VDRL positive. HSV, tuberculosis and fungi negative.	DZP, LZP, PHT, MZM	RSE	Improvement: retrograde amnesia
Boursoulian et al., 2007	1	M	51	NCSE (CPSE)	yes	yes	no	Bi-hemispheric delta slow waves with R mid-posterior T LPDs with frequent ictal discharges	leptomeningeal enhancement over the right cerebral hemisphere Second MRI: extensive increased signal in the right temporal lobe	33 WBC/μL, protein 110 mg/dL, glucose 76 mg/dL and positive VDRL: 1:4 titre.	PHT, VPA, LEV	Reponsive SE	Improvement: major cognitive impairment
Gurses et al., 2007	2	M	42	progressive memory impairment, apathy/depression and speech difficulties then FMSE	yes	yes	no	R anterior T LPDs	bilateral anterior and medial T hyperintensity and diffuse cortical atrophy	lymphocytic pleocytosis (22 lymphocytes/mm^3, 2 polymorphonuclear leucocytes/mm^3), high protein content (134 mg/dL). Glucose: 80 mg/dL. VDRL and TPHA positive. HSV negative.	DZP, PHT, CBZ	Reponsive SE	Complete recovery
		M	44	FMSE	yes	yes	no	L posterior LPDs	L sylvian aracnoid cyst	lymphocytic pleocytosis (22 lymphocytes/mm^3, 15 mononuclear leucocytes/mm^3), high protein content. VDRL and FTA-ABS positive.	CBZ, PHT and anesthesia	RSE	severe disability: aphasia, ataxia, epilepsy

Otto et al., 2007	1	M	29	Headache, vertigo and anorexia then TC seizure then NCSE (CPSE)	yes	yes	no	L T paroxysms	L mesio-T and thalamus hyperintensities	90 cells/µl, prevalence of lymphomonocytic cell, Erythrocytes 40/µl, total protein 1.85 mg/L, lactate 2.06 mmol/L, glucose 76 mg/dl. Bacteria and HSV negative. TPHA: 1:131.072, VDRL 1:16, CSF-serum antibody index (62.14, norm < 3)	VPA, LEV, PHT, MZM, PRO	RSE	severe disability: possible the tracheotomy decannulation
Amare et al., 2008	2	N/R	N/R	N/R	N/R	N/R	yes	N/R	N/R	VDRL positive	N/R	N/R	deceased
Sinha et al., 2008	5	N/R	N/R	CSE	yes	yes	N/R	N/R	N/R	VDRL positive	N/R	N/R	N/R
Sesar et al., 2008	1	M	57	memory impairment and previous GTCS. NCSE (CPSE)	no	yes	N/R	L T paroxysms	hyperintensity in both L F-T lobes	30 leukocytes (predominantly polymorphonuclear), 160 mg/dL proteins; glucose normal. VDRL 1/4, TPHA 1/320, FTA Abs IgG+++. HSV negative.	DZP, VPA	Reponsive SE	severe disability: aphasia, right hemiparesis and severe short-term memory impairment
Hajjaj et al., 2010	1	M	49	siphilitc chancre. SE	yes	no	N/R	bi-frontal TW	diffuse edema	Syphilitic tests positive	CBZ	Reponsive SE	Complete recover with total seizures remission
Kuppasani et al., 2010	1	M	33	GCSE	yes	yes	no	LPDs (focus N/R)	hyperintensity of the L FT regions and bilateral hippocampi	WBC: 207/µL, protein: 89 mg/dL, VDRL: positive. and negative HSV.	LZP, PHT	Reponsive SE	Improvement
Gaud et al., 2011	1	M	55	confusional state, NCSE (CPSE)	yes	yes	N/R	L T infraclinic seizures	L amigdalo-hippocampal and T-polar hyperintensity	Lymphocytic pleocytosis (15 cellules), high protein content: 0,59 g/l. VDRL 1:2, TPHA 1:256. anti-VGKC, anti-NMDA negative	LEV	Reponsive SE	Recovery

Yao et al., 2012	1	M	42	psychotic symptoms, cogntive alterations then FMSE	yes	yes	no	N/R	cerebral edema and hyperintensity of the R PTO lobes and thalamus	Opening pressure: 156 mmH_2O. WBC 38 $x10^6$/L: Lymphocytic pleocytosis (lymphocytes 70%, mononuclear cells 25%, neutrophils 5%), high protein content 0.8 g/L, normal glucose, chloride, adenosine deaminase and lactic acid. LDH 29 U/L, CRP 0.1 mg/L. Acid-fast, Gram and Indian ink staining: negative.	VPA	Reponsive SE	Complete recovery, seizures free
Derouich et al., 2013	1	M	50	GCSE and limbic encephalitis	yes	yes	no	ED bi-FT	bi-T-mesial hyperintensities	32 WBC (95% Lymphocytic), hypoglycorrhachia 0.68 g/l, hyperproteinorrachia 0.83 g/l, negative HSV, VDRL positive.	PB, VPA, BDZ	Reponsive SE	Improvement of neuro-psychological symptoms
Tong et al., 2013	4	M	39	CPSG	yes	yes	N/R	N/R	N/R	N/R	N/R	N/R	N/R
		F	50	Epilepsy then CPSG	no	yes	N/R	N/R	N/R	N/R	N/R	N/R	N/R
		F	44	Epilepsy then CPSG	no	yes	N/R	N/R	N/R	N/R	N/R	N/R	N/R
		F	60	CPSG	yes	yes	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Lv et al., 2014	1	M	59	20 days progressive cognitive decline and abnormal behavior then NCSE	yes	yes	N/R	R F LPDs	Mild R FT atrophy and "lace sign" bilateral FPTO	4 cells, raised protein (51 mg/d)L, normal glucose (55 mg/dL). VDRL positive.	DZP	Reponsive SE	improvement: at 3 months MMSE 24/30
Gaspard et al., 2015	1	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Kumari et al., 2015	1	M	31	3 years before genital syphilis.	yes	no	no	N/R	hyperintensity in the anterior L T lobe	Raised protein: 1.36 g/L, 10 mononuclear cells $x10^6$/L, RBC 2, glucose level/serum glucose level (4.2/10.2), no	PHT, (other 3 unspecified AEDs),	SRSE	severe disability: gross functional deficits

				Weight loss, malaise and SE						organisms on Gram stain, TB, cryptococcus and virus negative. RPR 1:4, TPPA 1:10.240	MZM, PRO, steroids		and marked cognitive impairment
Ahn S-J et al., 2016	1	M	29	3 months history of memory distubrances and aphasia then NCSE	yes	yes	N/R	L TO LPDs	L thalamic and TO hyperintensity	Opening pressure 150 mmH2O, WBC 60/μL (lymphocytes 60%), RBC 20/μL, protein 187 mg/dL, glucose 69 mg/dL VDRL 1:32. Virus, culture tests for HSV, CMV, EBV, bacteria, tuberculosis, and fungal negative	CBZ, LEV	Reponsive SE	Improvement: cognitive sequelae (aphasia, memory impairment and MMSE: 9/30)
Yu et al., 2016	1	M	56	history of syphilis; cognitive decline then NCSE	yes	no	N/R	Left hemisferic LPDs	bi-TO hyperintensity	77 leukocytes (14.3% lymphocyte, 86.7% monocytes), protein (84 mg/dL), glucose (47 mg/dL). Negative bacterial or fungal culture. 14-3-3 protein (+), VDRL 1:8, TRUST 1:4 and TPPA positive.	DZP, LEV	Reponsive SE	Improvement with cognitive sequelae
Sakai et al., 2018	1	M	33	epilepsy, anisocoria and cognitive impairment then GCSE	no	yes	no	R FC slow waves at 3-Hz and R O spikes	R F and T hyperintensity	RPR and TPHA positive. Mild pleocytosis (48 cells/ul) with predominant lymphocytes (96%) and increased protein (81 mg/dl). IgG index: 2.22.	DZP, PHT, LEV	Responsive SE	Improvement with cognitive sequelae
Todou-Daouda M et al., 2018	1	M	41	GCSE	yes	yes	no	N/R	hyperintensity in the R TI	N/R	N/R	N/R	N/R
Present case	**1**	**M**	**55**	**NCSE**	**yes**	**yes**	**no**	**R FT seizures**	**diffuse atrophy**	**2 cells/ul, mild proteins increment (93 mg/dl); viral PCR and bacteria negative, 30 intrathecal oligoclonal bands. VDRL**	**DZP, VPA, LCM, PRO, KET, MZM**	**SRSE**	**Complete recovery**

										1:32, TPHA 1:5120, RPR 1:4			

SE: Status Epilepticus; CSE: Convulsive Status Epilepticus; NCSE: Non Convulsive Status Epilepticus; TC: tonic-clonic; GTCS: generalized Tonic-clonic Seizure; CPSE: Complex Partial Status Epilepticus; FMSE: Focal Motor Status Epilepticus; GCSE: Generalized Convulsive Status Epilepticus; CPSG: Complex Partial Secondary Generalized; R: right; L: left; F: frontal; FC: Fronto-Central; T: temporal; TI: Temporo-Insular; P: parietal; O: occipital; ED: epileptiform discharges; LPDs: Lateralized Epileptiform Discharges; TW: triphasic waves; RSE: Refractory Status Epilepticus; SRSE: Super-Refractory Status Epilepticus; AEDs: antiepilepticd drugs; BDZ: Benzodiazepines; DZP: Diazepam; CLZ: Clonazepam; LZP: Lorazepam; PB: Phenobarbital; PHT: Phenitoin; VPA: Valproic Acid; LTG: Lamotrigine; CBZ: Carbamazepine; LEV: Levetiracetam; LCM: Lacosamide; MZM: Midazolam; PRO: Propofol; KET: Ketaomine; FTD: Fronto-Temporal Dementia; WBC: White Blood Cells; RBC: Red Blood Cells; VDRL: Veneral Disease Research Laboratory; TPHA: Treponema Pallidum Haemagllutination Assay; TPPA: Treponema Pallidum Particle agglutination Assay; FTA-ABS: Fluorescent-Treponemal-Antibody Absorption test; TRUST: Toluidine Red Unheated Serum Test; RPR: Rapid Plasma Reagin; HSV: Herpes Simplex Virus; PMN: polymorphonuclear; TB: tuberculosis; N/R: Not Reported.

Supplementary table 2. Demographic, clinical, EEG, MRI, CSF and follow-up characteristics of neurosyphilitic patients presenting Status Epilepticus after antibiotic treatment initiation as an expression Jarisch-Herxheimer Reaction.

Study	N of patients	Gender	Age	Clinical Presentation	New onset SE	Syphilis diagnosed at SE presentation	Immuno-compromised	EEG	Neuroimaging	CSF	SE Treatment	Response	Outcome
Zifko et al., 1994	1	M	40	Progressive personality changes, memory impairment and previous history of primary syphilis, then NCSE 10 hours after treatment initiation	yes	no	no	3 Hz Generalised abnormalities and LPDs	hypeintensities of the WM of F lobes, F atrophy	24/mm^2 cells, high protein level (1.56 g/l), VDRL 1:1	DZP	N/R	Recovery
Kojan et al., 2000	1	M	55	Progressive dementia. Two focal seizures to bilateral TC then NCSE 14 hours after treatment initiation	yes	yes	no	R emispheric ED and LPD	diffuse atrophy	lymphocytic pleocytosis (WBCs 24/mm^3, 96% lymphocytes) and high total protein (0.74 g/L). VDRL 1:8; MHA-TP positive.	PHT	Responsive SE	severe disability: persistent severe dementia and epilepsy development
Gurses et al., 2007	1	F	71	impaired memory and walking difficulties (rigidity and ataxic gait). NCSE 12 hours after treatment initiation	yes	yes	no	R FT LPDs	diffuse atrophy and leukoaraiosis	high protein level (156 mg/dL) and mild lymphocytic pleocytosis (28/mm3), VDRL and TPHA positive.	PHT	Responsive SE	severe disability: persistent gait difficulties
Kobayashi et al., 2011	1	M	48	epilepsy, hemianopia, cerebellar ataxia, anisocoria, impaired memory and	no	yes	no	N/R	hyperintense lesions in the F, T, PO lobes, corpus callosum; and cingulate gyrus	WBC: 26/mm^3, elevated total protein levels (70 mg/dL). No atypical cells. RPR 1:8, FTA-ABS 1:1,024.	CBZ, steroids	Responsive SE	Improvement

				attention. NCSE (CPSE) after treatment initiation									
Rissardo et al., 2019	1	M	23	Behavioral and blurred vision, GCSE 12 hours after treatment initiation	yes	yes	N/R	LPDs and generalized spikes and waves	Normal	WBC 28 mm^3, protein 239.7 mg/dl, VDRL 1:16	MZM, PHT, PRO	SRSE	Severe disability

SE: Status Epilepticus; CSE: Convulsive Status Epilepticus; NCSE: Non Convulsive Status Epilepticus; TC: tonic-clonic; GTCS: generalized Tonic-clonic Seizure; CPSE: Complex Partial Status Epilepticus; FMSE: Focal Motor Status Epilepticus; GCSE: Generalized Convulsive Status Epilepticus; CPSG: Complex Partial Secondary Generalized; R: right; L: left; F: frontal; FC: Fronto-Central; T: temporal; TI: Temporo-Insular; P: parietal; O: occipital; ED: epileptiform discharges; LPDs: Lateralized Epileptiform Discharges; TW: triphasic waves; RSE: Refractory Status Epilepticus; SRSE: Super-Refractory Status Epilepticus; AEDs: antiepilepticd drugs; BDZ: Benzodiazepines; DZP: Diazepam; CLZ: Clonazepam; LZP: Lorazepam; PB: Phenobarbital; PHT: Phenitoin; VPA: Valproic Acid; LTG: Lamotrigine; CBZ: Carbamazepine; LEV: Levetiracetam; LCM: Lacosamide; MZM: Midazolam; PRO: Propofol; KET: Ketaomine; FTD: Fronto-Temporal Dementia; WBC: White Blood Cells; VDRL: Veneral Disease Research Laboratory; MHA-TP: Microhemagglutination Assay for Treponema pallidum Antibodies; TPHA: Treponema Pallidum Haemagllutination Assay; FTA-ABS: Fluorescent-Treponemal-Antibody Absorption test; RPR: Rapid Plasma Reagin; N/R: Not Reported.