**Supplementary Table: Clinical Features and Brain Magnetic Resonance Imaging Observations in Patients with Palatal Tremor (n=27)**

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| Sl No | Age/ Gender  | Clinical Features  | Key laboratory investigations | Brain MRI | ION  | Diagnosis  |
| 1 | 20/ F | Intermittent ‘click’, sometimes initiated voluntarily by specific head posture and pressing thyroid cartilage. Auditory click present for variable time in sleep. Click audible to external observer. Head tilt & brisk reflexes.  | Serum lactate & thyroid functions normal | Normal  | Normal  | EPT  |
| 2 | 30/ F | Ptosis, supranuclear ophthalmoplegia, head thrusts, intermitted facial grimaces, dysarthria, ataxia, pes cavus, spastic gait, brisk reflexes & absent ankle reflex. Palatal tremor | Muscle biopsy: single COX deficient fibre & occasional fibres with sub-sarcolemmal aggregates on Modified Gomori Trichrome and succinic dehydrogenase stains.  | FLAIR hyperintense signals in bilateral thalami, globus pallidi, & focal cerebellar white matter. Mineralisation of dentate nuclei & globus pallidi.Cerebral & cerebellar atrophy. | Bilateral hyperintense  | Mitochondrial cytopathy *POLG1* & *POLG2* |
| 3 | 44/F | Ataxia, dysarthria, psychosis, generalized seizures, hyper-reflexia, pes cavus, hammer toes, ophthalmoplegia, and palatal tremor.  | Muscle biopsy: Denervation atrophy with reinnervation & few COX deficient fibres Nerve conduction studies showed mild axonal neuropathy | Cerebellar atrophy  | Bilateral hyperintense & enlarged | *POLG* mutation |
| 4 | 13/ M | Dysmorphic face, nephrocalcinosis, optic atrophy, ataxia, gaze evoked nystagmus, bipyramidal signs, oculopalatal tremor.  | Homocysteine, thyroid functions normalTMS, urine for abnormal metabolites & urine organic acids: normalAudiometry: moderate mixed hearing loss. Serum and CSF lactate: elevated | Symmetrical lesions in posterior medulla, pons, mid brain, cerebellar peduncles & adjoining cerebellar white matter, CTT. Patchy involvement of PLIC. Focal cavitation in parieto-occipital white matter.  | Bilateral enlarged | *WDR81* mutation |
| 5 | 50/ F | Ataxia, dysarthria, brisk reflexes and absent ankle jerk, hammer toes, oculopalatal tremor. | Serum lactate & thyroid functions: normalNCS: axonal neuropathyMuscle biopsy: Numerous rods & granular inclusions in many fibres. Many lobulated fibres present. Mitochondrial respiratory chain assays normal. | Diffuse atrophy of cerebellum, brain stem & cerebral hemispheres. | Bilateral hyperintense  | *EEF2* mutation |
| 6 | 9/ M | Fever, headache, vomiting, seizures, altered behaviour, hallucinations, fear, irrelevant talk followed by ataxia and tremor on recovery. Improved with steroids. Recurrence of ataxia, with head tremor, oculopalatal tremor | TMS, urine for abnormal metabolites & muscle biopsy: normal  | T2/ FLAIR hyperintensities in bilateral thalami, and CTT.  | Bilateral hyperintense & enlarged | Mitochondrial cytopathy. Novel heterozygous mutation in *TENM4* |
| 7 | 16/F | Optic atrophy, bilateral pyramidal signs, palatal tremor | TMS, urine for abnormal metabolites, audiometry, nerve conduction study, muscle biopsy, mitochondrial respiratory chain complex assay: normal | T2/FLAIR hyperintensity in dorsal pons & mid-brain, CTT, MLF, SCP, MCP, & PLIC. T2 hyperintensity with areas of inversion in periventricular cerebral white matter, corona radiata, centrum semiovale, & peri-rolandic region. | Bilateral hyperintense & enlarged | Leukoencephalopathy. No mutations on exome sequencing. |
| 8 | 54/ F | Fever triggered ataxia, dysarthria, oculopalatal tremor  | Serum lactate elevatedAudiometry: mild sensorineural hearing lossThyroid function, TPO antibody & homocysteine: normal.Muscle biopsy: COX deficient and ragged red fibres | T2/FLAIR hyperintensity of bilateral medial thalami. Mild cerebellar atrophy. Mineralisation of globus pallidi.  | Bilateral hyperintense & enlarged | Mitochondrial cytopathy. No mutations on exome sequencing.  |
| 9 | 31/ F | Intellectual disability, episodic weakness and dysarthria triggered by fever, optic atrophy, oculopalatal tremor associated with tongue and lip tremor, bipyramidal signs. Endocrine dysfunction: irregular menstrual cycles.  | Serum lactate: normal; Muscle biopsy: normal; respiratory chain complex assays normal | Mineralisation of dentate, substantia nigra & globus pallidus. Cerebellar atrophy | Bilateral hyperintense & enlarged | Mitochondrial cytopathy  |
| 10 | 17/ M | Ataxia, dysarthria, peri-oral dyskinesias, generalised dystonia. | Serum lactate & ceruloplasmin: normal; Muscle biopsy: normal | T2 hyperintensity in bilateral putaminal, and body of caudate, with areas of inversion in FLAIR. Cerebellar atrophy. | Bilateral hyperintense and slightly enlarged with inversion in FLAIR  | Mitochondrial cytopathy |
| 11 | 51/M | Recurrent episodes of acute onset impaired vision, left hemi-ataxia, with improvement. Oculopalatal tremor, voice tremor | ANA, HIV, HBsAg, muscle biopsy: normal | Focal area of gliosis in right side of dorsal pons, right caudate, putamen & ALIC. Cerebellar atrophy | Bilateral hyperintense & enlarged  | Recurrent stroke.  |
| 12 | 55/ M | Acute ataxic hemiparesis, dysarthria & dysphagia with partial recovery. Tremor of contralateral limbs after seven months. Bilateral pyramidal signs (asymmetric), oculopalatal tremor. Hypertensive.  | Homocysteine, HIV & VDRL: negativeMild atherosclerotic changes in neck vessels without stenosis. Dyslipidemia + | Bleed in right midbrain, superior cerebellar peduncle & pons abutting the mid-line.  | Right ION hyperintense & enlarged | Pontine bleed |
| 13 | 35/M | Hyperacute onset vertigo, vomiting, left hemiataxia and dysarthria. Improved and after 1.5 months developed new onset oscillopsia, giddiness, falls, ataxia, tremor of bilateral limbs. Oculopalatal tremor. Tongue tremor.  | - | Bleed in pons & lower mid-brain extending into right MCP | Right ION hyperintense & enlarged | Pontine bleed |
| 14 | 43/ M | Seizures followed by acute onset of hemiparesis and altered sensorium. Recovered with residual spastic hemiparesis. Horizontal gaze evoked nystagmus. Palatal tremor with contraction of eyelids, left side of face and larynx.  | Hemoglobin, serum ACE, thyroid functions, homocysteine, lipids, ANA profile, ANCA, HbA1C, and echocardiogram: normal | Infarcts in right lateral pons, left cerebellum, left mid-brain, bilateral medial thalami, right medial occipital, right hippocampus, & parahippocampal region & left superior cerebellum, left MCP.  | Right ION hyperintense & enlarged | Stroke  |
| 15 | 39/ F | Acute onset of headache, vomiting and altered sensorium. Detected to have PCA aneurysm and clipping done. Recovered with residual hemiparesis. Ten months later developed progressive tremor, ataxia, dysarthria, dysphagia and unilateral ptosis. Oculopalatal tremor, with laryngeal & tongue tremor.  | RNS negative | Large infarct in left PCA territory. Coiling of left PCA aneurysm | Bilateral hyperintense & enlarged | PCA aneurysm & infarct |
| 16 | 35/ F | Headache, impaired vision, optic atrophy, hemiparesis, focal seizures, cognitive decline, pseudobulbar affect, spastic dysarthria, drooling, brisk jaw jerk, bilateral pyramidal signs, palmomental reflex, oculopalatal tremor.Hypertension, premature menopause & primary infertility | Hemoglobin, peripheral smear, lipids, ACE, thyroid functions, homocysteine: normal. ANA profile, ANCA, APLA, HIV, HBsAg: negativeESR: 100DSA: long segment stenosis of descending thoracic aorta | Multiple infarcts in periventricular & sub-cortical white matter, caudate, putamen, thalami, & ponto-medullary region. Macro & micro bleeds in basal ganglia, thalami, brainstem, & cerebellum. Cerebellar atrophy | Faint hyperintensity in left ION | Takayasu arteritis |
| 17 | 44/ F | Head injury in road traffic accident resulting in coma and mechanical ventilation for two months. On recovery has abnormal behaviour, unsteady gait and paroxysmal clenching of teeth and posturing of limbs. Palatal tremor.  | Thyroid functions, homocysteine and vitamin B12: normal | Bleed in pons, SCP, mid brain & medullar on right side. Gliosis of left inferior frontal lobe. Cerebellar atrophy | Left ION hyperintense & enlarged | Post RTA |
| 18 | 32/ M | Head injury following fall from bike in inebriated state and diffuse axonal injury. Developed titubation and tremor of right upper limb on recovery.  | Nil  | Multiple areas of bleed in bilateral cerebral hemispheres in gray-white junction, putamen, insula, thalamus, superior and middle cerebellar peduncles. Atrophy of cerebellum | Left ION hyperintense & enlarged | Head injury  |
| 19 | 19/ M | Head injury and altered sensorium that recovered over one year. Abnormal behaviour and worsening of gait, dystonia of right upper limb after four to five years of head injury. Oculopalatal tremor. | Nil  | Bleed in mid-brain and pons in the mid-line extending to the left side.  | Bilateral hyperintense & enlarged with mild asymmetry | Head injury  |
| 20 | 44/ M | Acute onset of paresthesias over right half of the body, vertigo, hiccups, ataxic gait, brisk reflexes, extensor plantar, palatal tremor with contraction of larynx and diaphragm.  | Serum NMO, ACE level, ANA profile, HIV negative. CSF normal.  | T2/ FLAIR hyperintense lesion in right peri-trigonal region with focal nodular enhancement. Focal lesion in left postero-lateral thalamus, & left medulla with peripheral enhancement.  | Could not be visualised  | Atypical demyelination  |
| 21 | 31/M | Ataxia, multiple cranial nerve palsies, hemiparesis. Palatal myoclonus | ANA, APLA, NMO, VDRL, HIV, CSF, HBsAg, HLA-B51 normal | Patchy T2/FLAIR hyperintensities in mid-brain, pons, superior, middle and inferior cerebellar peduncles. Cerebellar atrophy | Normal  | Atypical demyelination  |
| 22 | 53/ M | Focal seizures with generalisation, headache, pseudobulbar affect, ptosis, diplopia, dysarthria, dysphagia, facial palsy, hemiparesis, incontinence, oculopalatal tremor. | HIV positive, CD4 count 35, CSF elevated protein (79 mg/ dl), brain biopsy: toxoplasmosis | Multiple, discrete lesions in juxta-cortical cerebral white matter, mid-brain, which are T2 hyperintense & partly inverting on FLAIR with enhancing rim. Diffuse cerebral, brainstem & cerebellar atrophy.  | Bilateral hyperintense & enlarged | CNS toxoplasmosis |
| 23 | 48/ M | Occipital headache, episodic LOC, optic atrophy, bilateral spasticity and brisk stretch reflexes, palatal tremor, weight loss | ESR 34, HIV negative, Mantoux positive, CT thorax: axillary lymphadenopathy.CSF: 7 cells, protein 77mg/dl, glucose 94 mg/dl.  | T2/FLAIR hyperintensity in dentate nuclei, & posteroinferior cerebellum, with areas of T2 shortening. Pachymeningitis with confluent ring enhancing lesions in tentorium & falx cerebelli.  | Slightly enlarged bilaterally  | Tubercular pachymeningitis |
| 24 | 24/ M | Chronic low grade fever, seizures, progressive paraparesis, headache, vomiting, vertigo, papilledema, scanning speech, unilateral facial palsy, bilateral pyramidal signs, bilateral cerebellar signs. Oculopalatal tremor  | ESR: 20HIV: negativeSerum ACE: normalCSF: 220 cells (lymphocytes), protein 977, glucose 36 | Confluent ring enhancing large lesion in brainstem involving pons, MCP, cerebellum, medulla, mid-brain, & thalamus with areas of T2 shortening. Significant mass & distortion of brain stem. Lesion in right posterior temporal region. Spinal arachnoiditis. | Could not be visualised  | CNS tuberculoma  |
| 25 | 57/ M | Giddiness and imbalance while walking four years back. Remitted and relapsed 1.5 years back with same symptoms with diplopia, paresthesias in left half of body, and hoarseness. Brisk stretch reflexes, left plantar extensor, ataxic gait, oculopalatal tremor. | ESR, Mantoux, nerve conduction normal. ANA profile & ANCA normal. ACE marginally elevated 90.8 (ref: 8-65 IU/L)CSF normal | Nodular enhancing lesions in mid-brain, thalamus, pons & medullar reaching up to midline. Cerebellar & cerebral atrophy.  | Bilateral hyperintense | Granulomatous lesion of pons |
| 26 | 50/M | Ataxia & impaired hearing  | Nil  | Expansile lesion in right middle cerebellar peduncle with an exophytic component in the fourth ventricle.  | Bilaterally enlarged & hyperintense | Glioma of middle cerebellar peduncle |
| 27 | 56/ F | Progressive headache and ataxia since 10 years. Diplopia, dysarthria and dysphagia since six years. Diagnosed to have epidermoid cyst of fourth ventricle and operated. Oculopalatal tremor.  | - | Pre-op: lesion in the fourth ventricle which is T2 hyperintense, partly inverting on FLAIR, & restricting, with minimal enhancement of rim. Post-op: marked cerebellar atrophy. Multiple infarcts in periventricular cerebral white matter.  | Could not be visualised  | Fourth ventricular epidermoid cyst(post op status) |