**Supplementary table. Literature review of the primary CNS lymphoma with neurotologic findings**

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| **Author (Year)\*** | **Sex/Age** | **Location of tumor** | **Neurotologic findings** | **Other neurologic deficits** |
| Nishimura, et al. (1998) [1] | F/63 | CPA | SN (I) | Mental change |
| Husseini, et al. (2012) [2] | F/59 | CPA, basal ganglia, thalamus | SN (I) | Facial palsy, dysthesia, visual phosphen, blurred vision |
| Itoh, et al. (2001) [3] | F/28 | CPA | SN (I), hearing loss | Papilledema |
| Larner, et al. (1999) [4] | M/73 | CPA | SN (Lt), hearing loss, saccadic hypermetria | Sensory dysthesia, limb dysmetria |
| Matosevic, et al. (2010) [5] | M/60s | Midbrain, bagal ganglia, corpus callosum | SN (Rt) | Aphasia, apraxia, dysphagia, anosmia, dysarthria, urinary incontinence |
| Lachance, et al. (1991) [6] | F/60 | Unknown | SN (Lt), abducens palsy | Mental change, motor weakness |
| Balmaceda, et al. (1994) [7] | M/65 | Cerebellum, hypothalamus lateral and 3rd ventricles,  | SN (horizontal), impaired upward gaze | Diabetes insipidus, mental change |
| Gijtenbeck, et al. (2001) [8] | M/42 | Temporal and occipital lobes | GEN | Bilateral central scotoma, papilledema |
| Kleopa, et al. (1996) [9] | M/67 | Cerebellum | GEN | Mental change, Seizure, retrograde amnesia, limb dysmetria |
| Marshall, et al. (1998) [10] | M42 | Pons, midbrain, internal capsule, frontal and parietal lobes | GEN | Mental change, impared gag reflex, motor weakness |
| Taieb, et al. (2014) [11] | M/58 | Medulla, pons, midbrain, internal capsule | GEN | Facial palsy, limb dysmetria |
| Toth, et al. (2002) [12] | M/46 | 3rd ventricle | GEN | Confabulation, retrograde amnesia |
| Migita, et al. (2013) [13] | F/53 | Medulla | GEN | Diplopia (not specified) |
| Garth, et al. (1993) [14] | F/68 | CPA | GEN (Brun’s nystagmus) | Dysarthria, Sensory ataxia, absent corneal reflex |
| Finelli, et al. (2006) [15] | F/42 | Pons, Cerebellum | GEN, abducens palsy, torsional nystagmus during vertical gazes | Facial palsy, motor weakness, dysthesia |
| Jaiswal, et al. (2004) [16] | M/36 | CPA, lateral and 3rd ventricles | GEN, abducens palsy, hearing loss | Facial palsy, limb dysmetria |
| McCue, et al. (1993) [17] | M/60 | Medulla, pons, midbrain | GEN, abducens palsy | Dysarthria, dysphagia, limb dysmetria, dysthesia |
| Ruff, et al. (1979) [18] | M/? | 3rd and 4th ventricles | GEN, convergence nystagmus | Mental change, dysarthria |
| Cheung, et al. (2011) [19] | F/63 | Medulla, midbrain, pineal gland, 3rd and 4th ventricles | Pretectal syndrome | Mental change |
| Cachia, et al. (2013) [20] | M/71 | Medulla, Cerebellum | Oculopalatal myoclonus, SN (Rt) | Ataxia, dysarthria |
| Miki, et al. (2014) [21] | M/62 | Pons, midbrain, thalamus | Complete ophthalmoplegia, ptosis | Mental change, motor weakness, limb dysmetria |
| Reiche, et al. (2007) [22] | F/65 | Temporal lobe | INO | Mental change |

C indicates contralesiona; CPA, cerebellopontine angle; GEN, gaze-evoked nystagmus; I, ipsilesional; INO, internuclear ophthalmoplegia; SN, spontaneous nystagmus.

**References for the supplementary table**

1. Nishimura T, Uchida Y, Fukuoka M, Ono Y, Kurisaka M, Mori K (1998) Cerebellopontine angle lymphoma: a case report and review of the literature. Surg Neurol 50 (5):480-486

2. Husseini L, Saleh A, Reifenberger G, Hartung H-P, Kieseier BC (2012) Inflammatory demyelinating brain lesions heralding primary CNS lymphoma. Can J Neurol Sci 39 (1):6-10

3. Itoh T, Shimizu M, Kitami K, Kamata K, Mitsumori K, Fujita M, Ohnishi A, Nagashima K (2001) Primary extranodal marginal zone B‐cell lymphoma of the mucosa‐associated lymphoid tissue type in the CNS. Neuropathology 21 (3):174-180

4. Larner AJ, D'Arrigo C, Scaravilli F, Howard RS (1999) Bilateral symmetrical enhancing brainstem lesions: an unusual presentation of primary CNS lymphoma. Eur J Neurol 6 (6):721-723

5. Matošević B, Knoflach M, Furtner M, Gotwald T, Maier H, Kiechl S, Willeit J (2010) Progressive leukoencephalopathy caused by primary CNS lymphoma. J Clin Pathol 63 (4):359-361

6. Lachance DH, O'Neill BP, Macdonald D, Jaeckle KA, Witzig TE, Li C-Y, Posner J (1991) Primary leptomeningeal lymphoma Report of 9 cases, diagnosis with immunocytochemical analysis, and review of the literature. Neurology 41 (1):95-95

7. Balmaceda CM, Fetell MR, Selman JE, Seplowitz AJ (1994) Diabetes insipidus as first manifestation of primary central nervous system lymphoma. Neurology 44 (2):358-358

8. Gijtenbeek JM, Rosenblum MK, DeAngelis LM (2001) Primary central nervous system T-cell lymphoma. Neurology 57 (4):716-718

9. Kleopa K, Becker G, Roggendorf W, Reichmann H (1996) Primary T-cell lymphoma of the cerebellum. J Neurooncol 27 (3):225-230

10. Marshall AG, Pawson R, Thom M, Schutz TF, Scaravilli F, Rudge P (1998) HTLV-I associated primary CNS T-cell lymphoma. J Neurol Sci 158 (2):226-231

11. Taieb G, Uro-Coste E, Clanet M, Lassmann H, Benouaich-Amiel A, Laurent C, Delisle M-B, Labauge P, Brassat D (2014) A central nervous system B-cell lymphoma arising two years after initial diagnosis of CLIPPERS. J Neurol Sci 344 (1):224-226

12. Toth C, Voll C, Macaulay R (2002) Primary CNS lymphoma as a cause of Korsakoff syndrome. Surg Neurol 57 (1):41-45

13. Migita K, Miyashita T, Mijin T, Sakito S, Kurohama H, Ito M, Toda K, Tsustumi K, Baba H, Izumi Y (2013) Epstein–Barr virus and methotrexate-related CNS lymphoma in a patient with rheumatoid arthritis. Mod Rheumatol 23 (4):832-836

14. Garth R, Coddington R, Brightwell A (1993) Primary cerebral lymphoma presenting with bilateral cerebellopontine angle lesions. J Laryngol Otol 107 (10):937-939

15. Finelli P, Naik K, DiGiuseppe J, Prasad A (2006) Primary lymphoma of CNS, mycophenolate mofetil and lupus. Lupus 15 (12):886-888

16. Jaiswal AK, Mahapatra A, Sharma M (2004) Primary central nervous lymphoma presenting as bilateral cerebellopontine angle lesions: a rare case report. J Clin Neurosci 11 (3):328-331

17. McCue M, Sandrock A, Lee J, Harris N, Hedley-Whyte E (1993) Primary T‐cell lymphoma of the brainstem. Neurology 43 (2):377-377

18. Ruff RL, Petito CK, Rawlinson DG (1979) Primary cerebral lymphoma mimicking multiple sclerosis. Arch Neurol 36 (9):598-598

19. Cheung T, Proulx A, Fraser JA (2011) Primary central nervous system lymphoma presenting as Parinaud syndrome. Can J Ophthalmol 46 (5):445-446

20. Cachia D, Izzy S, Smith T, Ionete C (2013) A rare presentation of hypertrophic olivary degeneration secondary to primary central nervous system lymphoma. JAMA Neurol 70 (9):1192-1193

21. Miki Y, Tomiyama M, Kurotaki H, Wakabayashi K, Baba M (2014) Primary central nervous system lymphoma mimicking Bickerstaff’s encephalitis. Neurol Sci 35 (1):139-141

22. Reiche W, Hagen T, Schuchardt V, Billmann P (2007) Diffusion-weighted MR imaging improves diagnosis of CNS lymphomas: A report of four cases with common and uncommon imaging features. Clin Neurol Neurosurg 109 (1):92-101