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Supplementary material

Supplement to: ASH Chee, ACY Mak, KW Kam, et al. Diagnostic challenges and treatment outcomes of primary vitreoretinal lymphoma in Hong Kong. Hong Kong Med J 2026;Epub 4 Feb 2026. https://doi.org/10.12809/hkmj2412293.

Supplementary Table 1. Clinical summary of patients with primary vitreoretinal lymphoma

Patient	Age (y) and sex	Sites involved	Interval between eye and CNS involvement, months	Involved eye(s)	Signs		Disease-related secondary ocular complications
					Vitritis	Subretinal infiltrate	
1	60, M	Brain→Eye	15	R	R	N/A	N/A
2	52, F	Eye→Brain	37	BE	BE	BE	N/A
3	57, F	Eye→Brain	4	L→R	BE	N/A	N/A
4	57, M	Eye→ Brain	7	R	R	N/A	N/A
5	63, F	Brain→Eye	39	R→L	BE	BE	NVG + VH
6	61, F	Brain→Eye	13	BE	BE	L	N/A
7	54, F	Eye→Brain	4	L	L	N/A	N/A
8	75, M	Eye only	N/A	R→L	BE	R	N/A
9	58, F	Eye only	N/A	L→R	BE	N/A	N/A
10	80, F	Eye only	N/A	R→L	BE	BE	N/A

Abbreviations: BE = both eyes; CNS = central nervous system; F = female; L = left; M = male; N/A = not applicable; NVG = neovascular glaucoma; R = right; VH = vitreous haemorrhage

Supplementary Table 2. Diagnostic summary of patients with primary vitreoretinal lymphoma

Patient	Brain biopsy	Diagnostic vitrectomy		Vitreous sampling	Vitreous cytology	Flow cytometry–guided immunophenotyping	Polymerase chain reaction (gene rearrangement)
		R	L				
1	DLBCL	Yes	N/A	25-gauge 1.5 mL undiluted, 3 mL diluted	R: Few atypical lymphoid cells	Y (relative increase in B lymphoid cells ~50% $CD19^+$ and $CD20^+$ but low cellularity→non-diagnostic)	N/A
2	DLBCL	Yes	Yes	23-gauge R: 1 mL undiluted, 5 mL diluted L: 2 mL undiluted	R: Scanty small lymphoid cells L: Scanty atypical lymphoid cells	Y (R: atypical lymphoid cells but inconclusive due to low cellularity; $CD20^+$: 18%, $CD3^+$: 82%)	Y (L: clonal rearrangement–negative)
3	DLBCL	No*	Yes	25-gauge L: 1 mL undiluted, 2 mL diluted	L: Scanty cellularity	Y (L: atypical B lymphocytes, $CD20^+$)	N/A
4	DLBCL	Yes	N/A	23-gauge	R: Inflammatory cells	N/A	N/A

				0.3 mL clear			
5	DLBCL	Yes	Yes	23-gauge L: 0.5 mL undiluted, turbid R: 3 mL undiluted	BE: Atypical lymphoid cells	N/A	N/A
6	DLBCL	No†	Yes	23-gauge L: 5 mL turbid	L: Atypical lymphoid cells	Y (low to moderate cellularity; 70% large lymphoid B cells, $CD20^+$)	N/A
7	DLBCL	N/A	Yes	23-gauge L: 2 mL clear	L: Inflammatory cells	N/A	N/A
8	N/A	Yes	Yes	25-gauge R: 2 mL (undiluted + diluted) + 5 mL clear vitrectomy cassette L: 4 mL turbid	R: Atypical lymphoid cells L: Acellular	Y (L: clonal population not demonstrated)	Y (R: IGH gene rearrangement–positive)
9	N/A	No†	Yes	23-gauge 1.8 mL undiluted for flow cytometry, 3 mL diluted for cytology	L: Few atypical lymphocytes	Y (B-lymphoid proliferation suggestive of neoplasm; 79% $CD19^+$ and $CD20^+$ B	N/A

						cells)	
10	N/A	Yes	Yes	25-gauge L: 1 mL undiluted, 2.5 mL diluted R: 0.7 mL undiluted, 3 mL diluted	BE: Scanty lymphoid cells	N/A	N/A

Abbreviations: BE = both eyes; DLBCL = diffuse large B-cell lymphoma; IGH = immunoglobulin heavy locus; L = left; N/A = not applicable; R = right

* Patient received therapeutic vitrectomy only; vitreous samples were not sent for pathological confirmation because DLBCL had already been confirmed by brain biopsy

† Patient declined vitrectomy

Supplementary Table 3. Recently proposed diagnostic framework for diffuse large B-cell lymphoma–associated primary vitreoretinal lymphoma[1]

1. Typical vitreous opacities and/or subretinal infiltrates on clinical examination 2. Vitreous cytology showing malignant or atypical cells 3. Immunohistochemical examination of the vitreous or chorioretina showing $CD20^+$ expression 4. Vitreous interleukin-10–to–interleukin-6 ratio >1 5. Vitreous cell gene rearrangement 6. Vitreous flow cytometry demonstrating B-cell lymphoma biomarkers When criteria 1 to 3 were met, only 15% of cases were diagnosed. When criterion 1 plus two positive results from criteria 4, 5, and 6 were present, diagnostic sensitivity increased to 97.5% and specificity reached 100%.

Reference

1. Zhang X, Zhang Y, Guan W, et al. Development of diagnostic recommendations for vitreoretinal lymphoma. Ocul Immunol Inflamm 2024;32:1142-9.

Supplementary Table 4. Treatment outcomes of patients with primary vitreoretinal lymphoma

Patient	Visual acuity (R/L)		No. of intravitreal MTX injections		Total follow-up, mo	Alive (if No, months from eye diagnosis to death)
	Before treatment	After treatment	R	L		
1	20/20	20/20	4	N/A	4	Yes
2	20/30, 20/80	20/30, 20/30	1	1	86	Yes
3	20/400, 20/120	20/40, 20/40	0	0	37	Yes
4	20/120	20/60	0	N/A	15	No (21)
5	20/120, LP	LP, NLP	0	17	28	No (33)
6	20/60, 20/200	20/80, 20/120	2	0	52	No (30)
7	20/70	20/200	N/A	0	7	No (49)
8	20/600, 20/70	20/30, 20/30	0	0	61	Yes
9	20/30, 20/30	20/30, 20/30	9	3	68	Yes
10	20/40, 20/30	20/40, 20/30	8	8	17	Yes

Abbreviations: L= left; LP = light perception; MTX = methotrexate; N/A = not applicable; NLP = no light perception; R = right

Supplementary FIG. (a) Colour fundus photograph of Patient 2's left eye before treatment, showing leopard spots and extensive creamy-white subretinal infiltrates; (b) colour fundus photograph of the same eye after treatment. (c) Colour fundus photograph of Patient 10's right eye before treatment; (d) optical coherence tomography linear scan of the lesion in (c), showing lumpy subretinal lesions without subretinal fluid (arrows); (e) fluorescein angiography demonstrating hypofluorescent areas (arrows) corresponding to the tumour infiltrate in (c); (f) indocyanine green angiography showing a hypocyanescent choroidal lesion (arrows) corresponding to the tumour infiltrate in (c)