

Supplementary Information

Diagnostic ability of macular microvasculature with swept-source OCT angiography for highly myopic glaucoma using deep learning

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Supplementary Table S1. Comparison of demographics and clinical characteristics between highly myopic glaucomatous eyes and healthy highly myopic eyes with external datasets

	Highly Myopic Glaucoma (n = 92)	Healthy High Myopia (n = 16)	P Value
Age (yrs)	42.5 ± 8.7	41.6 ± 7.0	0.832*
Female, no. (%)	35 (38.0)	5 (31.3)	0.604†
Intraocular pressure (mmHg)	12.7 ± 2.4	13.1 ± 2.7	0.586‡
Spherical equivalent (D)	-8.2 ± 2.0	-7.9 ± 2.1	0.675‡
Axial length (mm)	27.0 ± 0.7	26.7 ± 0.6	0.135*
Central corneal thickness (μm)	541.5 ± 26.6	549.5 ± 17.6	0.336‡
Visual field mean deviation (dB)	-5.07 ± 4.91	-0.30 ± 1.18	<0.001*

Data are mean ± standard deviation unless otherwise indicated.

Boldface indicates $P < 0.05$.

*Mann-Whitney U test.

†Chi-square test.

‡Student's t-test.

Supplementary Table S2. Performance of deep learning model in distinguishing highly myopic glaucoma from healthy high myopia with external datasets

	AUC (95% CI)	Accuracy (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
OCTA SCP	0.873 (0.807–0.940)	0.807 (0.724–0.873)	0.462 (0.154–0.539)	0.903 (0.365–0.903)
OCTA DCP	0.794 (0.687–0.902)	0.815 (0.734–0.880)	0.308 (0.154–0.615)	0.957 (0.591–0.957)
OCT GCL+	0.970 (0.941–1.000)	0.935 (0.871–0.974)	0.923 (0.423–1.000)	0.939 (0.854–0.988)
OCT GCL++	0.843 (0.722–0.964)	0.817 (0.696–0.905)	0.353 (0.294–0.824)	1.000 (0.163–1.000)

AUC area under the receiver operating characteristic curve, *CI* confidence interval, *DCP* deep capillary plexus, *GCL+* ganglion cell layer + inner plexiform layer, *GCL++* retinal nerve fiber layer + ganglion cell layer + inner plexiform layer, *OCT* optical coherence tomography, *OCTA* optical coherence tomography angiography, *SCP* superficial capillary plexus.

Supplementary Table S3. Comparison of OCT angiography devices

Device (Manufacturer)	OCT Modality	OCTA Algorithm	Scanning Speed	Light Source	Axial/Transverse Resolution
AngioVue RTVue XR Avanti (Optovue)	Spectral-domain	SSADA	70,000 A-scans/sec	840 nm	5/15 μm
Spectralis OCT Angiography (Heidelberg Engineering)	Spectral-domain	FSADA	85,000 A-scans/sec	870 nm	7/14 μm
PLEX Elite 9000 (Carl Zeiss Meditech)	Swept-source	OMAG	100,000 A-scans/sec	1,040–1,060 nm	6.3/20 μm
DRI OCT Triton (Topcon)	Swept-source	OCTARA	100,000 A-scans/sec	1,050 nm	8/20 μm

DRI deep range imaging, *FSADA* full-spectrum amplitude-decorrelation angiography, *OCT* optical coherence tomography, *OCTA* optical coherence tomography angiography, *OCTARA* optical coherence tomography angiography ratio analysis, *OMAG* optical microangiography, *SSADA* split-spectrum amplitude-decorrelation angiography.

Supplementary Table S4. Comparison of demographics and clinical characteristics between internal and external datasets

	Highly Myopic Glaucoma		<i>P</i> Value	Healthy High Myopia		<i>P</i> Value
	Internal Dataset (n = 203)	External Dataset (n = 92)		Internal Dataset (n = 57)	External Dataset (n = 16)	
Age (yrs)	46.6 ± 9.8	42.5 ± 8.7	0.001*	42.7 ± 14.1	41.6 ± 7.0	0.658*
Female, no. (%)	81 (39.9)	35 (38.0)	0.803†	28 (49.1)	5 (31.3)	0.204†
Spherical equivalent (D)	-8.1 ± 1.3	-8.2 ± 2.0	0.082*	-8.5 ± 1.6	-7.9 ± 2.1	0.099*
Axial length (mm)	26.9 ± 0.7	27.0 ± 0.7	0.223*	26.8 ± 0.6	26.7 ± 0.6	0.705‡
Visual field mean deviation (dB)	-5.38 ± 5.49	-5.07 ± 4.91	0.648*	-0.02 ± 1.67	-0.30 ± 1.18	0.619*
	Internal Dataset			External Dataset		
Glaucomatous eyes, no. (%)	203 (78.1)			92 (85.2)		0.119†

Data are mean ± standard deviation unless otherwise indicated.

Boldface indicates $P < 0.05$.

*Student's t-test.

†Chi-square test.

‡Mann-Whitney U test.

Supplementary Figure S1. Distribution plots comparing demographics and clinical characteristics between internal and external datasets for highly myopic glaucomatous eyes (**A,C,E,G,I**) and healthy highly myopic eyes (**B,D,F,H,J**). (**A,B**) Age. (**C,D**) Gender. (**E,F**) Spherical equivalent. (**G,H**) Axial length. (**I,J**) Visual field mean deviation. (**K**) Diagnosis (glaucoma, normal)

