



Figure S1 Typical example from each of the PD group and the PR group. (A) Comparison of the measurement of the mLV diameter around the tumor in a patient with brain metastasis in the PD group before and after treatment. (B) Comparison of the measurement of the mLV diameter around the tumor in a patient with brain metastasis in the PR group before and after treatment. The yellow arrows in the figure indicate the thickest points of the mLV. mLV, meningeal lymphatic vessel; PD, progressive disease; PR, partial response.

Table S1 Final multivariable logistic regression model for predicting treatment response

Predictor	Coefficient (β)	Standard error	OR [Exp(β)]	95% CI for Exp(β)	P value
mLVtotal	0.758	0.225	2.134	1.373–3.317	0.001
Immunotherapy	1.154	0.549	3.172	1.082–9.298	0.04
Gender	-1.473	0.516	0.229	0.083–0.630	0.004
Number of extracranial lesions	-1.102	0.380	0.332	0.158–0.699	0.004
Intercept	-3.484	1.754	0.031	–	0.047

Immunotherapy and gender were coded as binary variables (1= yes/male; 0= no/female). Number of extracranial lesions was defined as total count of extracranial metastatic sites identified on baseline imaging.. ORs [Exp(β)] reflect the change in odds of favorable treatment response per unit increase in each predictor. CI, confidence interval; mLVtotal, total meningeal lymphatic vessel diameter; OR, odds ratio.

Table S2 The baseline characteristics of the n=100 patients included in the model development

Variables	Values
Age (years), Mean \pm SD	58.59 \pm 8.69
Gender, n [%]	
Male	58 [58]
Female	42 [42]
Hypertension, n [%]	29 [29]
Diabetes, n [%]	25 [25]
BMI, Mean \pm SD	23.63 \pm 3.69
Number of extracranial lesions, Mean \pm SD	1.64 \pm 0.67
Immunotherapy, n [%]	36 [36]
Smoking status, n [%]	26 [26]
mLVTotal, Mean \pm SD	7.74 \pm 1.25
PVSVF WM, Mean \pm SD	1.21 \pm 2.19
PVS, Mean \pm SD	188.42 \pm 79.99
JVWMH, Mean \pm SD	4.26 \pm 3.77
PVWMH, Mean \pm SD	8.13 \pm 11.82
DWMH, Mean \pm SD	7.26 \pm 10.99
Feazeks score, Mean \pm SD	1.02 \pm 0.78
CSVD burden score, Mean \pm SD	0.91 \pm 0.68
MTA score, Mean \pm SD	0.62 \pm 0.84
FTR, n [%]	56 [56]

Data are presented as mean \pm standard deviation. BMI, body mass index; CSVD, cerebral small vessel disease; DWMH, volume of deep white-matter high signal; JVWMH, volume of juxtaventricular white-matter high signal; mLVtotal, sum of meningeal lymphatic vessel diameter around superior sagittal sinus and transverse sinus; MR, magnetic resonance; MTA, medial temporal lobe atrophy; PVSVF/WM, perivascular space volume fraction in white matter; PVWMH, volume of periventricular white-matter high signal; FTR, favorable treatment response.