Supplementary material for Mahmood et al., The effect of region of interest strategies on apparent diffusion coefficient assessment in patients treated with palliative radiation therapy to brain metastases, Acta Oncol, 2015; 54: 1529–1534.

Appendix

Scanning protocol: Sequences are marked (pre, end or pre/end) in the following according to whether they were included in the pre-RT, end-RT or both protocols. Initially a set of (pre/end) T2W sagittal images were acquired in a spin-echo (SE) sequence, TR/TE 4387ms/100ms, flip angle (FA) 90, matrix 252×238 , resolution $1\text{mm} \times 1\text{mm}$, slice thickness (sl) 5 mm, slice gap 1mm. Next transversal (pre/end) T2*W (6 patients out of 9) and DW sequences were applied, the T2* gradient echo (GRE) parameters being TR/TE 897ms/21ms, FA 18, matrix 232×182 , resolution $1\text{mm} \times 1\text{mm}$, sl 5 mm, no gap, and the DW single-shot EPI,

fat-saturated (DWIBS) SE sequence with 8 b-values (0, 50, 100, 150, 400, 500, 600, 800 s/mm^2) in all three gradient directions subsequently modulus averaged with TR/TE 7411ms/110ms, FA 90, matrix 116×90 , resolution $1.8\text{mm} \times 1.8\text{mm}$, sl 4mm, no gap. In the pre-RT scan, the patients were then given a Gd-contrast dose of 0.2mmol/kg, and transversal T2W/T1W sequences were obtained. (Pre/end) T2W SE TR/TE 6898ms/100ms, FA 90, matrix 288×224 , resolution $0.8\text{mm} \times 0.8\text{mm}$, sl 4mm, no gap, (pre) T1W-3D GRE TR/TE 25ms/6.9ms, FA 30, matrix 336×267 , resolution $0.7\text{mm} \times 0.7\text{mm}$, sl 1.6mm.

Supplementary Table I. Patient characteristics.

Characteristic	Data	
Primary disease		
SC lung cancer	1	
NSC lung cancer	4	
Breast cancer	2	
Melanoma	2	
Age (year)		
Median	64.8	
Range	49.8–79.6	
Gender		
Female	5	
Male	4	
Tumor size (cm^3)	pre-RT	end-RT
CE T1W		
Median	4.0	
Range	1.2–21.5	
DW (ROI_{b800})		
Median	4.8	3.1
Range	1.3–26.7	0.3–23.5
DW (ROI_{b800vi})		
Median	3.85	2.4
Range	0.3–21.6	0.3–22.5
DW (ROI_{b0})		
Median	3.7	2.9
Range	0.9–19.3	0.4–18.5

CE, contrast enhanced. ROIs defined in section *Region of interest strategies*.

Supplementary Table II. ADC estimates.

	Median ADC $\cdot 10^{-3}$ (mm^2/s) (mean R-square) ^a					
	Mono exp. fit – all b		Mono exp. fit – high b		Bi-exp. fit	
	pre-RT	end-RT	pre-RT	end-RT	pre-RT	end-RT
ROIb800	1.328 (0.9933)	1.333 (0.9945)	1.102 (0.9986)	1.114 (0.9986)	1.019 (0.9997)	1.049 (0.9997)
ROIb800vi	1.233 (0.9929)	1.298 (0.9940)	1.018 (0.9984)	1.070 (0.9984)	0.991 (0.9997)	1.086 (0.9997)
ROIb800rep	1.328 (0.9933)	1.320 (0.9943)	1.102 (0.9986)	1.134 (0.9987)	1.019 (0.9997)	1.087 (0.9997)
ROIb0	1.269 (0.9919)	1.359 (0.9943)	1.022 (0.9985)	1.107 (0.9984)	0.982 (0.9996)	1.055 (0.9996)

The variance of data is illustrated as boxplots in Figure 2. ^a R-square defined as the ratio of the sum of squares of the regression and the total sum of squares.