

Supplementary Table S1. Retrospective data on re-irradiation of resected brain metastases after whole brain radiation therapy.

Author	Pat.	Met.	Marginal SRS dose	Median PTV	Median interval from WBRT	Median OS after Re RT	Median interval to progression after Re RT	1-year LC	Prognostic factors	Severe toxicity
	(n)	(n)	(Gy)	(cm ³)	(months)	(months)	(months)	(%)		
Caballero, 2012 [197]	310	3 (median)	17-18.5	5.8	8.1	8.4	NR	NR	differ from primary tumor	NR
Chao, 2008 [198]	111	NR	RTOG 90-05 protocol	NR	NR	9.9	5.2	NR	Max dose < 22Gy and tumor > 2cm were predictive for local failure	RN: 2 pat.
Huang, 2013 [199]	56	4 (median)	17	NR	10.5	10.8	6.5	NR	high KPS + control of systemic tumor	NR
Maranzano, 2012 [200]	69	NR	20	NR	11	10	NR	74 ± 4	KPS, neuro functional tests	6% RN (asympt.)
Noel, 2001 [201]	54	NR	14.4 (median)	NR	9	NR	NR	91.3	RPA class, SIR Score, interval from WBRT	Headache: 2 pat. alopecia: 2 pat.
Olson, 2012 [202]	27	NR	15-24	2.7	8	3	3.5	76.5	none	NR
Yomo, 2013 [203]	77	NR	20	8.1	10.6	8.2	NR	76.6	KPS + systemic tumor control, primary tumor, PTV size	NR

Abbreviations: Pat.: patients, Met.: metastases, SRS: stereotactic radiosurgery, WBRT: whole brain radiation therapy, OS: overall survival, RT: radiotherapy, LC: local control, NR: not reported, RTOG: radiation therapy oncology group, RN: radiation necrosis, KPS: Karnofsky performance status, RPA: recursive partitioning analysis, SIR: standardized infection ratio, PTV: planned target volume

Supplementary Table S2. Retrospective data on re-irradiation of resected brain metastases after focal radiotherapy.

Author	Pat.	Met.	Median Dose of 1 st SRS (Gy)	Median PTV of 1 st SRS (cm ³)	Median Dose of 2 nd SRS (Gy)	Median PTV of 2 nd SRS (cm ³)	Median interval 1 st -2 nd SRS (months)	Median OS after Re SRS (months)	1-year OS (%)	1-year PFS after Re RT (%)	1-year LC (%)	Prognostic factors	Severe toxicity
Balermipas, 2018 [204]	31	32	18	2	19	2.5	16.5	NR	61.7	38.7	79.5	none	16.1% RN, 12.9% grade 3 tox
Holt, 2015 [205]	13	15	21	4.3	21 in 3 fx	9.4	6.4	9	43.1	40.4	75	none	13% RN (sympt)
Iorio-Morin, 2019 [206]	56	75	20	0.86	18	1.19	11	14	56.1	NR	68	none	5% RN 8.3% edema
Jayachandran, 2014 [207]	19	27	22	1.29	17.3	6.6	NR	26	NR	NR	75	none	21% RN
Kim, 2013 [208]	32	71	NR	NR	17	NR	6.4	7.9	NR	NR	77 (6 months)	none	3 RN (sympt)
Koffer, 2017 [209]	22	24	18	2.25	15.5	3.3	13.4	8.78	37.5	NR	61	PTV >4cm ³ => reduced LC	16.7% RN
Kowalchuk, 2022 [210]	102	123	NR	NR	18	NR	12	NR	NR	NR	79	V12 >9 cm ² + Dmax > 40Gy => sympt. RN	20% RN (7% sympt)
Terakedis, 2014 [211]	37	43	18	NR	18	NR	9	8.3	NR	NR	80.6	none	16% RN
Rana, 2017 [1212]	28	32	24	0.48 (GTV)	26.5	1.35 (GTV)	9.7	22	90	NR	88	none	18% RN (sympt)
McKay, 2017 [213]	32	46	20	1.28	20	0.98	19	N R	70	NR	79	cum. V40 predict. f. RN (0,28cm ³ 10% 0,76cm ³ 20% 1,6cm ³ 50%)	30% RN 24% RN (sympt)
Minniti, 2016 [214]	43	47	NR	NR	21-24 in 3 fx	16.4	17	10	37	NR	70	KPS+ controlled systemic disease	19% RN (radiol)
Moreau, 2018 [215]	30	36	NR	1.48	18	4.8	>10	14,2	65	NR	67.8	PTV> 3cm ³ => worse LC PTV> 7cm ³ => increased tox.	10% RN (radiol), 13% bleeding, 10% edema

Abbreviations: Pat.: patients, Met.: metastases, SRS: stereotactic radiosurgery, PTV: planned target volume, OS: overall survival, PFS: progression-free survival, RT: radiotherapy, LC: local control, NR: not reported, RN: radiation necrosis, tox.: toxicity, fx: fractions, V12: brain volume receiving 12 Gy, Dmax: maximal dose, GTV: gross tumor volume, cum. V40: cumulative brain volume receiving 40 Gy, KPS: Karnofsky performance status