

Clinical Case: SRS/SRT of Cumulative 47 Cranial Metastases

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Purpose

We present a clinical showcase to demonstrate the possibilities and evaluate restrictions of stereotactic radiosurgery (SRS) and stereotactic radiotherapy (SRT) with the Brainlab Elements Multiple Brainmets (MBM) system (Brainlab SE, Munich).

Case Background

The 65-year old patient was first diagnosed with stage IV amelanotic melanoma of the anal canal in August 2022. She was treated with rectal amputation and locoregional lymphnode dissection (pT4b pN0(0/22), R0; BRAF wt, activating KIT mutation pD820Y). After 4 cycles of Nivolumab/Ipilimumab therapy was switched to Nilotinib in January 2023 but had to be switched again shortly after to Ripretinib due to severe skin-related side effects. She presented herself June 2023 in our clinic for the first time with newly diagnosed brain metastases. The patient was treated with SRS/MBM (n=14) which was well tolerated. Over the following 6 months the metastatic disease spread rapidly with drug switches to Dacarbazin, Regorafenib and ultimately Temodal showing not much of an effect. Due to the patients overall constant very good clinical condition and her explicit request we continued to treat upcoming cranial metastases until January 2024 (see **Timeline**). After starting a tumor-infiltrating lymphocyte therapy (TIL) in February 2024 the patient unfortunately deceased about a month later.

Conclusion

With this clinical case we were able to show the feasibility of repeated stereotactic radiotherapies within cranial metastases up to a cumulative number of 47 lesions in suitable patients. Each of the 4 MBM-SRS/SRT was well tolerated with cumulative normal tissue constraints not being relevantly exceeded. Although it did not change the course of the disease in general we were able to reduce intracranial tumor load considerably and consequently maintain the patients overall good condition.

Timeline

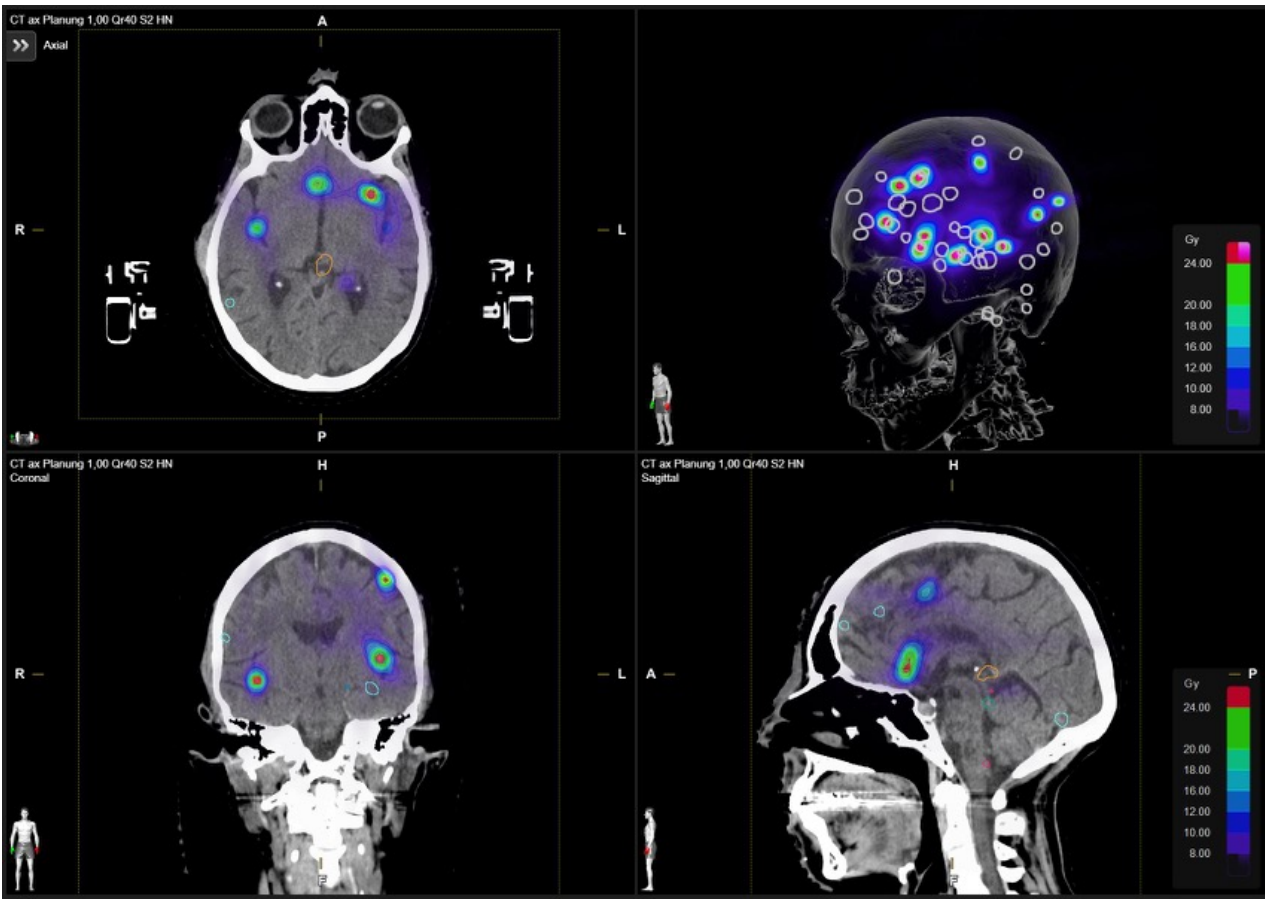
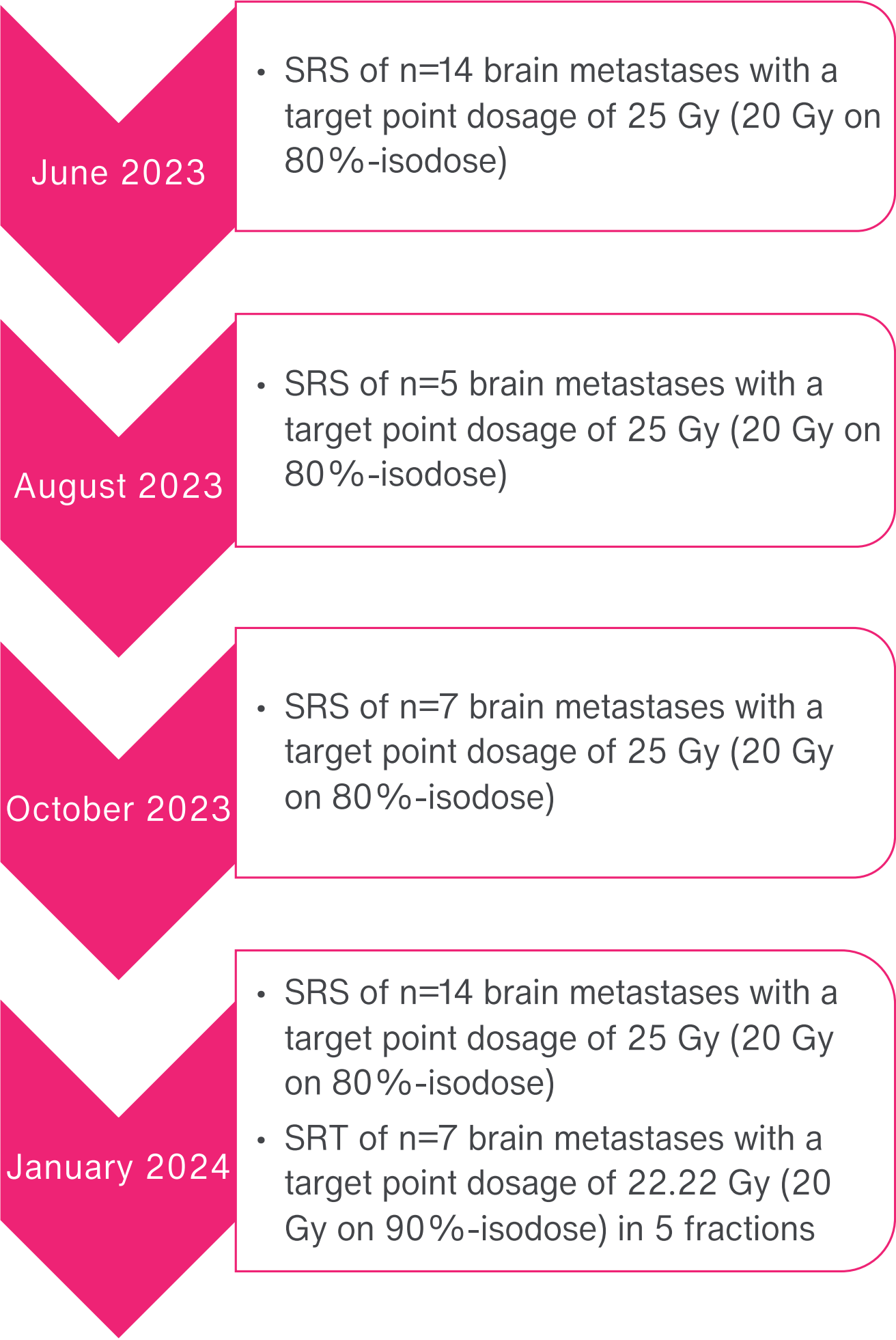


Figure 1 graphical demonstration in Brainlab Elements: isodoses of last SRS course (all previously irradiated metastases added as structures)

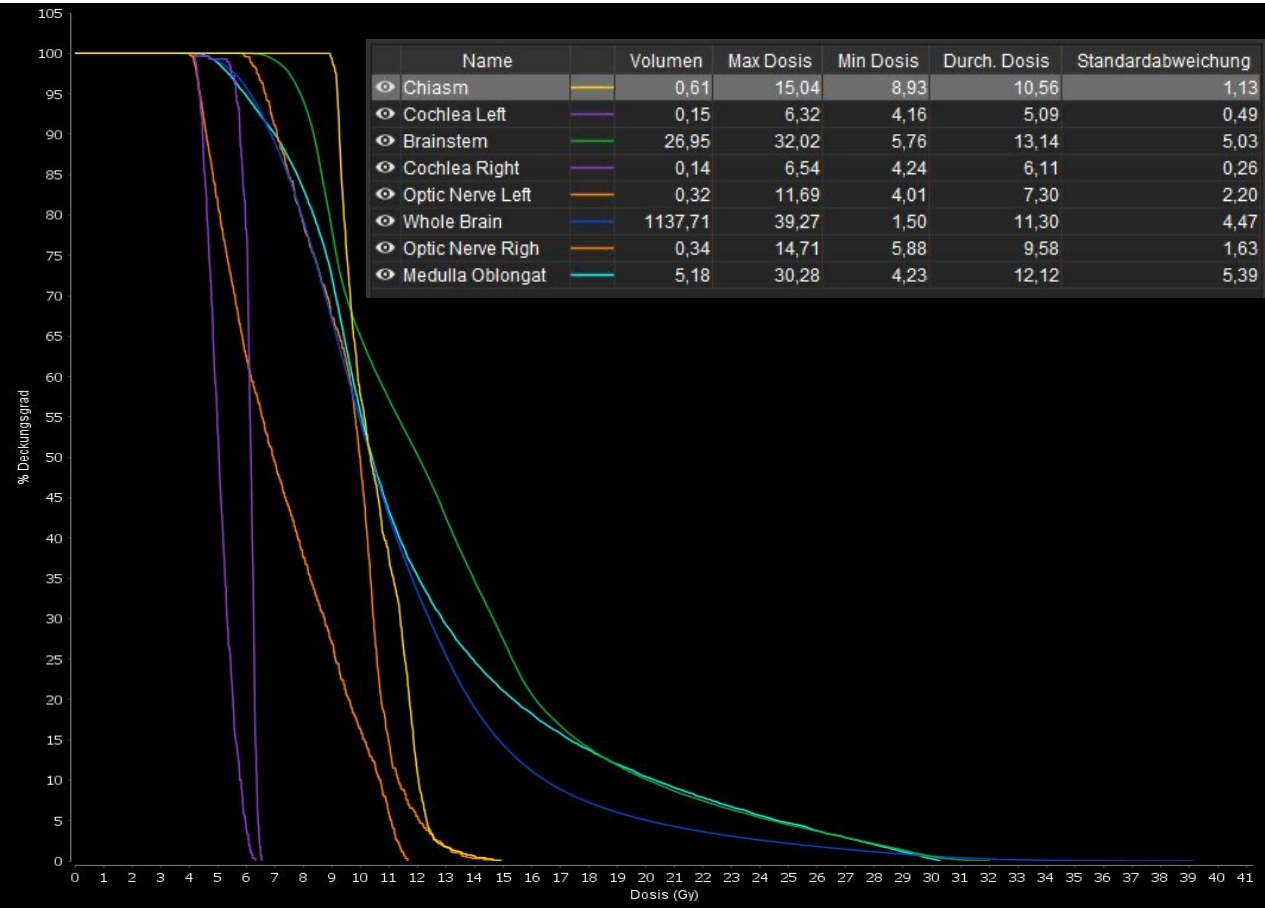


Figure 2 cumulative DVH for organs at risk (OAR) over all SRS/SRT-courses (generated in MIM 7.4.3, MIM Software Inc., Ohio)