

Stereotactic Radiosurgery of Brain Metastases – Case study

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Purpose

We present the case of 68-year-old patient with primary non-small cell lung cancer and metastases to both lungs and brain, treated with stereotactic radiosurgery of brain metastases at the Oncology Center in Bydgoszcz, Poland.

Materials and Methods

The patient was treated palliatively. In February 2020 stereotactic radiosurgery covered 2 brain metastases with total volume of 10.04 cm³ which received 20 Gy dose and 16 Gy in 1 fraction.

In March 2020 palliative radiotherapy included lung metastases, which received 20 Gy in 5 fractions.

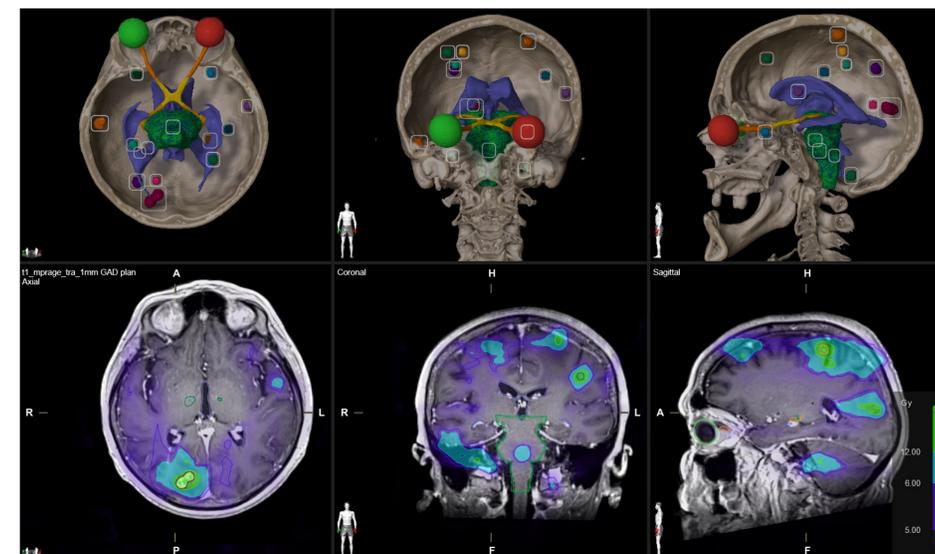
In February 2021 stereotactic radiosurgery covered another 14 metastases with a total volume of 4,34 cm³. 11 of them received 20 Gy dose, 2 of them received 16 Gy dose, the last one received 12 Gy.



Pic.1. Beam's Eye View from Elements Multiple Brain Mets SRS 3.0.0

Treatment plans were created using Elements Multiple Brain Mets SRS 3.0.0. Treatment was carried out on a TrueBeam v2.7 (VMS, Palo Alto, US) equipped with HD MLC and EPID aS1200 using 6MV photon beam. Patient positioning was performed with a ExacTrac v6.5 and successively with ExacTrac Dynamic v1.1.2. The dose verification was performed in the pre-treatment mode using both: the PortalDosimetry and point-dose measurements (PTW Semiflex ion-chamber) – the results were in accordance with the adopted guidelines.

Results



Pic.2. Selector View from Elements Multiple Brain Mets SRS 3.0.0.

Conclusion

Currently, 42 months after the first SRS treatment of brain metastases, the patient is in a good health, he receives immunotherapy by Nivolumab. The advantage of the SRS radiotherapy is obvious compared to the whole brain radiotherapy.