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Clinical Outcomes Following Stereotactic Radiosurgery for Different Presentations of Oligometastatic Tumors in the Skull Base

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Abstract
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Abstract

Objectives:

Oligometastases, defined as an intermediate stage between the absence of metastases and the presence of disseminated cancer, include up to five distant metastases limited to three body sites and are deemed potentially curable with the use of local ablative therapy. Although stereotactic radiosurgery (SRS) has an established role in the management of brain metastases (BRM), there is scarce information about its particular value in the variable demonstrations of oligometastatic tumors in the skull base (OT-SKB). We aimed to investigate the clinical outcomes associated with the oligometastases subgroups of the SRS-treated OT-SKB.

Methods:

This single institution review was limited to those 29 study participants with at least one year of follow-up after initial or adjuvant SRS treatment of the metastatic tumors in the skull base. The OT-SKB was categorized as the oligo-metastatic/OGM subset (the synchronous presentation of the primary malignant neoplasm and skull base metastases; nine patients) or the oligo-recurrent/OGR subset (the metachronous appearance of BRM in a controlled primary tumor situation; 20 patients).

Results:

OT-SKB was in the anterior (three cases), middle (10 cases), and posterior (16 cases) cranial fossa. Most of the patients were young men who had their skull base tumors in the posterior cranial fossa and received timely SRS. Twenty-two patients (76%) were symptomatic with or without exhibited neurologic deficits at the time of OT-SKB diagnosis. The frequencies of local and distant intracranial relapses (ICR) were 14% and 38%, respectively. At a mean follow-up of 31.9 months (range 13-79 months), 19 patients were alive, and 10 individuals were deceased; the overall median survival was 18.5 months and progression-free survival rate was 70%. The two-year survival rate was 55%. and complication (i.e., radionecrosis) rate was 3%. The ICR rate was 44% for the OGM and 40% for the OGR patient cohorts (P>0.80). The median survival was 22 months for the former and 15 months for the latter subgroups, respectively; the 2-year survival rates were similar for the patients with OGM and OGR BRMs (56% and 55%, respectively; P>0.90). Univariate analysis failed to identify a clinicopathological feature predictive of ICR or extended life.

Conclusion(s):

The reality of poor prognosis associated with BRM notwithstanding, patients with differing manifestations of OT-SKB seem to share the possibility of local tumor control and prolonged existence after the application of SRS.