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Stereotactic Radiosurgery for Adenoid Cystic Carcinoma Brain Metastases: A Single Institution Retrospective Study

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Abstract

Objectives:

Adenoid cystic carcinoma (ACC) is a malignant neoplasm arising from the minor and major salivary glands that tends to spread by perivascular and perineural routes. Brain metastases (BM) secondary to ACC are very rare, and the standard management strategy has not been well reported due to the rarity. Especially, only a few case reports described the use of stereotactic radiosurgery (SRS) for BM from ACC.

Methods:

We retrospectively reviewed cases of BM from ACC treated with SRS at our institute between 1998 and 2023. A total of 40 lesions from 5 patients were included, and the patient and lesion background variables were collected. Tumor control was defined based on radiological response to SRS as a complete response (CR), partial response (PR), stable disease (SD), and progressive disease (PD) per RECIST guidelines.

Results:

The median overall survival was 12.0 months (interquartile range (IQR): 6.5–33.5 months). The mean age at treatment was 51.2 years (standard deviation (SD): 7.8 years) and 60% were male patients. The mean maximum diameter of the lesions was 11.1 mm (SD: 10.9 mm). The median dose delivered was 24 Gy (IQR: 22– 24Gy). The MRIs at 3 and 6 months demonstrated reductions in mean maximum diameters at 5.5 mm and 3.3 mm, respectively. The treatment responses at the first follow-up were; CR/PR/SD/PD: 10/19/11/0. At the last follow-up, 5 lesions had local progression, with one lesion at 39 months, and 4 lesions at 11 months after CK SRS, while 16 lesions remained CR. The cumulative 3-months, 6-months, and 12-months local control rates were 100%, 100%, and 90%, respectively.

Conclusion(s):

To date, this is the largest study examining the efficacy of SRS for ACC BM. Our results showed the sufficient local control following the treatment. Further studies are required to confirm our results.