Foramen magnum meningioma treatment

Foramen magnum meningioma surgery.

Stereotactic radiosurgery for foramen magnum meningioma

Systematic review

While resection has been studied extensively, much less has been reported about the use of stereotactic radiosurgery (SRS) for FMMs. This study includes what is to the authors' knowledge the first systematic review in the literature that summarizes patient and treatment characteristics and synthesizes outcomes following SRS for FMMs.

Methods: A retrospective chart review was conducted at a single major academic institution, and a systematic review was performed according to PRISMA guidelines. The initial search on the PubMed and Scopus databases yielded 530 results. Key data extracted from both databases included Karnofsky Performance Status (KPS) score and neurological deficits at presentation, tumor location, treatment indication, target volume, single versus multiple fractions, marginal and maximum doses, isodose line, clinical and radiographic follow-up times, and primary (clinical stability and local control at last follow-up) and secondary (mortality, adverse radiation events, time to regression, progression-free survival) outcomes.

Results: The study patients included 9 patients from the authors' institution and 165 patients across 4 studies who received SRS for FMMs. The weighted median age at treatment was 60.2 years, and 73.9% of patients were female. Common presenting symptoms included headache (33.9%), dizziness/ataxia (29.7%), cranial nerve deficit(s) (27.9%), numbness (22.4%), weakness (15.2%), and hydrocephalus (4.2%). Lateral/ventrolateral (64.2%) was the most common tumor location. SRS was utilized as the primary therapy in 63.6% of patients and as salvage (21.8%) or adjuvant (14.5%) therapy for the rest of the patients. Most patients (91.5%) were treated with a single fraction. A tumor with a weighted median target volume of 2.9 cm3 was treated with a weighted median marginal dose, maximum dose, and isodose line of 12.9 Gy, 22.8 Gy, and 58%, respectively. Clinical stability and local control at last follow-up were achieved in 98.8% and 97.0% of patients, respectively. Only one possible adverse radiation event occurred, and no mortality directly related to the tumor or SRS was reported.

Conclusions: In this retrospective analysis and systematic review, the authors demonstrate SRS to be an effective and safe treatment option for carefully selected patients with FMMs [1].

Sixty-two patients met the inclusion criteria. The median follow-up was 28.9 months. The median prescription dose and isodose line were 14 Gy and 70%, respectively. Single-session SRS accounted for 81% of treatments. The remaining patients received three to five fractions, with doses ranging from 19.5 to 25 Gy. Ten (16%) patients were treated for a tumor recurrence after surgery, and thirteen (21%) underwent adjuvant treatment. The remaining 39 FMMs (63%) received SRS as their primary treatment. For patients with an upfront surgical resection, histopathological examination revealed 22 World Health Organization grade I tumors and one grade II FMM. The median tumor

volume was 2.6 cubic centimeters. No local failures were observed throughout the available follow-up, including patients with a follow-up ≥ five years (16 patients), leading to an overall local control of 100%. Tumor volume significantly decreased after treatment, with a median volume reduction of 21% at the last available follow-up ($p < 0.01$). The one-, three-, and five-year progression-free survival were 100%, 96.6%, and 93.0%, respectively. Most patients showed stable (47%) or improved (21%) neurological deficits at the last follow-up. No high-grade adverse events were observed.

Conclusions: SRS is an effective and safe treatment modality for FMMs. Despite the paucity of available data and previous reports, SRS should be considered for selected patients, especially those with subtotal tumor resections, recurrences, and patients not suitable for surgery [2)]

1)
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2)
Ehret F, Kufeld M, Fürweger C, Haidenberger A, Fichte S, Lehrke R, Senger C, Kaul D, Bleif M, Becker G, Rueß D, Ruge M, Schichor C, Tonn JC, Muacevic A. The Role of Stereotactic Radiosurgery in the Management of Foramen Magnum Meningiomas-A Multicenter Analysis and Review of the Literature. Cancers (Basel). 2022 Jan 11;14(2):341. doi: 10.3390/cancers14020341. PMID: 35053504; PMCID: PMC8773727.