Koos Grade 4 Vestibular Schwannoma

Koos Grading scale 4 vestibular schwannoma displaces the brainstem and adjacent cranial nerves.

The goals of treating Koos grade IV vestibular schwannomas are to relieve brainstem compression, preserve or restore neurological function, and achieve long-term tumor control while minimizing tumor- and treatment-related morbidity.

Stereotactic radiosurgery (SRS) has been suggested as an alternative to resection in selected patients. However, the safety and efficacy of SRS in Koos grade IV patients \leq 45 years old have not been evaluated. The aim of this study is to describe the clinical and radiological outcomes of Koos grade IV in young patients managed with a single-session SRS.

Methods: This retrospective, multicenter analysis included SRS-treated patients, \leq 45 years old presenting with non-life threatening or incapacitating symptoms due to a Koos Grade IV VS and with follow-up \geq 12 months. Tumor control and neurological outcomes were evaluated.

Results: 176 patients [median age of 36.0 (IQR 9) and median tumor volume of 9.3 cm3 (IQR 4.7)] were included. The median prescription dose was 12 Gy (IQR 0.5). The Median follow-up period was 37.5 (IQR 53.5) months. The 5- and 10-year progression-free survival was 90.9% and 86.7%. Early tumor enlargement occurred in 10.9% of cases and was associated with tumor progression at the last follow-up. The probability of serviceable hearing preservation at 5- and 10 years was 56.8% and 45.2%, respectively. The probability of improvement or preservation of facial nerve function was 95.7% at 5 and 10 years. Adverse radiation effects were noted in 19.9%. New-onset hydrocephalus occurred in 4.0%.

Single-session SRS is a safe and effective alternative to Vestibular Schwannoma surgery in selected patients \leq 45 years old particularly those with medical co-morbidities and those who decline resection. Longer-term follow-up is warranted ¹⁾.

OBJECTIVE: To propose a treatment paradigm involving the intentional near-total removal of Koos grade IV vestibular schwannomas, in which a small amount of residual tumor is not dissected off the cisternal portion of the facial nerve. Patients are then followed by a wait-and-scan approach. Any subsequent volumetric progression of the residual tumor is treated with radiosurgery.

METHODS: This is a case series of 44 consecutive unselected patients who underwent intended neartotal resection of a Koos grade IV vestibular schwannoma through a retrosigmoid approach from January 2009 to December 2015. Pre- and postoperative volumetric analyses were performed on routine magnetic resonance imaging sequences (constructive interference in steady state and gadolinium-enhanced T1-weighted sequence).

RESULTS: The mean preoperative tumor volume was 10.9 cm3. The mean extent of resection was 89%. At the last clinical follow-up, facial nerve function was good [House and Brackmann (HB) I-II] in 89%, fair (HB III) in 9%, and poor (HB IV-VI) in 2% of the patients. At the last radiological follow-up, the residual tumor had become smaller or remained the same size in 84% of patients. Volumetric progression was negatively correlated with the original extent of resection and positively correlated

with postoperative residual tumor volume (P = .01, P < .001, respectively).

CONCLUSION: Intended near-total removal results in excellent preservation of facial nerve function and has a low recurrence rate. Any progressive residual tumor may be treated by radiosurgery ²⁾.

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