Koos Grading Scale: What it Means for You

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An acoustic neuroma (vestibular schwannoma) is a benign tumor that grows from the nerves responsible for balance and hearing. These tumors grow from the sheath covering the vestibulocochlear nerve.

When patients first learn they have an acoustic neuroma, it is often from an MRI/CT report where the radiologist will classify the tumor using terms that may be unfamiliar. The Koos grading scale is a classification system that relates to the size of the tumor and its proximity to the brainstem and nearby cranial nerves. Tumor size is measured in millimeters along the long axis as the tumor grows from its origin toward the brain in an "ice cream cone" appearance.

Grading the tumor size functionalizes how we think about acoustic neuroma symptoms and treatments. This means that it helps describe the location and considerations we need to make when weighing treatment options, such as observation, surgery, or radiosurgery, with our patients.

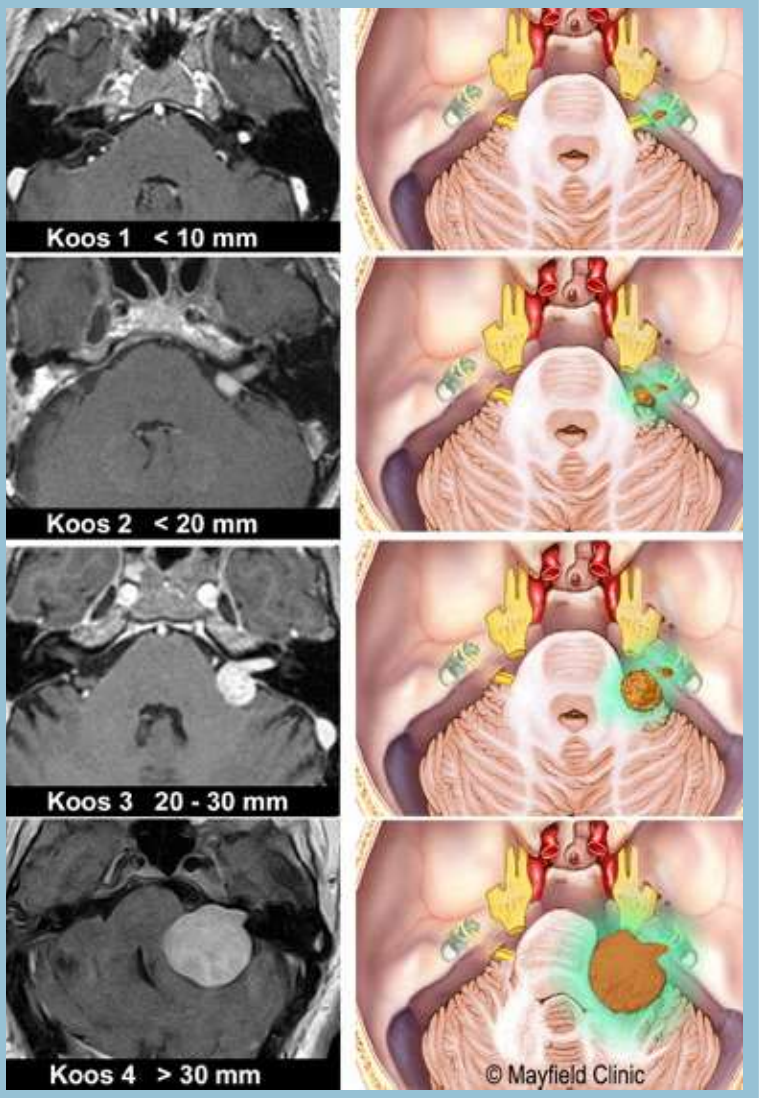
The location of the tumor directly correlates with the types of symptoms or post-treatment issues a patient may encounter, such as hearing preservation, facial nerve function, dizziness, and imbalance. These issues impact quality of life and are important to the treatment decision making process.

Koos grade I or II sized tumors tend to be more straight forward. In these smaller tumors, the facial nerve can be more easily separated from the tumor and a hearing preservation procedure can be considered. Koos grade III and IV sized tumors begin to stretch the facial nerve along the tumor boundary. The adjacent brainstem and critical arteries can be displaced, making them more complex to dissect.

When patients are looking for prognosis based on their tumor size, the medical literature varies in reported outcomes because the size and anatomical basis is not standardized. A recent study validated the Koos scale as a reliable tool to classify acoustic tumors for reporting clinical studies and also to inform patients about treatment.[1]

The treatment that is right for you will depend on your age, general health, hearing status, and the tumor size. The larger the tumor, the more complex the treatment. Therefore, early recognition, diagnosis, and treatment are essential. It's important to find an experienced surgical team that understands the nuances of these tumors.

Grade	Size	Description	Technical terms
1	1 to 10 mm	Small tumor inside the bony canal	Intracanalicular, intrameatal, internal auditory canal (IAC)
2	up to 20 mm	Small tumor protrudes from the bony canal into the space toward brain	Cisternal, extrameatal, cerebellopontine angle (CPA)
3	up to 30 mm	Medium tumor fills CPA space and may touch brainstem or cranial nerves	Facial nerve displacement; trigeminal nerve distortion
4	more than 30 mm	Large tumor compresses the brainstem and nearby nerves; may block CSF flow	Deformation, fourth ventricle, obstructive hydrocephalus



References

1. Erickson NJ, Schmalz PGR, Agee BS, Fort M, Walters BC, McGrew BM, Fisher WS 3rd. Koos Classification of Vestibular Schwannomas: A Reliability Study. Neurosurgery. 2018 Aug 30. doi: 10.1093/neuros/nyy409.