



Alexander Muacevic

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Prof Dr Alexander Muacevic completed his medical studies at Johannes Gutenberg University of Mainz and earned a doctorate in 1995. He trained in neurosurgery at Ludwig-Maximilians-University Munich. He received the Aesculap Prize in 2003. In 2005, he co-founded the European Radiosurgery Center Munich, introducing Germany's first CyberKnife. Dr Muacevic became a Professor of Neurosurgery in 2013. He opened the ZAP-X Center in Munich (no.6 in the world) in 2021. Since 2007, Dr Muacevic has held leadership roles in professional societies such as the International Society of Radiosurgery. He co-founded Cureus.com in 2012 with Dr John R. Adler from Satndford School of Medicine, USA. The publication platform is now the largest open access in the world. Dr Muacevic is contributing to over 150 specialist publications and numerous international lectures.

Topic: Overview of Radiosurgery for Brain Tumours

Self-shielding gyroscopic radiosurgery (GRS) represents a recent technical innovation in the field of stereotactic radiosurgery (SRS). GRS does not require a dedicated radiation vault and is optimized for high-precision cranial SRS treatments. We will discuss the background, importance and current and future applications of radiosurgery with a focus of the new innovative ZAP-X platform. We have treated over 500 patients with ZAP-X in Munich, out of more than 10.000 patients treated overall. Treated tumor entities mostly comprised VS, brain metastases, and meningiomas. The median prescription dose and isodose line were 15 Gy and 52.0%, respectively. The mean planning target volume was 1.5 cubic centimeters. All patients received a single-fraction treatment without encountering any technical setup difficulties. Treatment plan comparisons with CK radiosurgery revealed comparable plan characteristics, dose gradients, and organs at risk doses. Significant differences were detected solely concerning the new conformity index and number of monitor units per treatment (both $p < 0.001$). Our series provides first evidence on the usage of self-shielding GRS in the management of cranial tumors. The treatment experience was favorable. Dosimetric comparisons for twenty VS cases revealed comparable dosimetric characteristics to CK radiosurgery. Further clinical and physical in-depth analyses for GRS are on its way.