Thalamic Diffuse midline glioma H3 K27-altered

- Case Report: Rare intraventricular H3 K27-altered diffuse midline glioma in an adult
- Imaging the artery of Percheron: a pictorial review of associated pathology with important mimics of bithalamic abnormalities
- Characterizing the molecular and spatial heterogeneity of midline gliomas in adults: a single institution analysis
- A comprehensive multicenter analysis of clinical, molecular, and imaging characteristics and outcomes of H3 K27-altered diffuse midline glioma in adults
- Genetic alteration analysis of non-pediatric diffuse midline glioma, H3 K27-altered
- Clinico-Pathological Features of Diffuse Midline Glioma, H3 K27-Altered in Adults: A Comprehensive Review of the Literature with an Additional Single-Institution Case Series
- Spinal Diffuse Midline Glioma H3 K27M-Altered: Report of a Rare Tumor with Extracranial Skeletal Metastases and Review of Literature
- H3 K27-altered diffuse midline glioma of the thalamus with formation of glio-fibrillary globular structures

A 38-year-old female patient who suffered from nausea, fatigue, and intermittent walking impairment, which developed over the course of four weeks. Initial MRI showed an irregularly shaped, contrast-enhancing tumor around the third ventricle with central necrosis, most likely originating from the right thalamus. The patient underwent biopsy, followed by microsurgical resection with molecular analysis. Molecular neuropathology revealed the diagnosis of diffuse midline glioma with a H3K27M mutation WHO (World Health Organization) CNS (central nervous system) grade 4. Interestingly, MR imaging conducted for migraine diagnosis 6 years ago in retrospect already showed a small, nodular T2w hyperintense lesion in the right thalamus.

Despite a more precise, molecularly driven classification of pediatric HGG (high-grade glioma) in the 5th edition of the WHO classification of CNS tumors, many genetic factors influencing the biological tumor development as well as the precise molecular evolution of tumors remain unclear. Given the highly aggressive clinical course of these tumors, with a median overall survival around 16 to 18 months, our report of a (presumable) precursor lesion years before clinical manifestation point towards a complex, multi-stage evolution of this tumor entity. Better understanding this molecular cascade might help to identify novel targets for individualized therapies [1)]

1)

Griessmair M, Delbridge C, Zimmer C, Mayr E, Wagner A, Canisius J, Metz MC, Wiestler B. Case report: an unusual long-term evolution of a diffuse midline glioma, H3K27 altered. Front Oncol. 2025 Feb 10;15:1480247. doi: 10.3389/fonc.2025.1480247. PMID: 39995844; PMCID: PMC11847812.