

Review Handb Clin Neurol. 2026 Mr 25;216:171-182.

doi: 10.1016/B978-0-443-15736-3.00020-2.

Intrinsic pontine tumors: Pathology of brainstem tumors and exploration of diffuse intrinsic pontine glioma

Ryan Moon ¹, Sabine Mueller ², Pascale Varlet ³

Affiliations

PMID: 41896005 DOI: [10.1016/B978-0-443-15736-3.00020-2](https://doi.org/10.1016/B978-0-443-15736-3.00020-2)

Abstract

Over the past decade, advances in brainstem biopsies and the discovery of the histone H3 mutation have revealed a new spectrum of brainstem tumors. In the brainstem, diffuse midline gliomas (DMGs) are most common in the pediatric population, followed by less aggressive tumors like pilocytic astrocytomas. The 2016 WHO central nervous system (CNS) classification introduced diagnostic criteria for DMGs, which have since evolved into five subtypes. These new subtypes present challenges for histomolecular diagnosis in biopsies. Recent data suggest these subtypes differ in clinical outcomes and prognosis, and most likely will require different therapies highlighting the need for tissue for diagnostic purposes for brainstem lesions. This chapter will first cover an overview of different brainstem pathologies, followed by a discussion on imaging, treatment standards, and the evolving role of biopsies in DMG including diffuse intrinsic pontine gliomas.

Keywords: Brainstem tumors; Diffuse astrocytoma; Diffuse midline glioma; H3K27 trimethylation; Histone H3; Pilocytic astrocytoma.

Copyright © 2026 Elsevier B.V. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

[PubMed Disclaimer](#)