

Thalamic pilocytic astrocytoma

see [Bilateral Thalamic Pilocytic Astrocytoma](#).

see [Thalamic tumor](#).

see also [Thalamic astrocytoma](#).

Diagnosis

El Ahmadieh et al. recommended that all of these tumors be evaluated for the [H3K27M](#) mutation. Further, they believe that H3 K27M-mutant thalamic pilocytic astrocytomas require aggressive multi-modality treatment and that these treatments should be guided by the molecular findings, as opposed to the histologic ones ¹⁾.

Approach

The choice of surgical [approach](#) during [resection](#) is dictated by the location of the displaced normal [thalamus](#) and posterior limb of the [internal capsule](#) (PLIC) or [crus posterius](#). [Diffusion tensor imaging](#) and [white matter tractography](#) can identify the location of the PLIC in relation to the tumor and may be useful in planning the operative trajectory ²⁾.

Videos

Surgical resection is the primary [pilocytic astrocytoma treatment](#) and [total resection](#) can be curative. However, these lesions occur in critical areas, such as the [thalamus](#), being surrounded by critical life neurovascular structures, which imposes a surgical challenge.

Exhaustive acquisition and meticulous interpretation of preoperative radiological exams; reliable surgical orientation based on profound microneurosurgical anatomic knowledge and judicious discernment of the neuroanatomic distortions on the surface and deep-seated structures inflicted by the neuropathological entity; embracing and comprehensive application of the vast scope of available intraoperative guidance imaging and neurophysiological monitoring; in alliance with the mastered carefully microsurgical technique supported by endoscopic visualization are the keystones to the pursued duet "cure with quality of life" in the treatment of these lesions.

Kadri et al. from the Department of Neurosurgery, Federal University of Mato Grosso do Sul, [Campo Grande](#), Brazil. and [Brigham and Women's Hospital](#) presented the case of a 17-yr-old young lady with a progressive motor deficit in her right hemibody for over 2 yr. Her radiological investigation demonstrated a left [thalamic lesion](#) displacing the projection fibers ([corticospinal tract](#)) within the [internal capsule](#) laterally. The patient consented to the surgical procedure. The surgical strategy, intraoperative findings, and microsurgical and endoscopic technique, as well as the postoperative radiological and clinical evaluation are presented ³⁾.

Outcome

Gross total removal of thalamic pilocytic astrocytomas with low morbidity and mortality can be achieved by computer-assisted stereotactic volumetric resection techniques. Gross total resection of these lesions confers a favorable long-term prognosis without adjuvant chemotherapy and/or radiation therapy and leads to the improvement of neurological deficits ⁴⁾

Case series

Thalamic pilocytic astrocytoma case series.

1)

El Ahmadieh TY, Plitt A, Kafka B, Aoun SG, Raisanen JM, Orr B, Pan E, Wardak Z, Nedzi LA, Patel TR. H3 K27M Mutations in Thalamic Pilocytic Astrocytomas with Anaplasia. World Neurosurg. 2019 Jan 10. pii: S1878-8750(19)30015-4. doi: 10.1016/j.wneu.2018.12.147. [Epub ahead of print] PubMed PMID: 30639498.

2)

Moshel YA, Elliott RE, Monoky DJ, Wisoff JH. Role of diffusion tensor imaging in resection of thalamic juvenile pilocytic astrocytoma. J Neurosurg Pediatr. 2009 Dec;4(6):495-505. doi: 10.3171/2009.7.PEDS09128. PubMed PMID: 19951034.

3)

Kadri PAS, Ibn Essayed W, Al-Mefty O. The Resection of a Thalamic Pilocytic Astrocytoma Through the Transchoroidal Fissure, Transcallosal Approach: 2-Dimensional Operative Video. Oper Neurosurg (Hagerstown). 2021 Apr 15;20(5):E346-E347. doi: 10.1093/ons/opab015. PMID: 33855454.

4)

Moshel YA, Link MJ, Kelly PJ. Stereotactic volumetric resection of thalamic pilocytic astrocytomas. Neurosurgery. 2007 Jul;61(1):66-75; discussion 75. PubMed PMID: 17621020.

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Last update: **2024/06/07 02:53**

