Surgery of lesions in the posterior wall of the third ventricle requires great expertise due to its deep location and important surrounding structures. This region has been traditionally reached through a supracerebellar infratentorial approach, but new options have emerged, especially with the development of neuroendoscopy.

One formalin-fixed cadaver human head was dissected. Five different endoscopic approaches were performed: interhemispheric transcallosal transchoroidal approach, frontal transforaminal transchoroidal approach, supraorbital subfrontal translamina terminalis approach, expanded endonasal approach, and supracerebellar infratentorial approach. An anatomical description of the different approaches was conducted and quantitative measurements (craniocaudal and latero-lateral distances) were taken using the StealthStation ® workstation after performing a CT scan of the specimen.

The interhemispheric transcallosal transchoroidal, frontal transforaminal transchoroidal, and supraorbital subfrontal translamina terminalis approaches provided great view of all the structures of the posterior wall of the third ventricle. Maximum craniocaudal distance was obtained through the supraorbital subfrontal translamina terminalis approach (10.6 mm), with great difference from the expanded endonasal approach (5.2 mm). The widest latero-lateral distance from inside the third ventricle was achieved through the interhemispheric transcallosal transchoroidal approach (4.6 mm), similar to the expanded endonasal (4.1 mm), and differing from the supraorbital subfrontal translamina terminalis (2.4 mm).

The endoscopic approaches provided an adequate alternative to more traditional microsurgical approaches to the posterior wall of the third ventricle, with a great view of all its structures. The selection of the approach must be taken under consideration in each case [1)]

1)
Otero-Fernández P, Abarca-Olivas J, González-López P, Martorell-Llobregat C, Flores-Justa A, Villena-Martín M, Nieto-Navarro J. Endoscopic approaches to the posterior wall of the third ventricle: An anatomical comparison. Clin Neurol Neurosurg. 2024 Aug 19;245:108511. doi: 10.1016/j.clineuro.2024.108511. Epub ahead of print. PMID: 39180812.