Insular glioma surgery still represents a challenge. Nonetheless, advances in microsurgical anatomy and brain mapping techniques have allowed an increase in the extent of resection with acceptable morbidity rates. Transsylvian and transcortical approaches constitute the main surgical corridors, the latter providing considerable advantages and a high degree of reliability. Nevertheless, both surgical corridors yield remarkable difficulties in reaching the most posterior insular region.

Department of Neurosurgery, Lariboisière Hospital, APHP, Paris, France, to study the feasibility of an endoscopic transtemporal approach in brain specimens, with the aim to provide a suitable access for posterior insular region. METHODS: Four postmortem human hemispheres, embalmed using Klingler's technique, were dissected by means of a 30° rigid endoscope. The specimens underwent magnetic resonance imaging scans and, using the neuronavigation system, we were able to design a safe cortical window and an optimized endoscopic trajectory for the posterior insular dissection. RESULTS: Insular dissection was led subpially through a small 2-cm cortical access, located in the anterior part of the middle temporal gyrus. During the posterior insula dissection, the endoscope allowed for optimized surgical view all along the long gyri, up to the posterior insular point. Anterior insular dissection was accomplished with more difficulties, as the endoscopic trajectory was not aligned to the axis of the short gyri. CONCLUSION: This new surgical approach provides a favorable transcortical access to reach the most posterior insular portion. It seems to be a promising tool, in combination with intraoperative functional brain mapping, to further improve extent of resection rates in insular glioma surgery [1)].

1)
Corrivetti F, Froelich S, Mandonnet E. Endoscopic Approach of the Insula Through the Anterior Middle Temporal Gyrus: A Feasibility Study in the Laboratory. Oper Neurosurg (Hagerstown). 2017 Jul 25. doi: 10.1093/ons/opx128. [Epub ahead of print] PubMed PMID: 28973523.