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WHITE FIBER DISSECTION TECHNIQUE AND ITS CORRELATION WITH DIFFUSION TRACTOGRAPHY OF MAGNETIC RESONANCE IMAGING: ITS RULE IN GLIOMA AND EPILEPSY SURGERY

GUSTAVO RASSIER ISOLAN; LEONARDO VEDOLIN; LEANDRO INFANTINI DINI; MARINO MUXFELDT BIANCHIN, JOSÉ AUGUSTO BRAGATTI; FREDERICO SOARES FALCETTA; LUCAS REZNICEK; MARCO ANTÔNIO STEFANI.

The fiber dissection technique is an anatomical method that involves peeling away the white matter tracts of the brain to display its three-dimensional anatomic organization. Early anatomists demonstrated many tracts and fasciculi of the brain using this technique.Diffusion tractography of magnetic resonance imaging (MRI), such as diffusion tensor tractography, on the other hand, allows us to visualize white matter tracts in vivo and to study white matter integrity quantitatively. The purpose of this study is compare the major tracts identified in anatomical dissections and Diffusion tractography MRI. Material and methods: Fifhteen human cadaveric hemispheres were dissected by one of the authors in two different microsurgical laboratories (Hospital Beneficência Portuguesa de São Paulo e University of Arkansas for Medical Sciences by using a modification of the method described by Klingler. The correlation between this anatomy and Diffusion tractography MRI is done. Results: The major tracts and fasciculi are described under the perspective of these two techniques. The authors discuss the current opinion regarding these techniques in intrinsic brain gliomas and epilepsy surgery. Conclusion: There is good correlation between both techniques. Clinical studies must be performed to define the real importance of the diffusion tractography MRI not only in planning the best corridor to approach tumors and lesions but also as a prognostic factor.