Josef Klingler

In 1934 at the University of Basel under Eugen Ludwig, Josef Klingler developed a new method of dissection based on a freezing technique for brain tissue that eloquently revealed the white matter tracts [1] [2].

Klingler worked with anatomists, surgeons, and other scientists, and his models and dissections of white matter tracts remain arguably the most elegant ever created. He stressed 3-dimensional anatomic relationships and laid the foundation for defining mesial temporal, limbic, insular, and thalamic fiber and functional relationships and contributed to the potential of stereotactic neurosurgery. Around 1947, Klingler was part of a Swiss-German group that independently performed the first stereotactic thalamotomies, basing their targeting and logic on Klingler's white matter studies, describing various applications of stereotaxy and showing Klingler's work integrated into a craniocerebral topographic system for targeting with external localization of eloquent brain structures and stimulation of deep thalamic nuclei. Klingler's work has received renewed interest because it is applicable for correlating the results of the fiber-mapping paradigms from diffusion tensor imaging to actual anatomic evidence. Although others have described white matter tracts, none have had as much practical impact on neuroscience as Klinger's work. More importantly, Josef Klingler was an encouraging mentor, influencing neurosurgeons, neuroscientists, and brain imaging for more than three quarters of a century [3].

Freezing the brain leads to water expansion and the formation of ice crystals, resulting in the spreading of white matter fibers and facilitating the individualization of these structures during dissection. Although the smallest individual features of each fiber cannot be seen due to the dense subcortical fiber network and because the dissection and exposure of each fiber tract often results in the destruction of other fiber tracts, the main pathways can be identified, allowing a better understanding of the subcortical connections of the brain [4].

Klingler method

see Klingler method

1)
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