

Anatomic study of the opercular portion of the sylvian fissure

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The sylvian fissure (SF) is bordered by the opercular portions of the frontal, temporal and parietal lobes in the lateral face of the cerebral hemisphere. This region is surgically accessed in several situations: insular tumors, arteriovenous malformations, aneurysmatic injuries. The aim of this work is to supply anatomic-surgical bases to the transylvian accesses to the region of insula, in which the ample opening of the SF is necessary. Five formolized encephala have been dissected with microsurgical material, and the following parameters were analyzed: opercular constitution, length and depth of the SF in relation to the apex and limen of insula. P Values inferior to 0.05 have been considered statistically significant. We have taken as the SF limit the point of conversion of the anterior horizontal, anterior ascendant and posterior branches and the point where the supra-marginal gyrus involves the posterior branch. The average of the lengths of the SF was 6.69 cm; the left hemispheres average was 6.78 cm; the right hemispheres presented an average of 6.6 cm. The average of the SF depth in relation to the limen was 1.75 cm; to the left hemispheres, 1.84 cm; to the right hemispheres, 1.66 cm. The SF depth in relation to the apex of insula had a general average of 1.21 cm; the left hemispheres, 1.22 cm; and the right hemispheres, 1.20 cm. In all encephala we have observed that the edges of the SF are formed by: orbital, triangular and opercular parts of the inferior frontal gyrus; subcentral gyrus; supramarginal gyrus and superior temporal gyrus (STG) and that, in hemispheres of the same encephalon where the SF has greater length, there is a smaller folding of the STG and a widening of the surface of the precentral gyrus (PrCG) and postcentral gyrus (PoCG). Regarding the width of the same ones, evaluated in the area of the ending of the Rolando sulcus, in the subcentral gyrus, we have obtained, for the PrCG, an average of 1.32 cm; in the left hemispheres, 1.38 cm; in the right ones, 1.26 cm. The width average of the PoCG was 1.55 cm; in the left hemispheres, 1.62 cm; and in the right hemispheres, 1.48 cm. In 60% of the encephala, the left SF has greater length than the right SF, contrarily to what we have observed in the consulted literature. In the presence of extended SF one observes smaller folding of the STG and widening of the PrCG and PoCG. The correlation between the biggest length of the SF and the widening of the precentral and post-central gyrus got P Value of 0.0037. Amongst the variables that have been studied up to now, we have identified no significant relation of the SF depth concerning to the apex or limen of insula.

References

1. TANRIOVER, N., ROTHON, AL. Jr., KAWASHIMA, M. et al. Microsurgical anatomy of the insula and the sylvian fissure. *J Neurosurg*, 2004, vol. 100, p. 891-922.