

Telencephalic flexure

After sagittal division of the [prosencephalon](#) at 4.5 weeks of gestation, the early fetal [cerebral hemisphere](#) bends or rotates posteroventrally from seven weeks of [gestation](#). The posterior pole of the [telencephalon](#) thus becomes not the [occipital lobe](#) but the [temporal lobe](#) as the [telencephalic flexure](#) forms the [operculum](#) and finally the lateral cerebral or [Sylvian fissure](#). The ventral part is infolded to become the [insula](#). The frontal and temporal lips of the [Sylvian fissure](#), as well as the [insula](#), all derive from the ventral margin of the primitive [telencephalon](#), hence may be influenced by genetic mutations with a ventrodorsal gradient of expression. The telencephalic flexure also contributes to a shift of the [hippocampus](#) from a dorsal to a ventral position, the early rostral pole of the hippocampus becoming caudal and dorsal becoming ventral. The [occipital horn](#) is the most recent recess of the [lateral ventricle](#), hence most vulnerable to anatomic variations that affect the [calcarine fissure](#). Many major malformations include lack of telencephalic flexure ([holoprosencephaly](#), extreme [micrencephaly](#)) or dysplastic Sylvian fissure (lissencephalies, [hemimegalencephaly](#), [schizencephaly](#)). Although fissures and sulci are genetically programmed, mechanical forces of growth and volume expansion are proposed to be mainly extrinsic (including ventricles) for fissures and intrinsic for sulci. In fetal hydrocephalus, the telencephalic flexure is less affected because ventricular dilatation occurs later in gestation. Flexures can be detected prenatally by ultrasound and fetal magnetic resonance imaging and should be described neuropathologically in cerebral malformations ¹⁾.

¹⁾

Sarnat HB, Flores-Sarnat L. Telencephalic Flexure and Malformations of the Lateral Cerebral (Sylvian) Fissure. *Pediatr Neurol*. 2016 Oct;63:23-38. doi: 10.1016/j.pediatrneurol.2016.05.005. Epub 2016 May 10. PMID: 27590993.

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