Indusium griseum

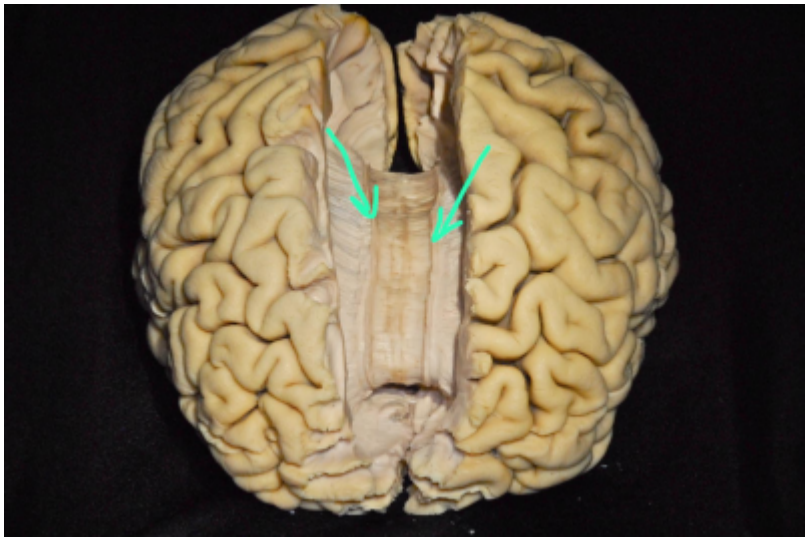
In the eighteenth century, Lancisi described the indusium griseum (IG) and the longitudinal striae (LS) of the corpus callosum.

The indusium griseum is a thin layer of grey matter which covers the superior surface of the corpus callosum, extending from the paraterminal gyrus anteriorly to the dentate gyrus and hippocampus posteriorly via the gyrus fasciolaris.

Figure from 3Dneuroanatomy.com

It continuous laterally with the grey matter of the cingulate gyrus.

It contains two longitudinally directed strands of fibers termed respectively the medial and lateral longitudinal striae (of Giovanni Maria Lancisi) on each side.



The supracallosal gyrus is prolonged around the splenium of the corpus callosum as a delicate lamina, the fasciola cinerea, which is continuous below with the fascia dentata hippocampi.

To uncover the ontogenesis of the human indusium griseum (IG), 28 post-mortem fetal human brains,

12-40 postconceptional weeks (PCW) of age, and 4 adult brains were analyzed immunohistochemically and compared with post-mortem magnetic resonance imaging (MRI) of 28 fetal brains (14-41 PCW). The morphogenesis of the IG occurred between 12 and 15 PCW, transforming the bilateral IG primordia into a ribbon-like cortical lamina. The histogenetic transition of sub-laminated zones into the three-layered cortical organization occurred between 15 and 35 PCW, concomitantly with rapid cell differentiation that occurred from 18 to 28 PCW and the elaboration of neuronal connectivity during the entire second half of gestation. The increasing number of total cells and neurons in the IG at 25 and 35 PCW confirmed its continued differentiation throughout this period. High-field 3.0 T post-mortem MRI enabled visualization of the IG at the mid-fetal stage using T2-weighted sequences. In conclusion, the IG had a distinct histogenetic differentiation pattern than that of the neighboring intralimbic areas of the same ontogenetic origin, and did not show any signs of regression during the fetal period or postnatally, implying a functional role of the IG in the adult brain, which is yet to be disclosed [1)].

1)
Bobic Rasonja M, Oreškovic D, Knezovic V, Pogledic I, Pupacic D, Vukšic M, Brugger PC, Prayer D, Petanjek Z, Jovanov Miloševic N. Histological and MRI Study of the Development of the Human Indusium Griseum. Cereb Cortex. 2019 Feb 4. doi: 10.1093/cercor/bhz004. [Epub ahead of print] PubMed PMID: 30722016.