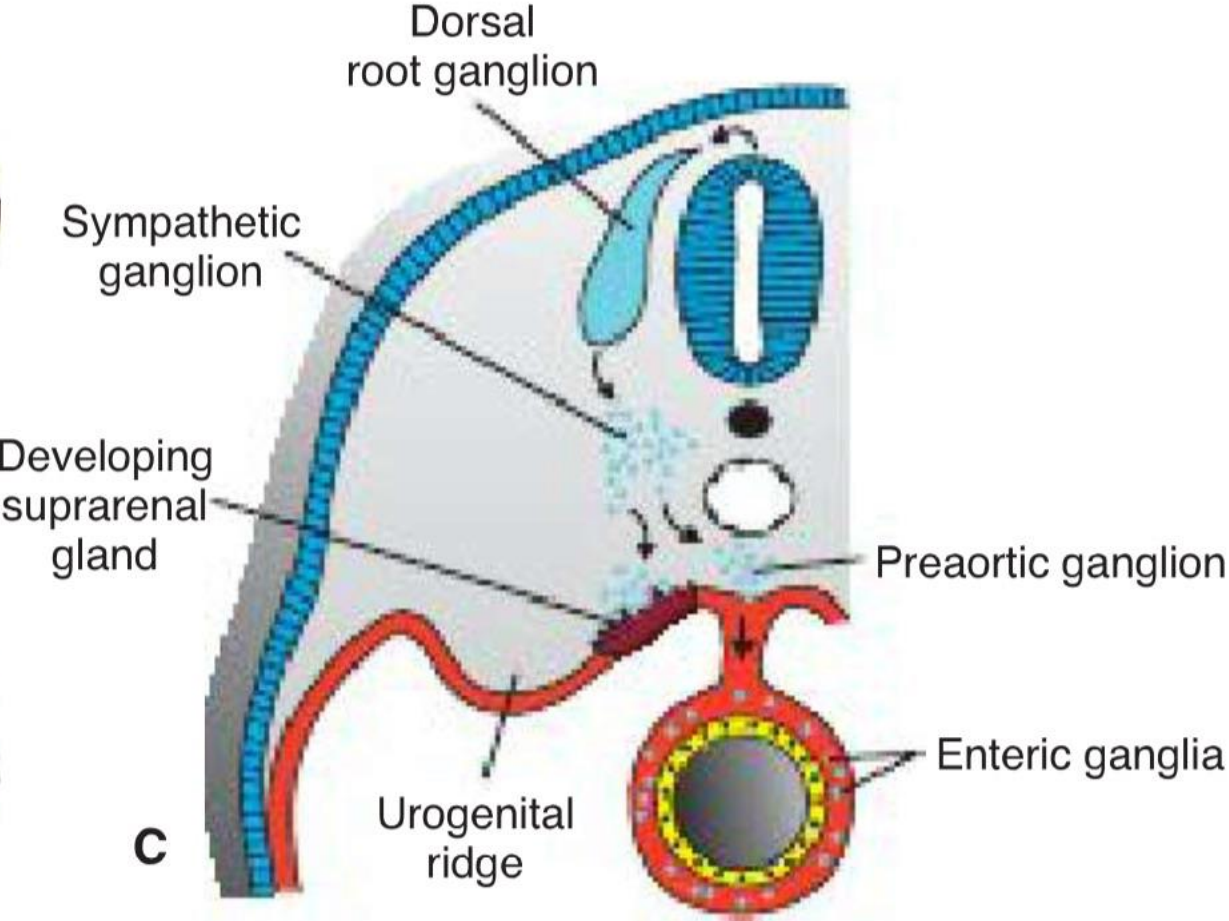
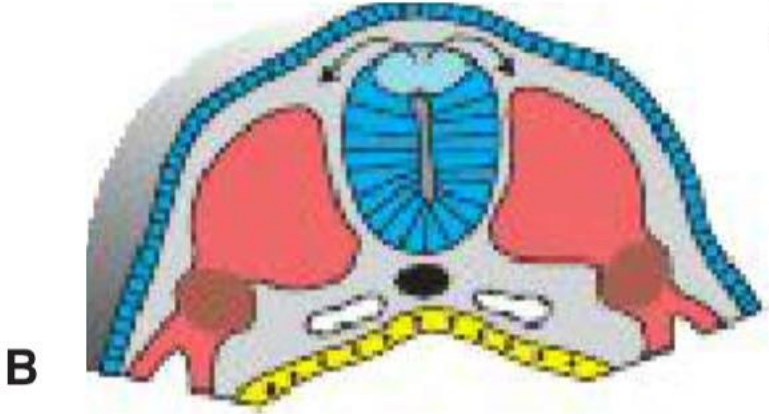
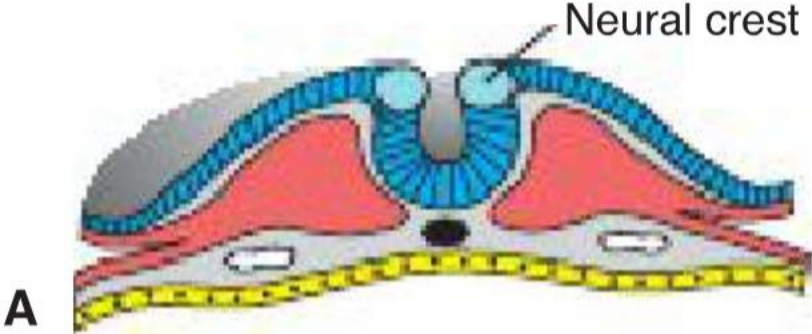


Development and teratology of the nervous system

Anna Mac Gillavry Danylevska

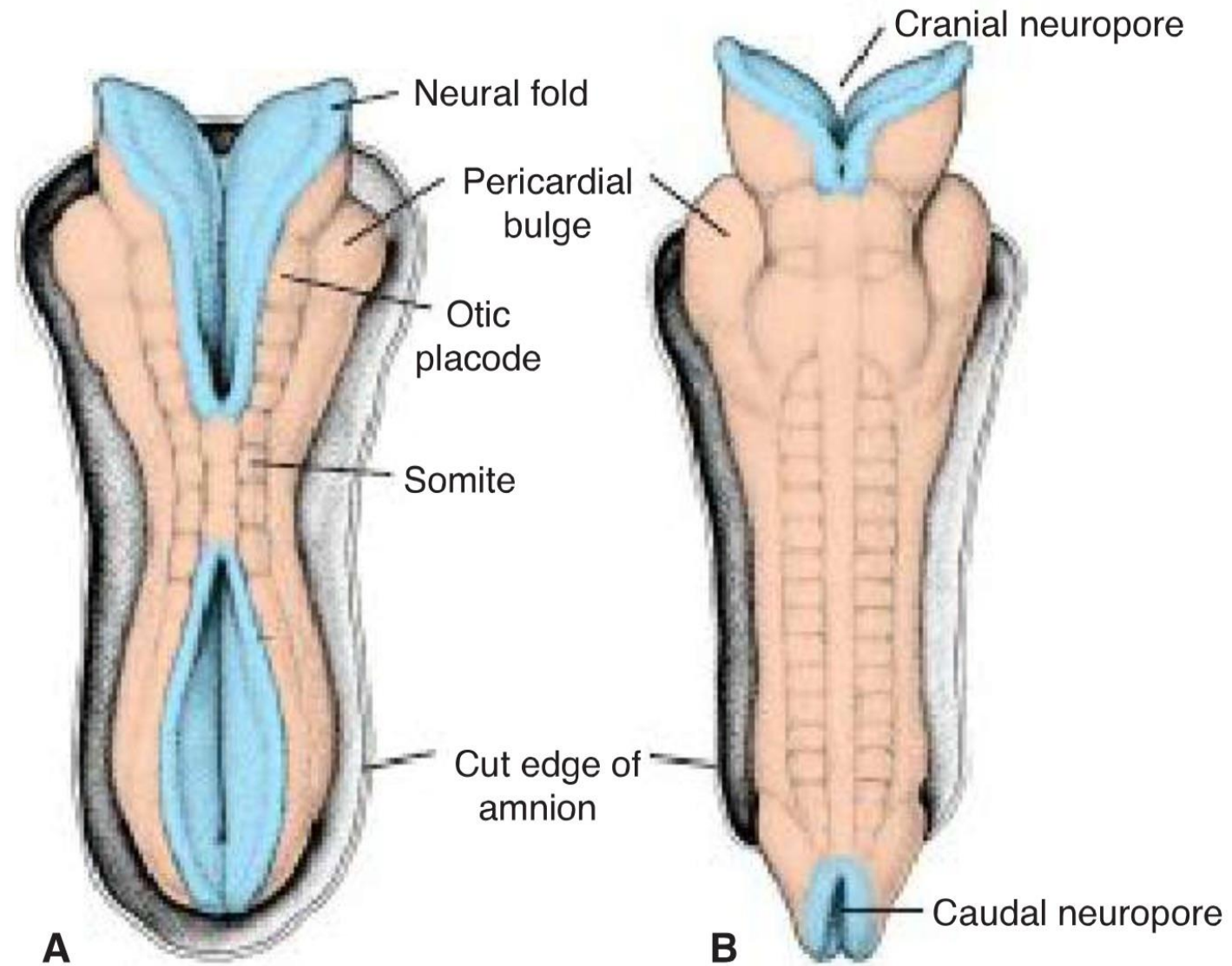
15.4.2024

Neural tube development

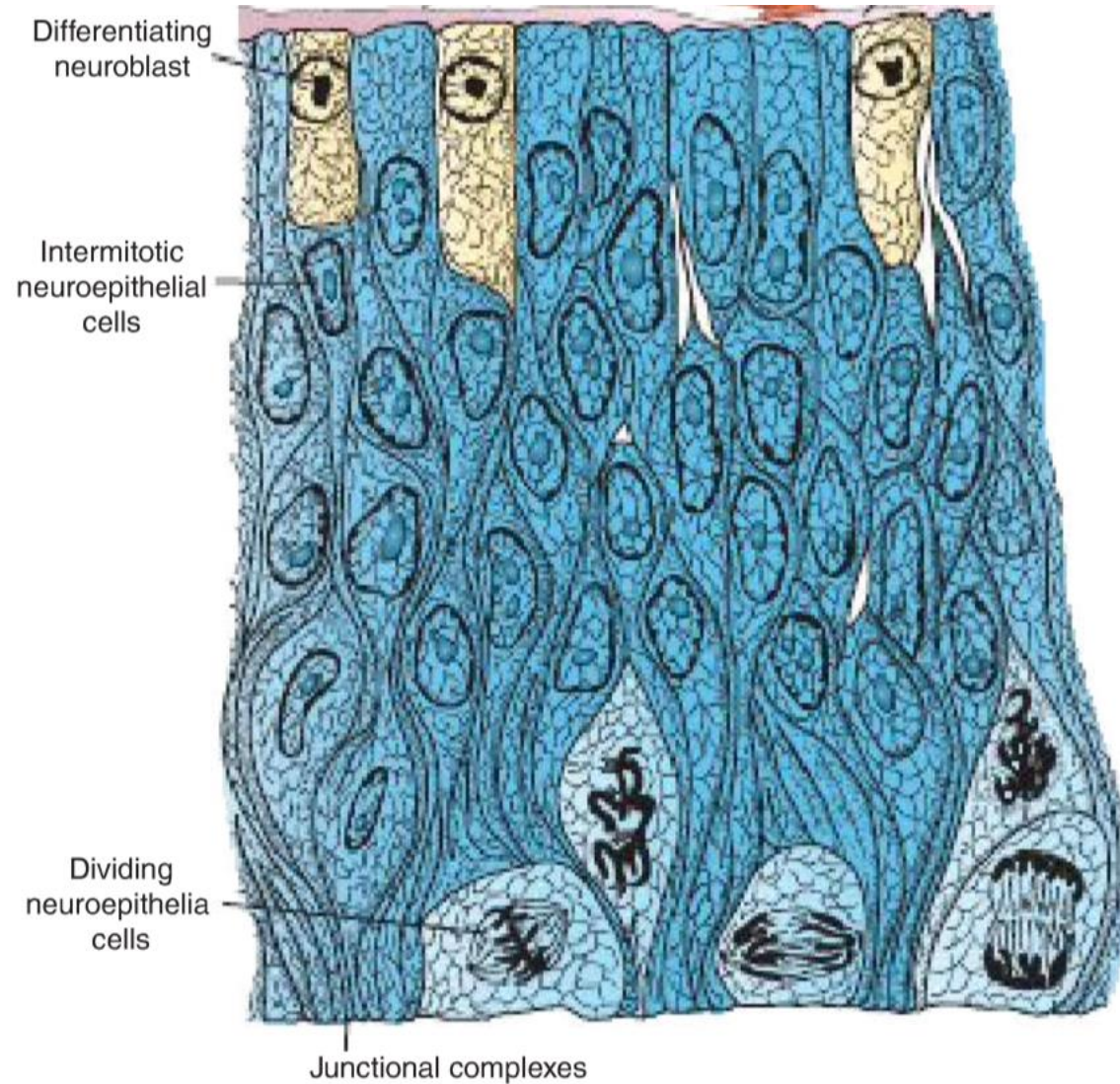


Neural crest

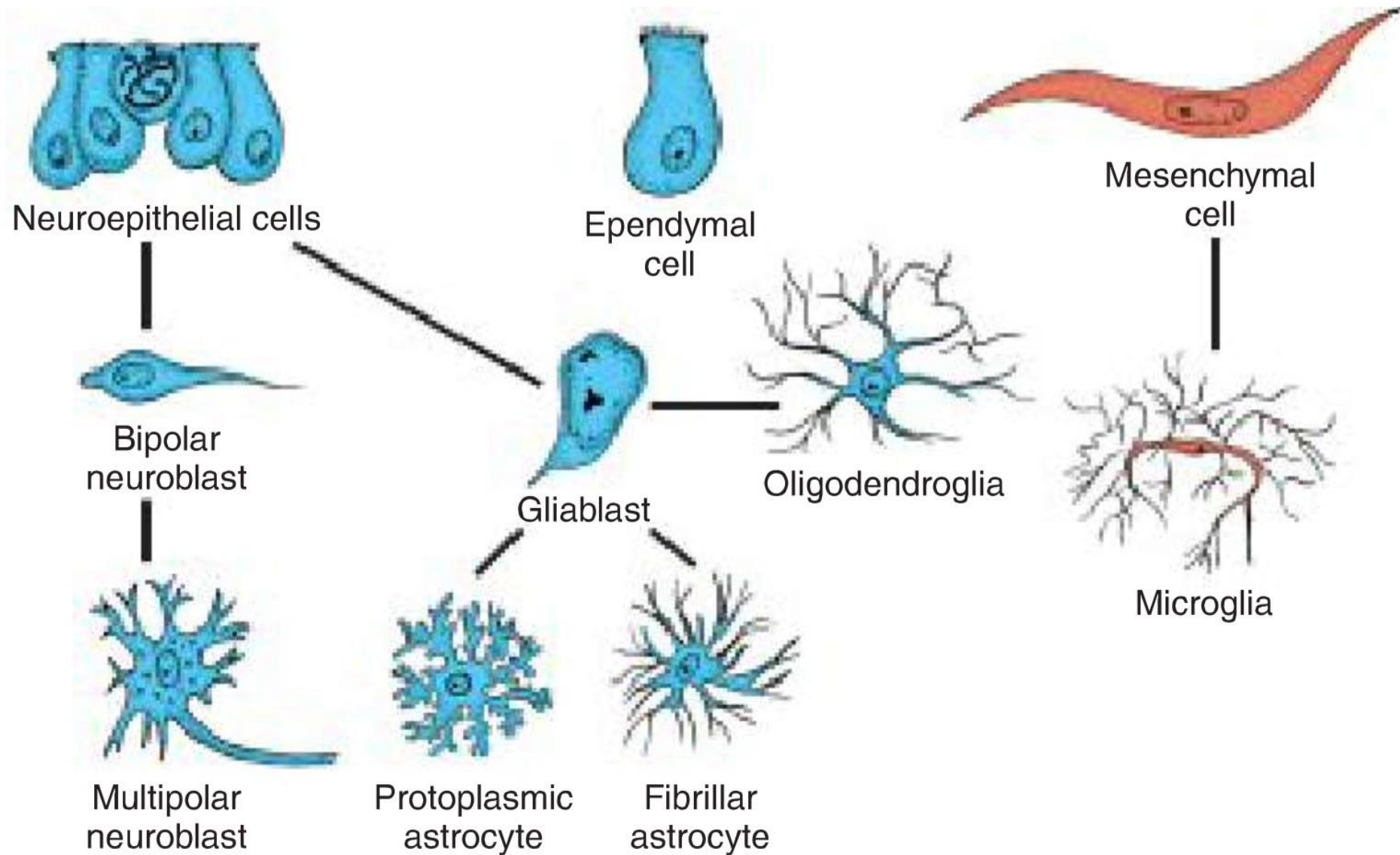
Neural tube development



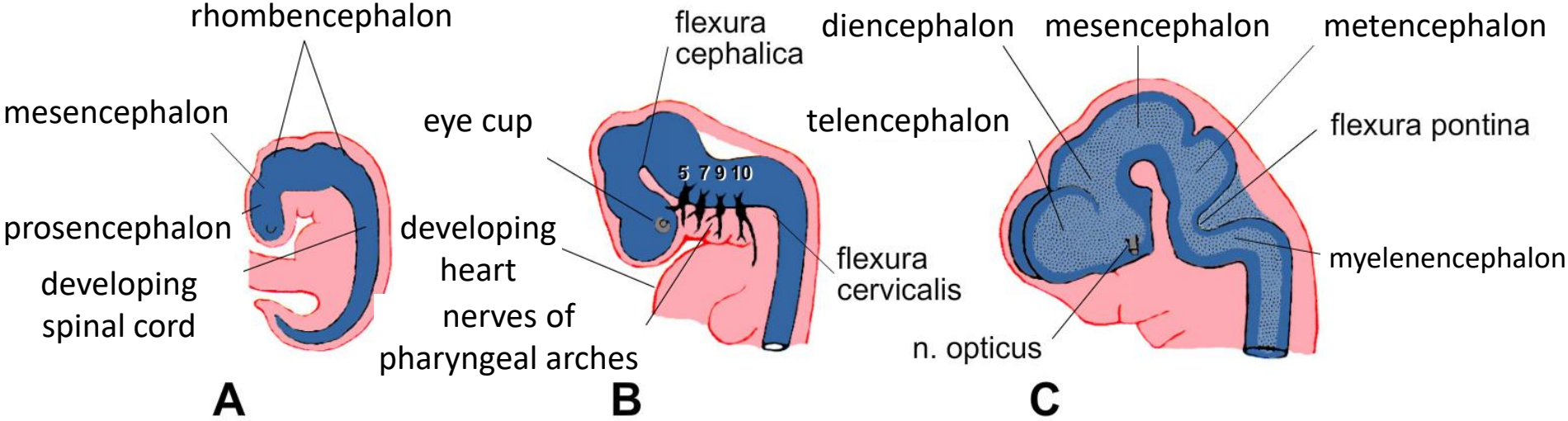
Histogenesis of the neural tube



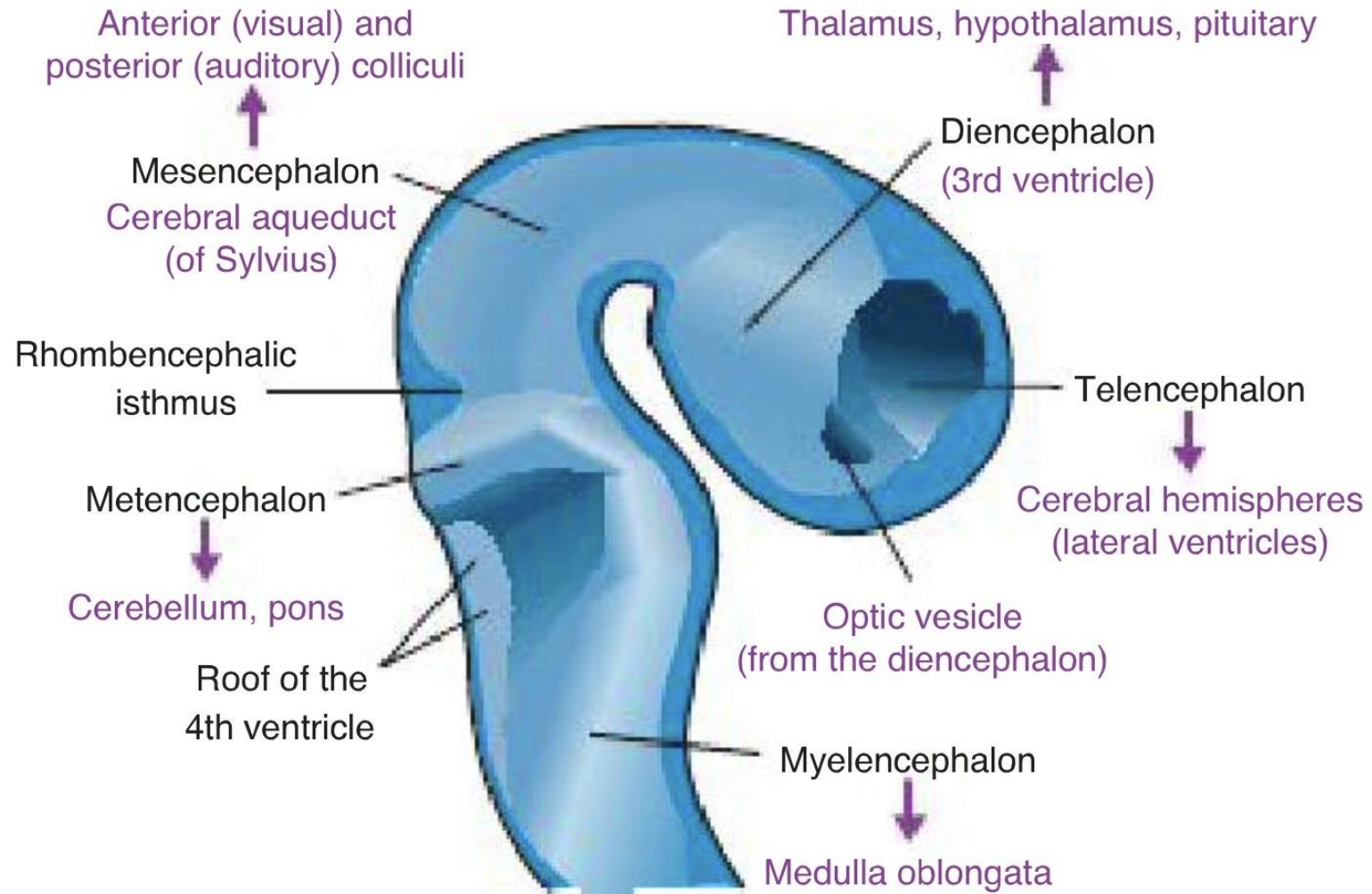
Histogenesis of the neural tube



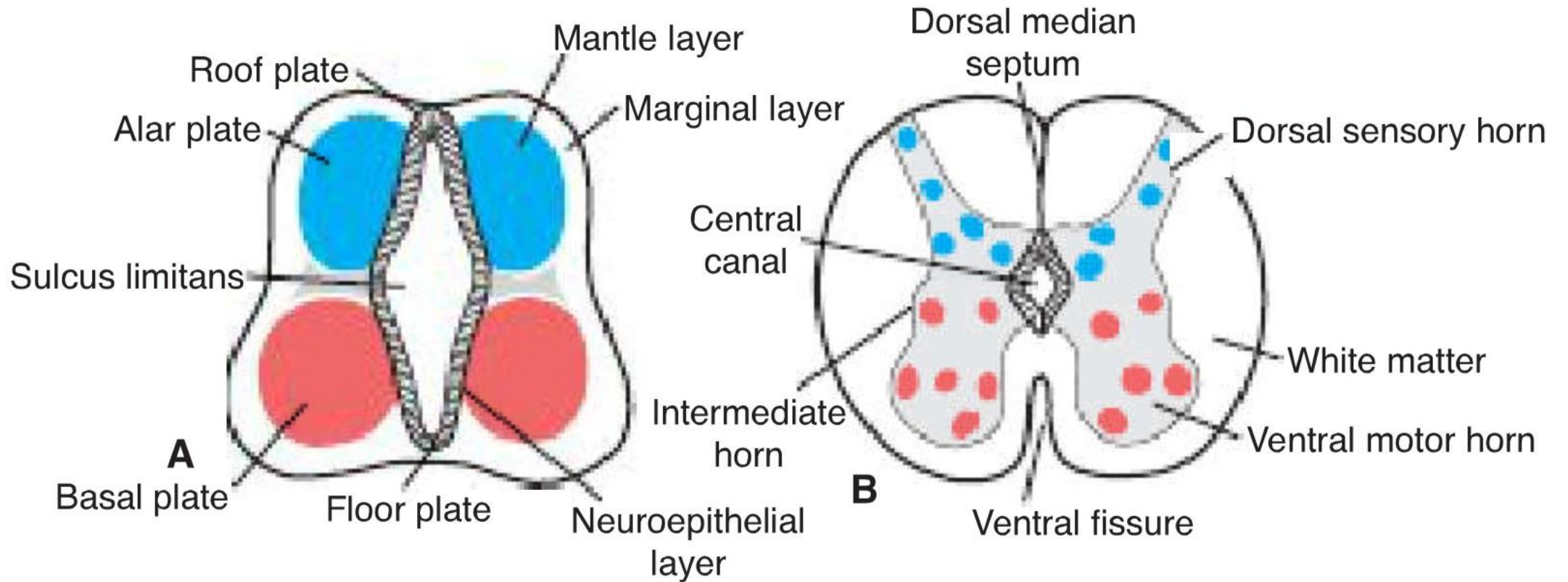
Development of the brain



Development of the brain

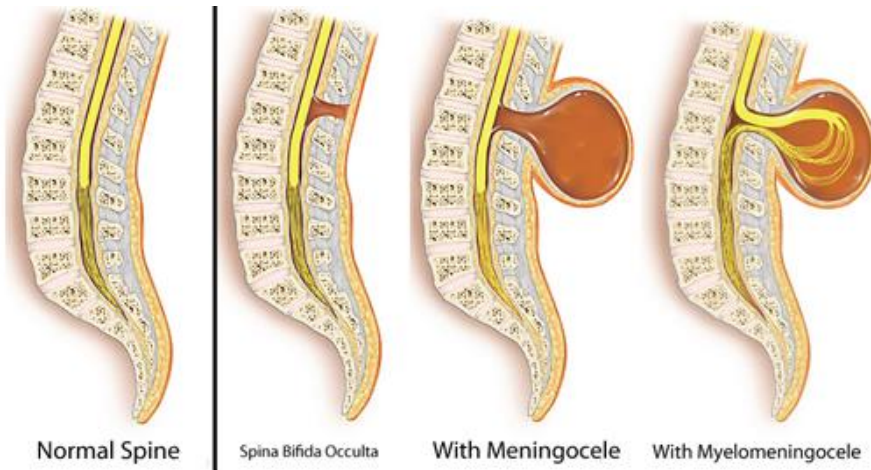


Development of the spinal cord



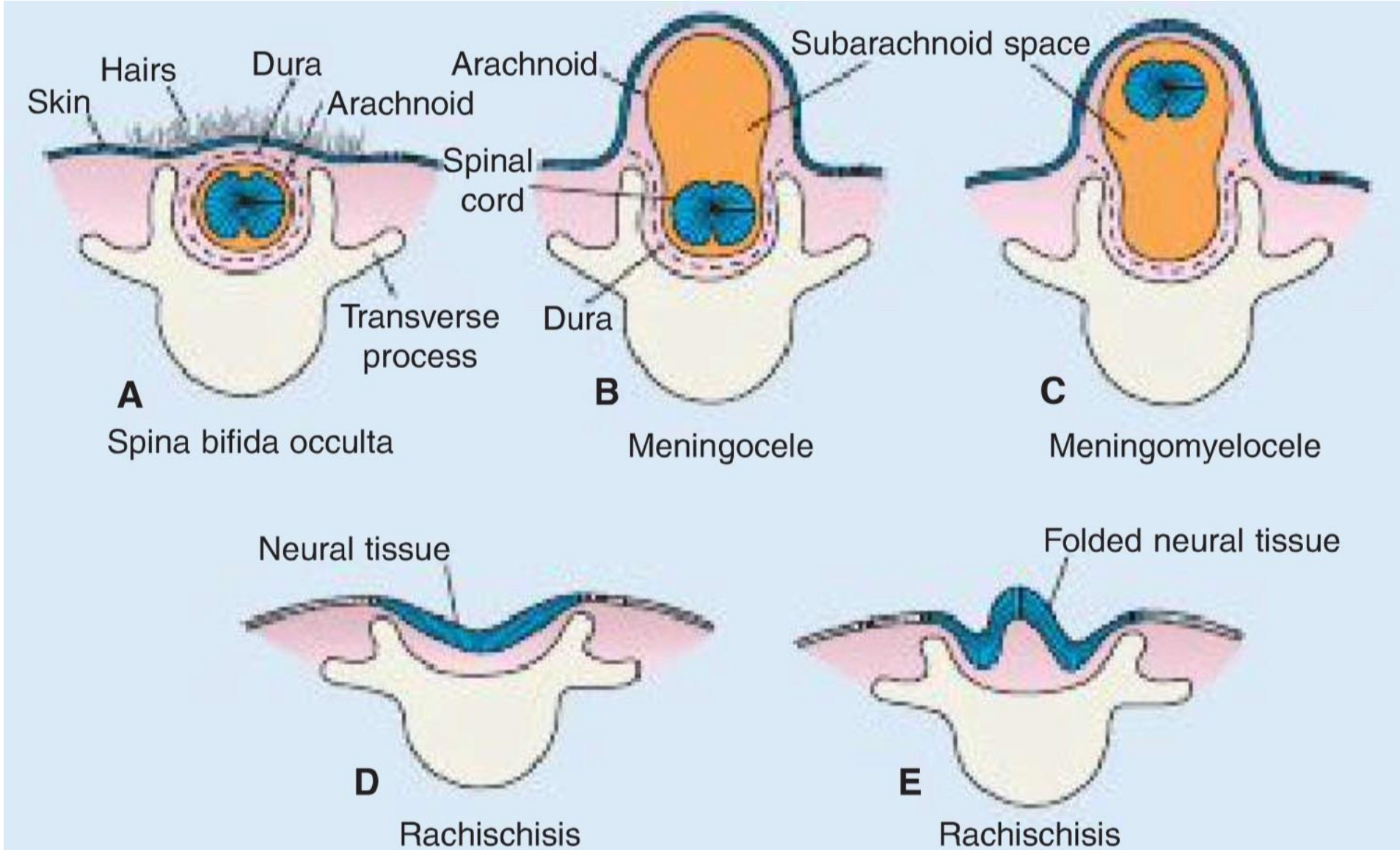
Neural tube defects (NTDs)

- Spina bifida: **spina bifida occulta** – defect of vertebral arches covered with skin and usually does not affect the neural tissue – 10 % of population; **meningocele**; **meningomyelocele**



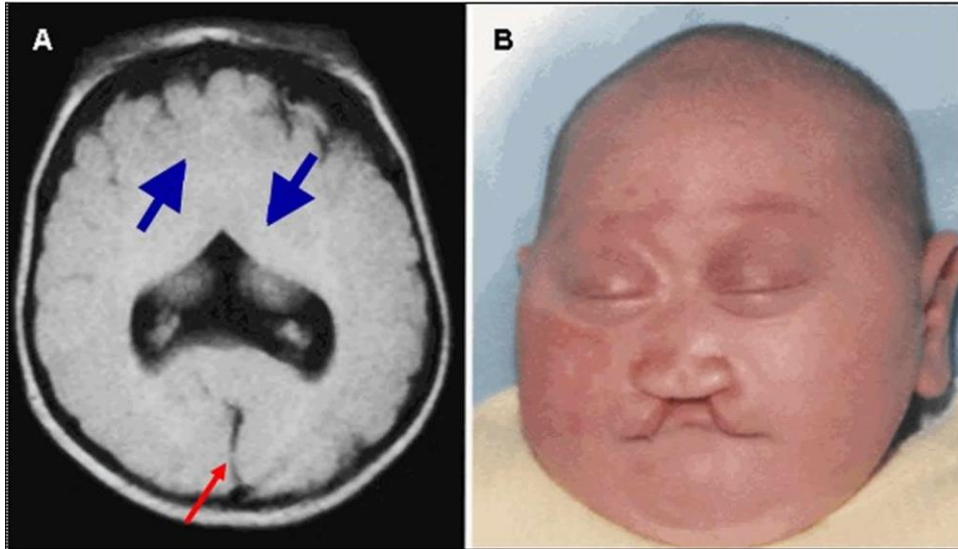
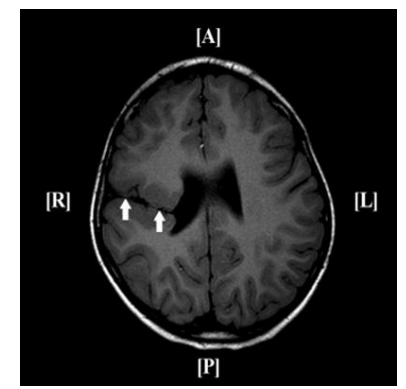
- Rachischisis
- Hydrocephaly due to Arnold-Chiari malformation

Neural tube defects (NTDs)



Cranial defects

- Schisencephaly
- Holoprosencephaly (HPE) – 1 in 15000 (1 in 250 early miscarriage)



Cranial defects

- Meningocele, meningoencephalocele, meningoencephalocele –
1 in 12000
- Exencephaly: anencephaly (=meroencephaly – 2-4 times more common in female fetuses), craniorachischisis – polyhydramnios
- Hydrocephaly – in most cases due to obstruction of the aqueduct of Sylvius (aqueductal stenosis)
- Microcephaly (rubella, cytomegalovirus, toxoplasmosis)

The leading cause of intellectual disability is maternal alcohol abuse!