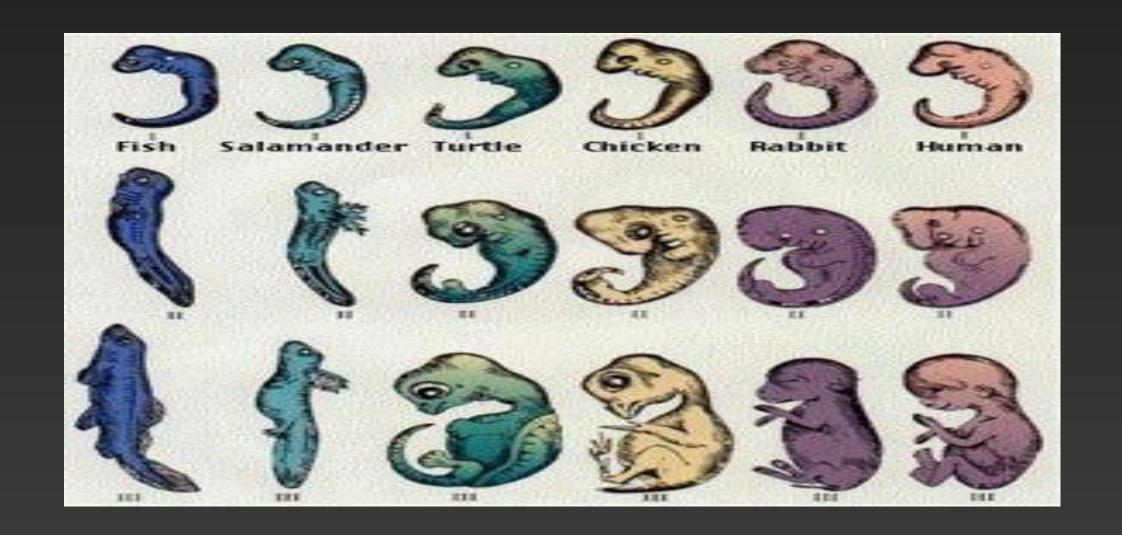


MEDICAL ACADEMY NAMED AFTER S.I GEORGIEVSKY " CFU NAMED AFTER V.I VERNADSKIY "

DEPARTMENT OF MEDICAL BIOLOGY

the theory of phylembryogenesisdeviation

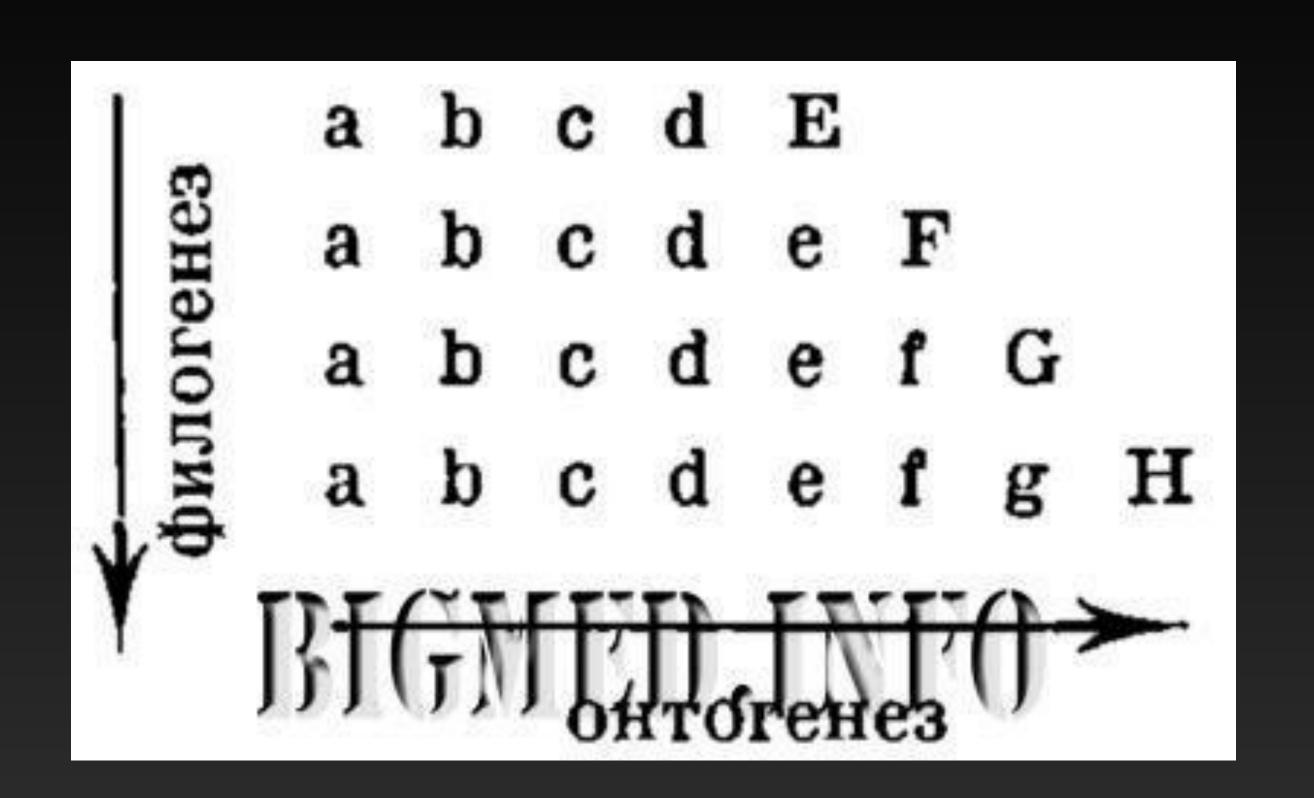
phylogenesis of phylum chordata nervous system and developemental disorders



satyam goyal ,
divya deep
(192 b) La 1
scientific advisor -svetlana smirnova

theory of phylembryogenesis-deviation

- a systematic co-ordination of ontogenetic and phylogenetic developements of morphological characters
- deviation is nothing else then a change in the characters then the normal ontogeny
- deviation generally occur in intermediate stages of ontogenesis



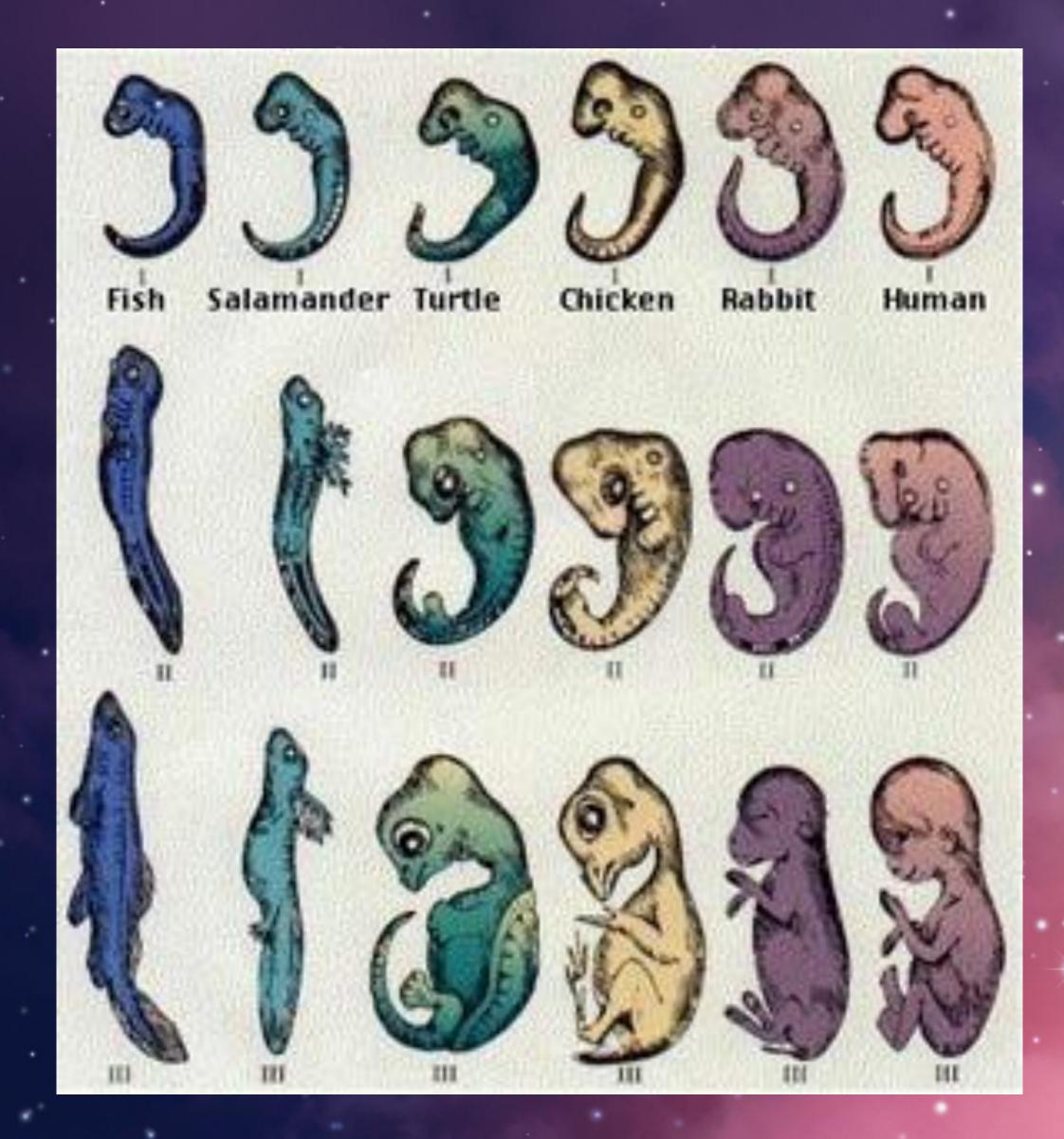
the idea initiated by:-

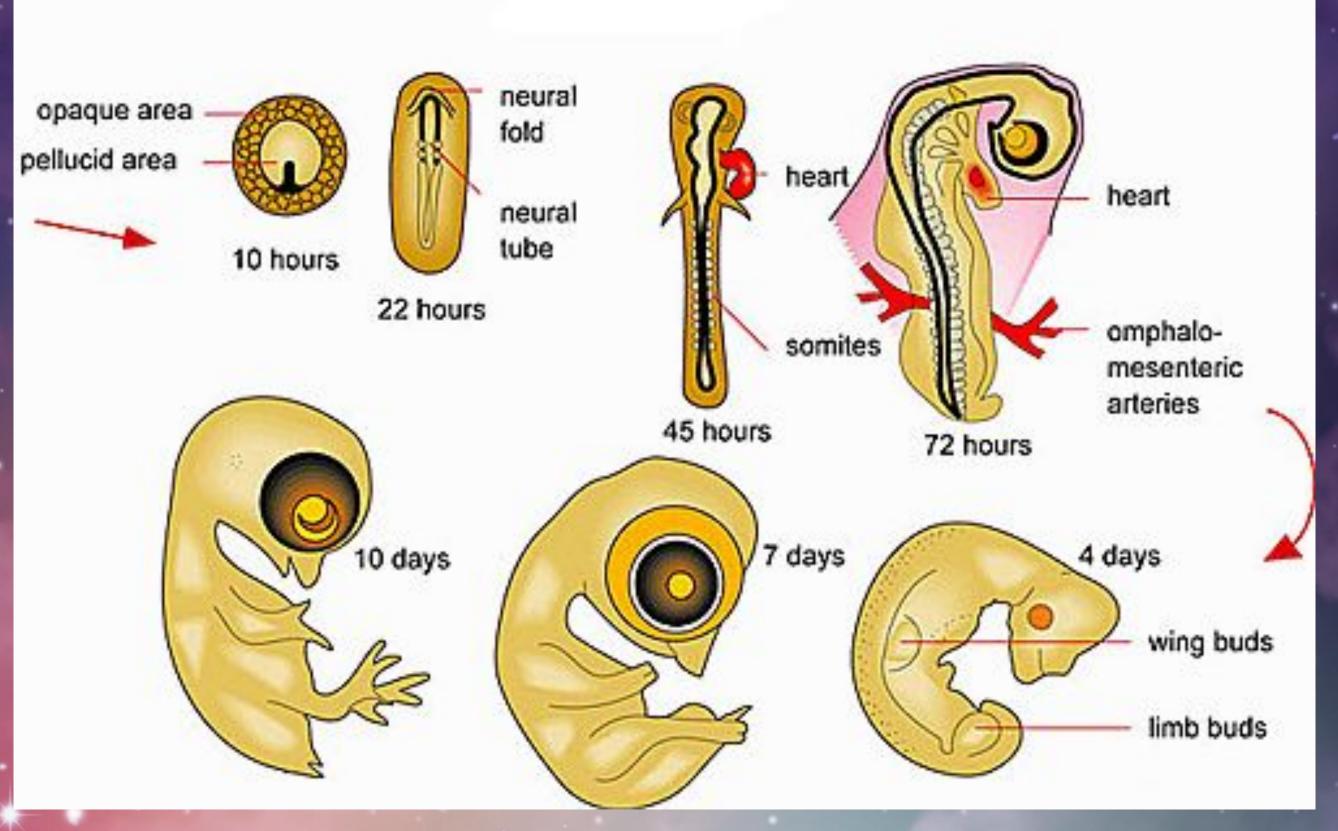
a theory put forth by Russian palaeontologist Severtsov postulating that phylogenetic changes in organisms are conditioned by ontogenetic alterations in that certain events are added modified added or deleted in the development of an embryo based on the events of ancestral development.

A.N Severtsov

While a student Severtsov, with P. P. Sushkin, entered a department competition on the organization and taxonomy of the Apoda and was awarded a gold medal. In 1895 Severtsov defended his master's dissertation, "O raxvitii zatylochnoy oblasti nizshikh pozvonochnykh v svyaz: s voprosom o metamerii golovy" ("On the Development of the Occipital area of the Lower Vertebrates in Connection With Metameres of the Head"). For the next three years he worked in the marine biological stations at Banyuls-sur-Mer, Villefranche, and Naples, and in the zoological laboratories at Munich and Kiel. The research done abroad was included in his doctoral dissertation, "Metameria golov elektricheskogo skata" ("Metameres of the Head of the Torpedo Ray"), which he defended in 1898. Severtsov did scientific and administrative work at Dorpat (now Tartu, Estonian S.S.R.), where from 1898 to 1902 he occupied the chair of zoology, then at Kiev (1902–1911), and at Moscow (1911–1930).





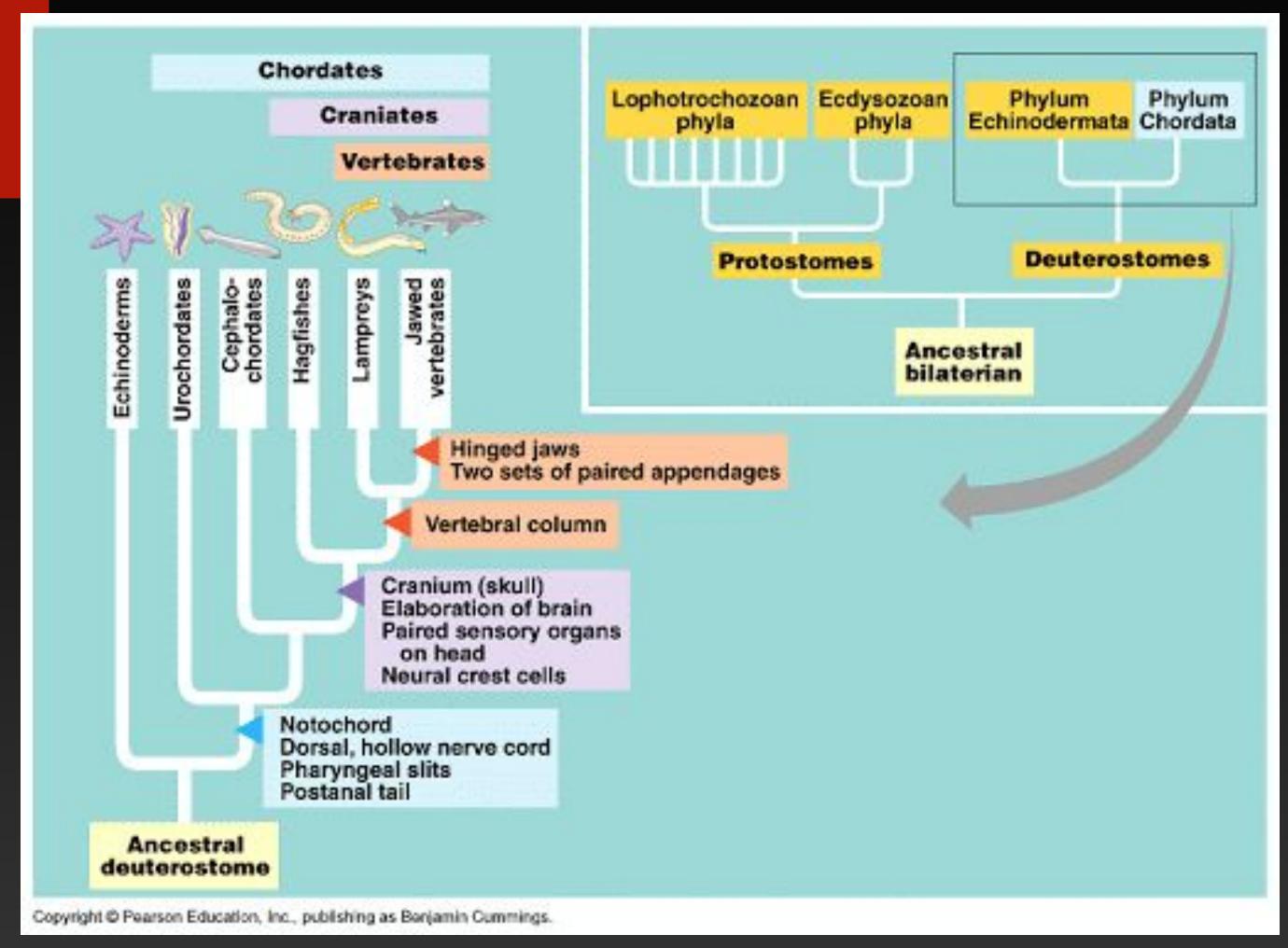


phylum chordata

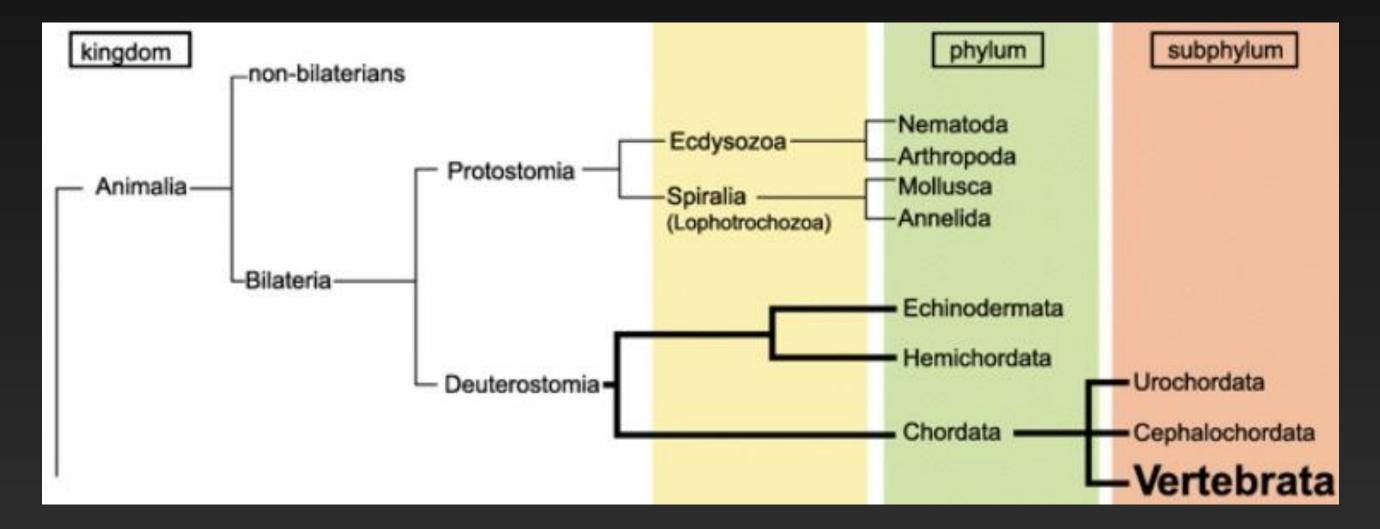
who are classified in chordata phylum

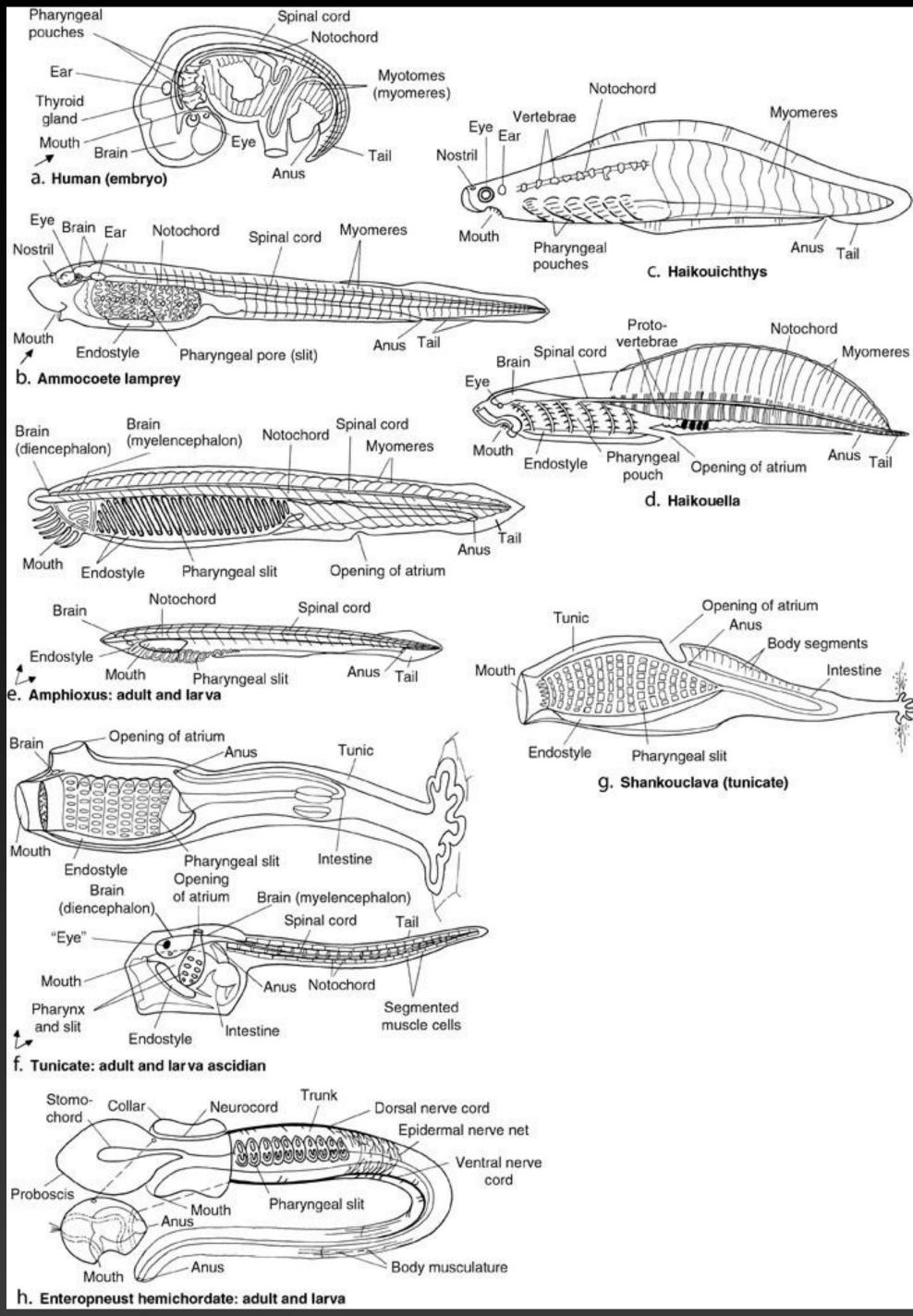
PHYLUM CHORDATA

- <u>Dorsal Notochord-</u>long rod that supports the bodybecomes the vertebrae in most.
- <u>Dorsal Nerve cord-becomes</u> the central nervous system.
- <u>Pharyngeal gill slits-openings</u> in the throat for feeding & breathing-becomes the Pharynx in humans.
- · Tail-forms in embryos and extends past the anus.

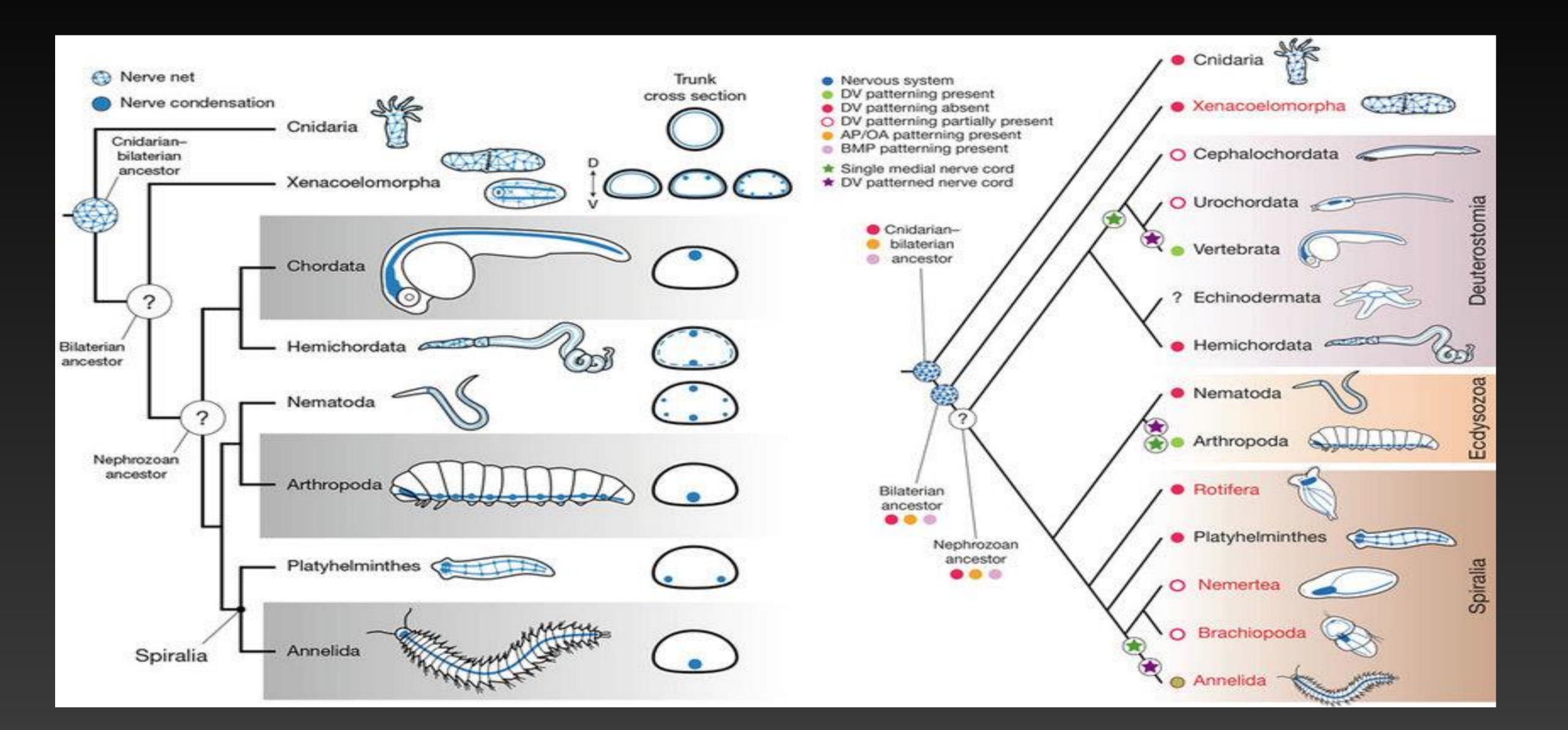


embryo description of vertebrates

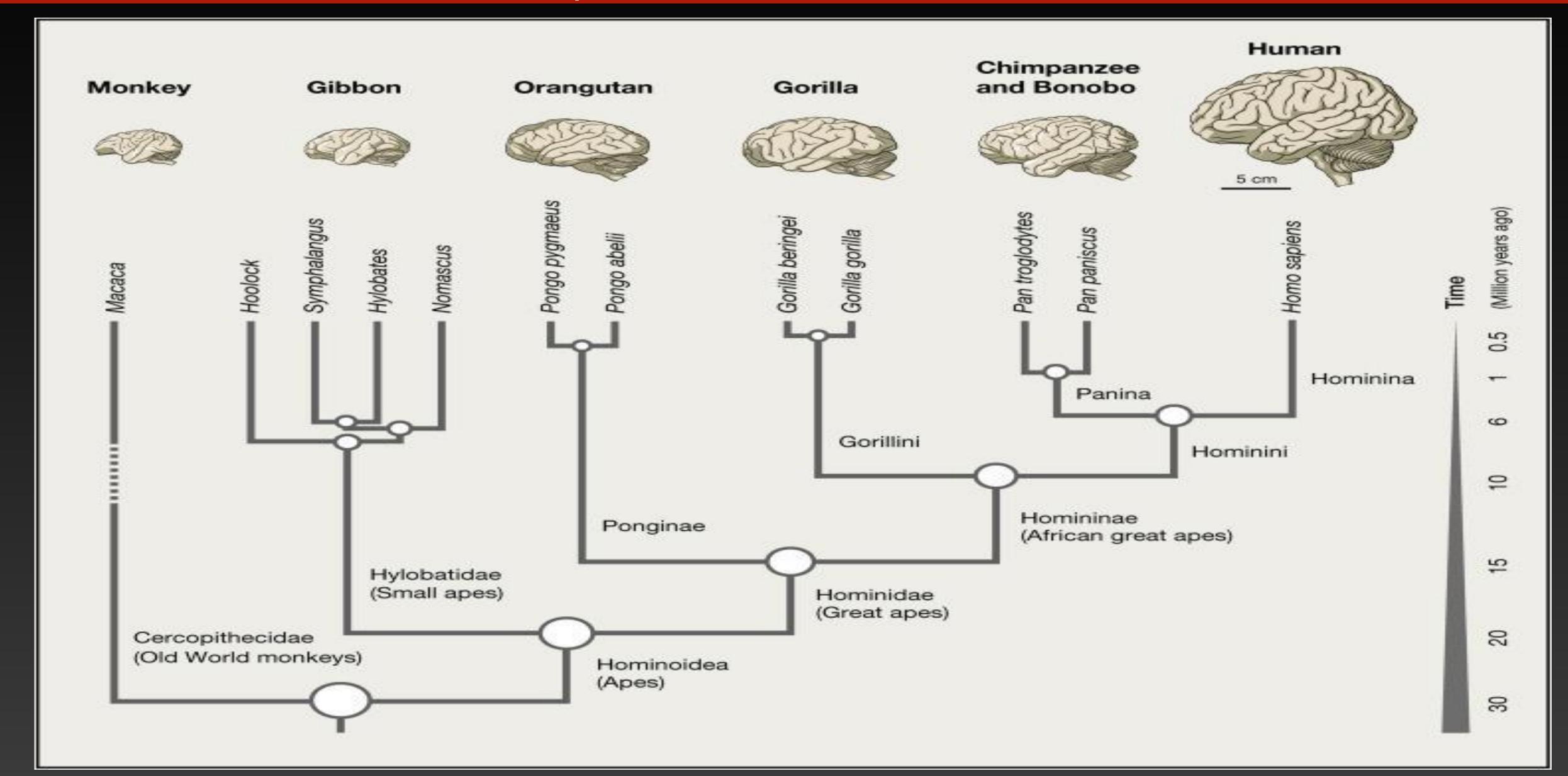




nervous system of animalia:-

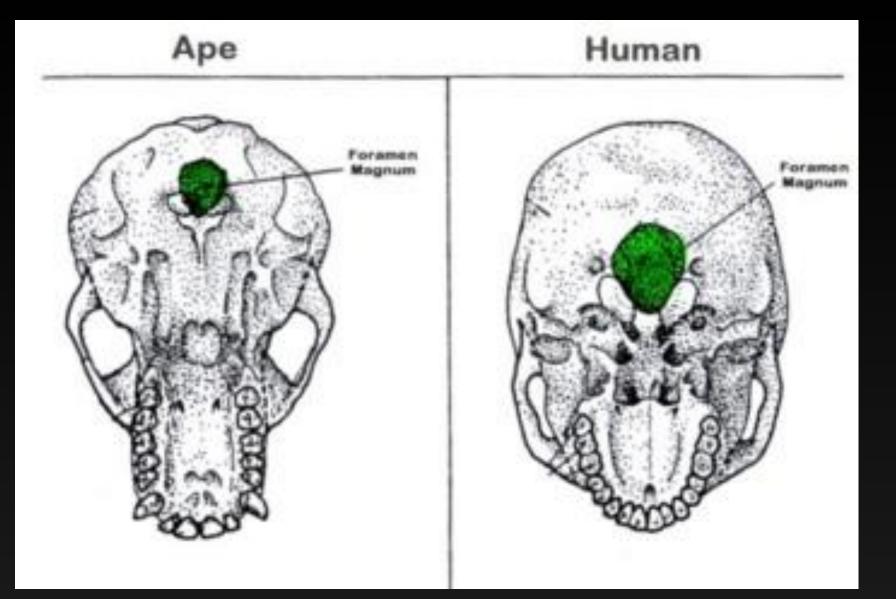


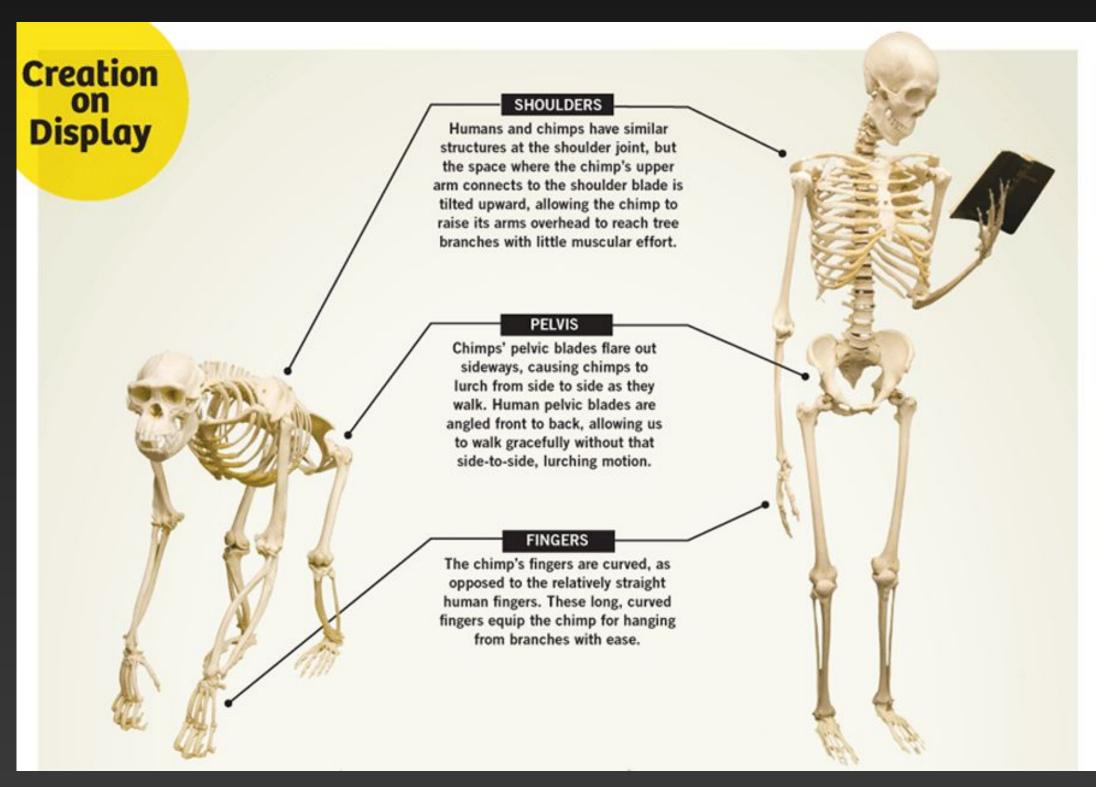
developement of brain in hominidae:-



Man Vs Apes:-



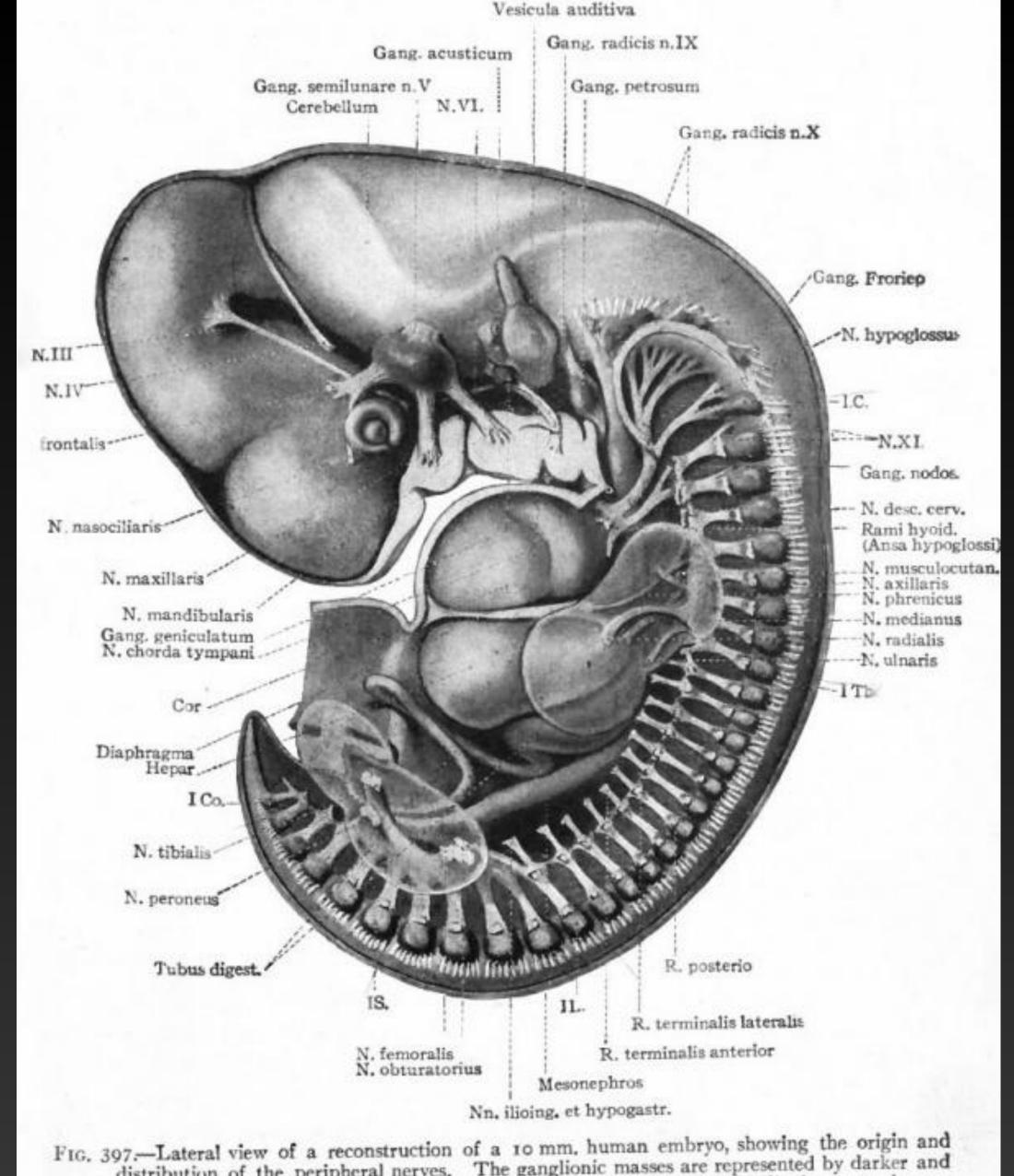




development of Nervous system

Development of the Nervous System: The Human Embryo

- Layers of cells in the embryo:
 - Ectoderm forms the nervous systems as well as the epidermis and parts of the eyes and ears
 - Mesoderm forms connective tissue, muscle, blood, blood vessels
 - Endoderm forms the linings of the body
- Throughout the embryonic and fetal period different cell types are created; the process is called differentiation.



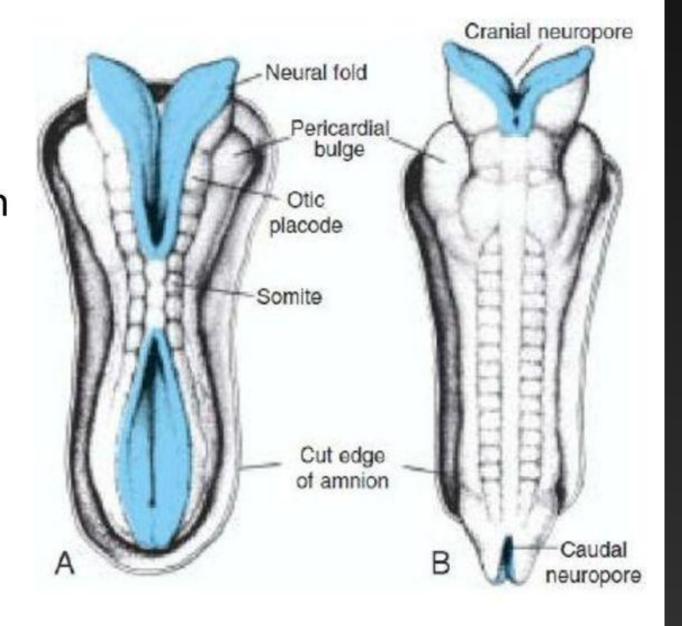
IG. 397.—Lateral view of a reconstruction of a 10 mm, human embryo, showing the origin and distribution of the peripheral nerves. The ganglionic masses are represented by darker and the fiber bundles by lighter shading. For purposes of orientation the diaphragm and some of the viscera are shown. The arm and leg are represented by transparent masses into the substance of which the nerve branches may be followed. Streeter.

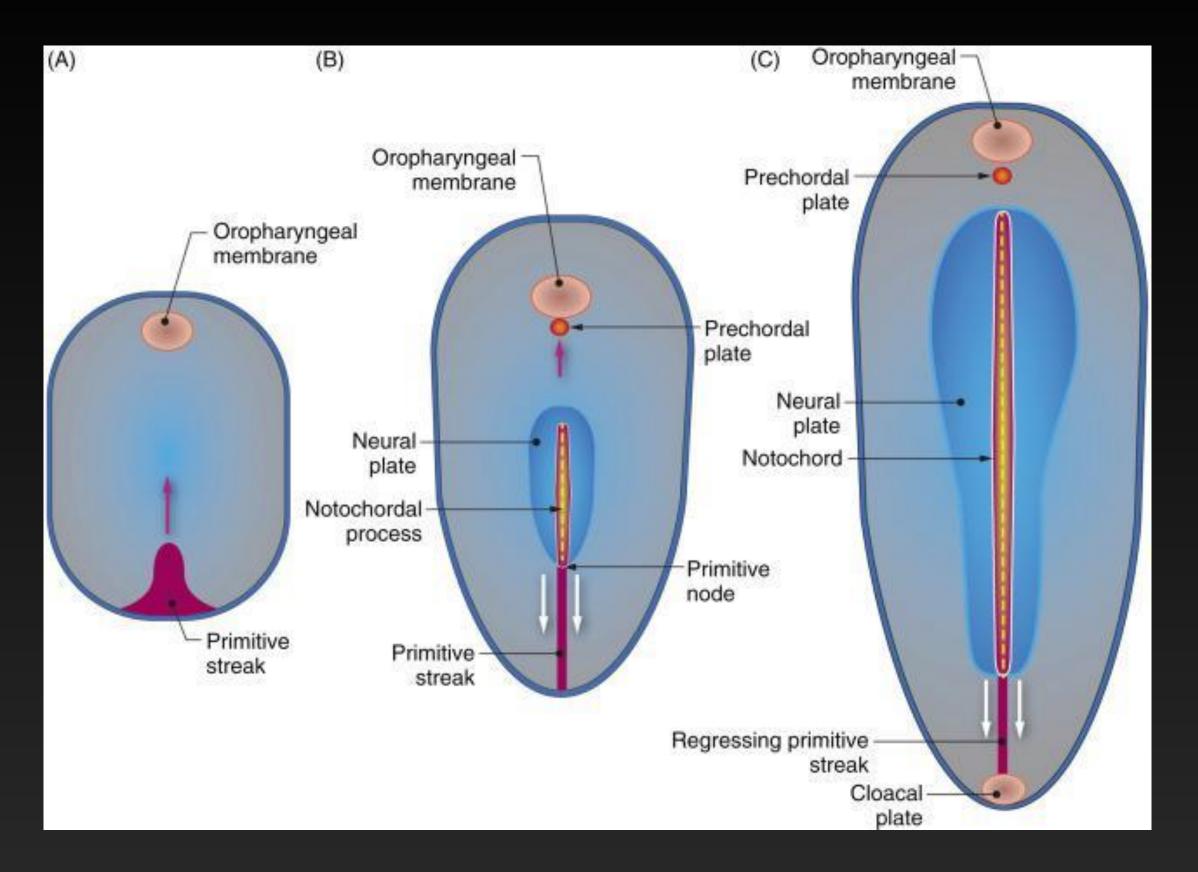
neural tube formation and development:-

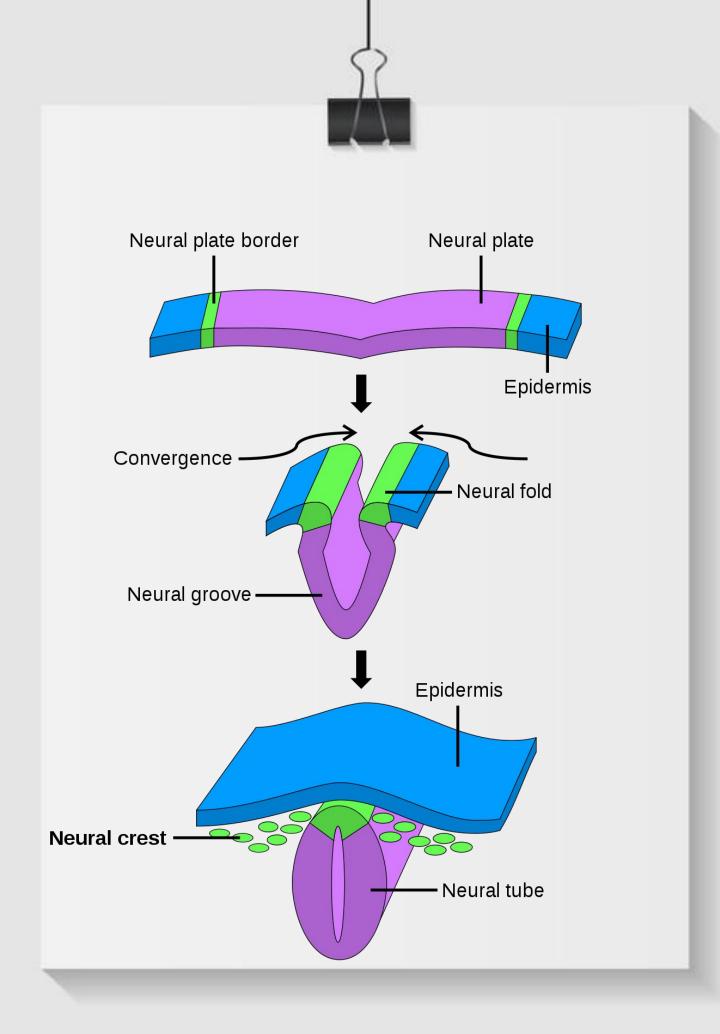
Dorsal view of a human embryo

A. Dorsal view of human embryo at approximately day 22. Seven distinct somites are visible on each side of the neural tube.

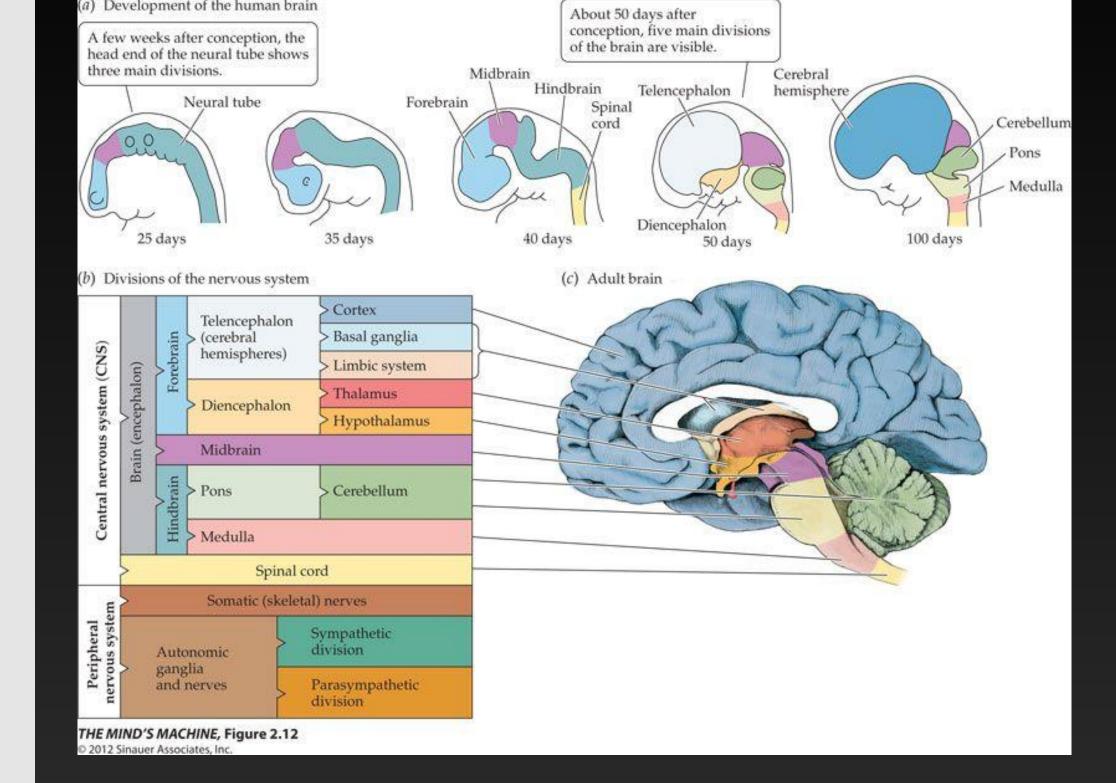
B. Dorsal view of human embryo at approximately day 23. The nervous system is in connection with the amniotic cavity through the cranial and caudal neuropores.





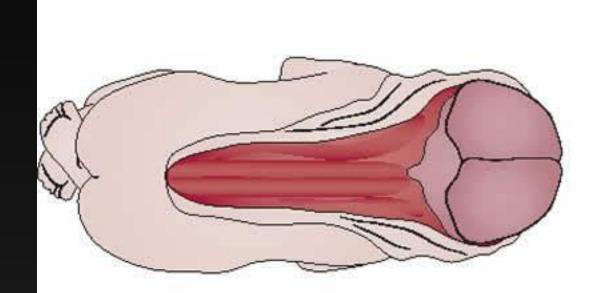


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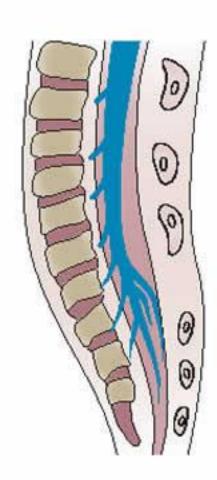


(a) Development of the human brain

anomalies of nervous system in human



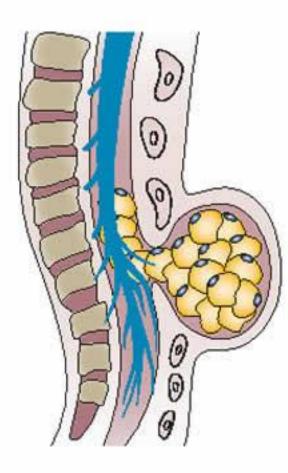
Craniorachischisis
Completely open brain
and spinal cord



Spina bifida occulta
Closed asymptomatic NTD in which some
of the vertebrae are not completely closed



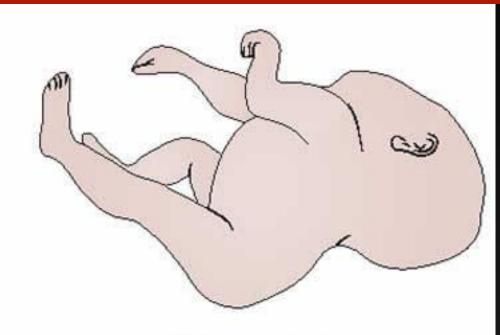
Anencephaly
Open brain and lack
of skull vault



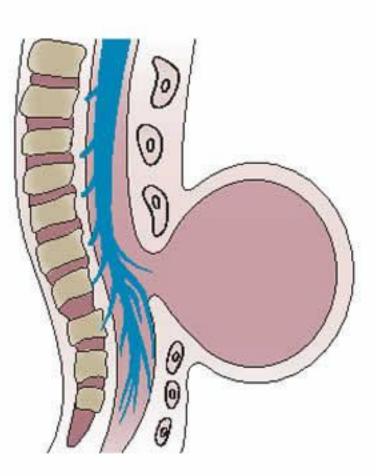
Closed spinal dysraphism
Deficiency of at least two vertebral arches, here covered with a lipoma



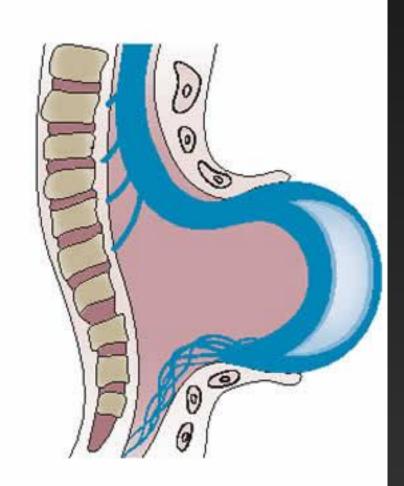
Encephalocele Herniation of the meninges (and brain)



Iniencephaly
Occipital skull and spine defects with
extreme retroflexion of the head



Meningocele
Protrusion of the meninges (filled with CSF)
through a defect in the skull or spine



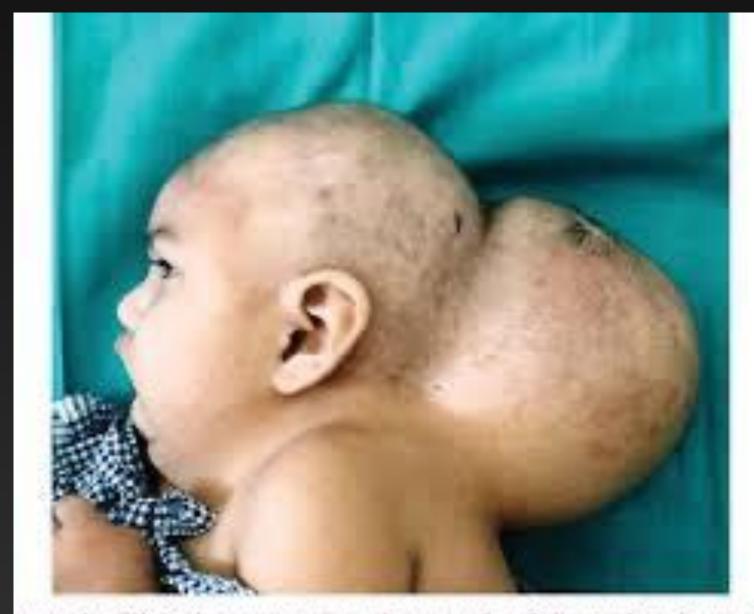
Myelomeningocele
Open spinal cord
(with a meningeal cyst)

Anencephaly cases:-





encephalocoel cases:-

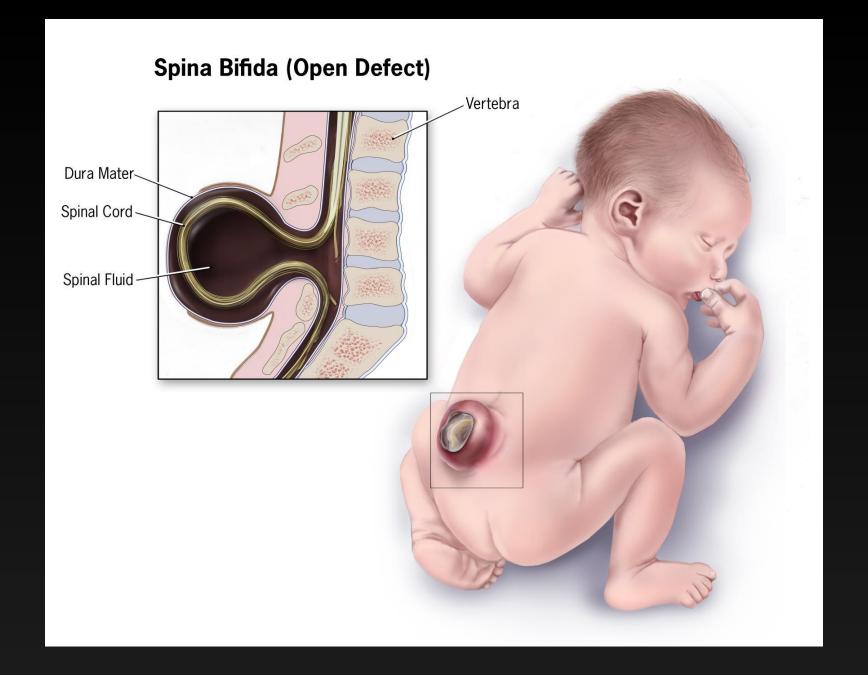


gure 1: Clinical preoperative photograph of the patient in profil



spina bifida cases:-







thank you for your attention