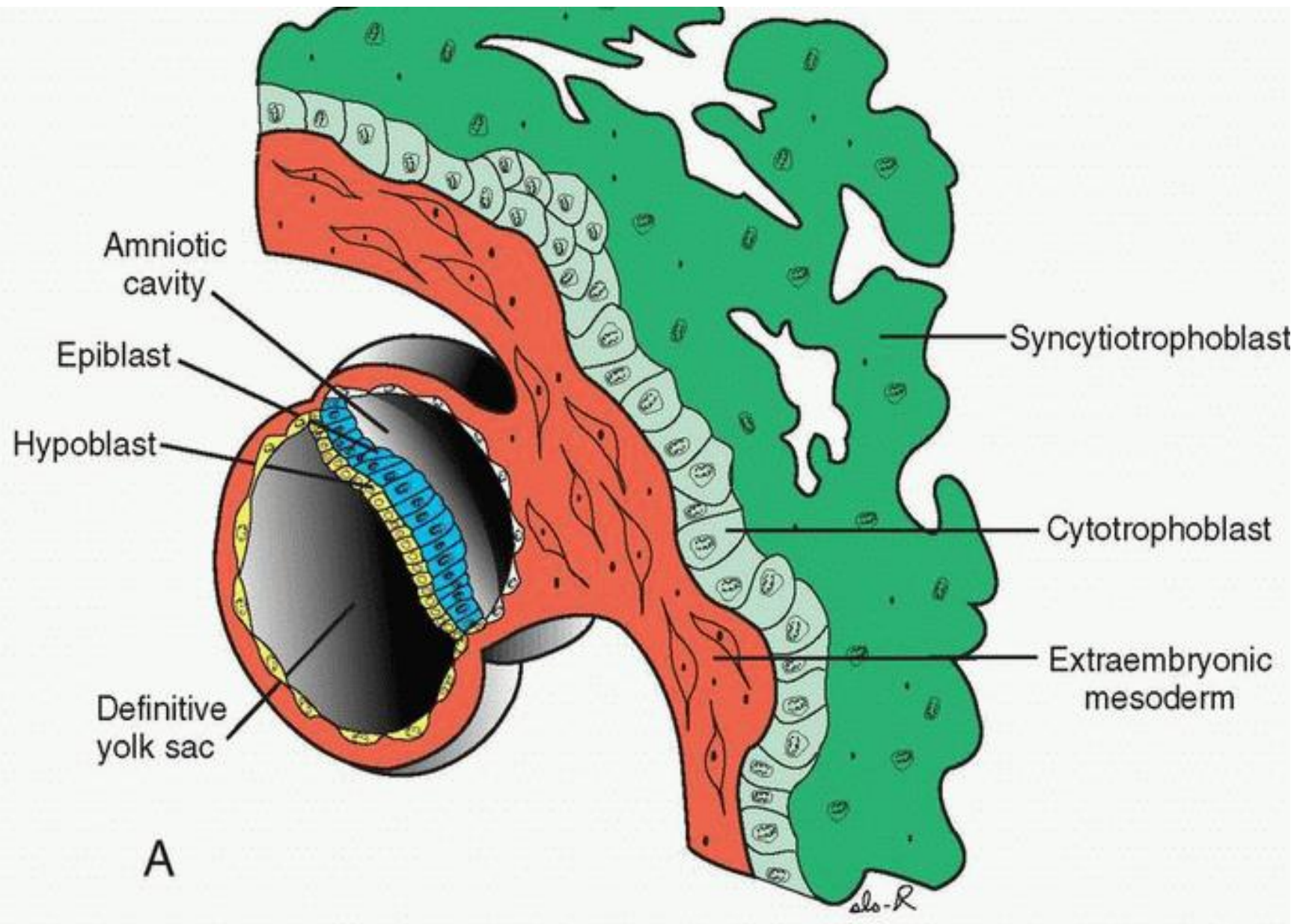


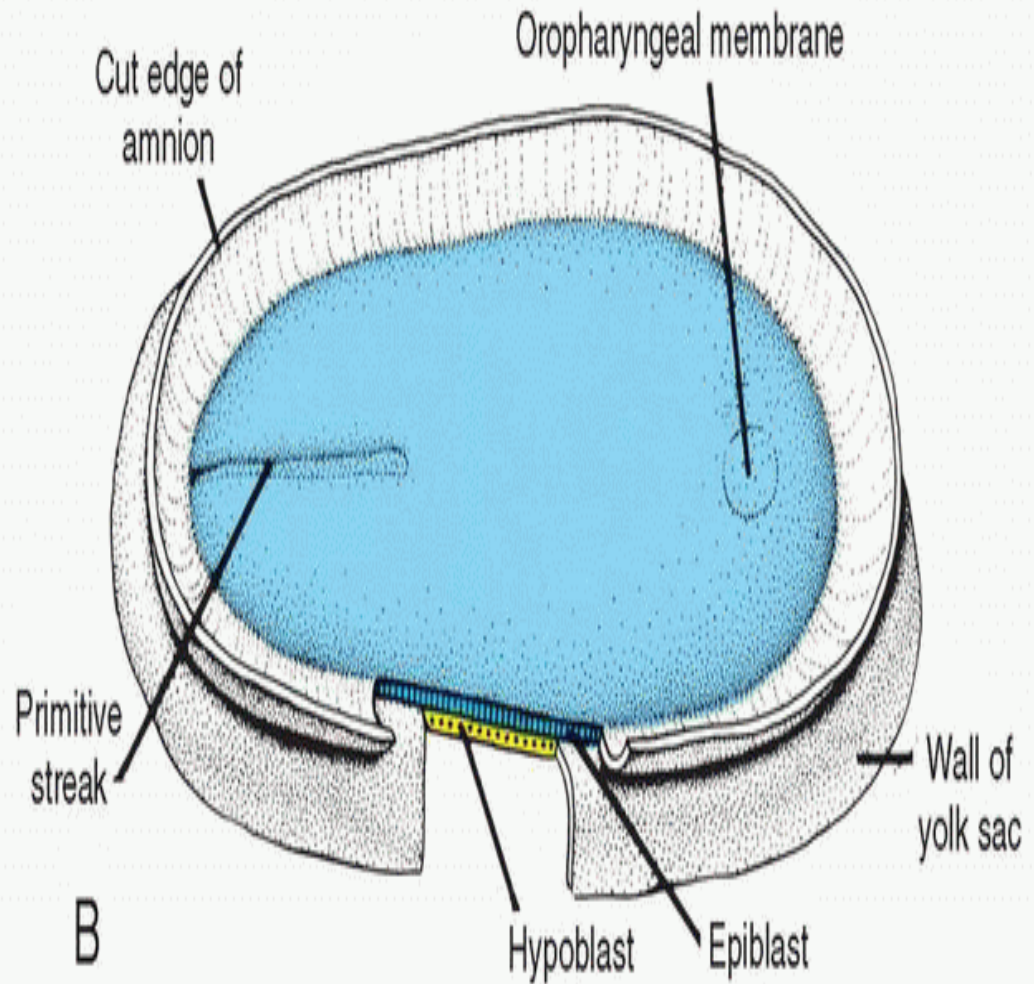
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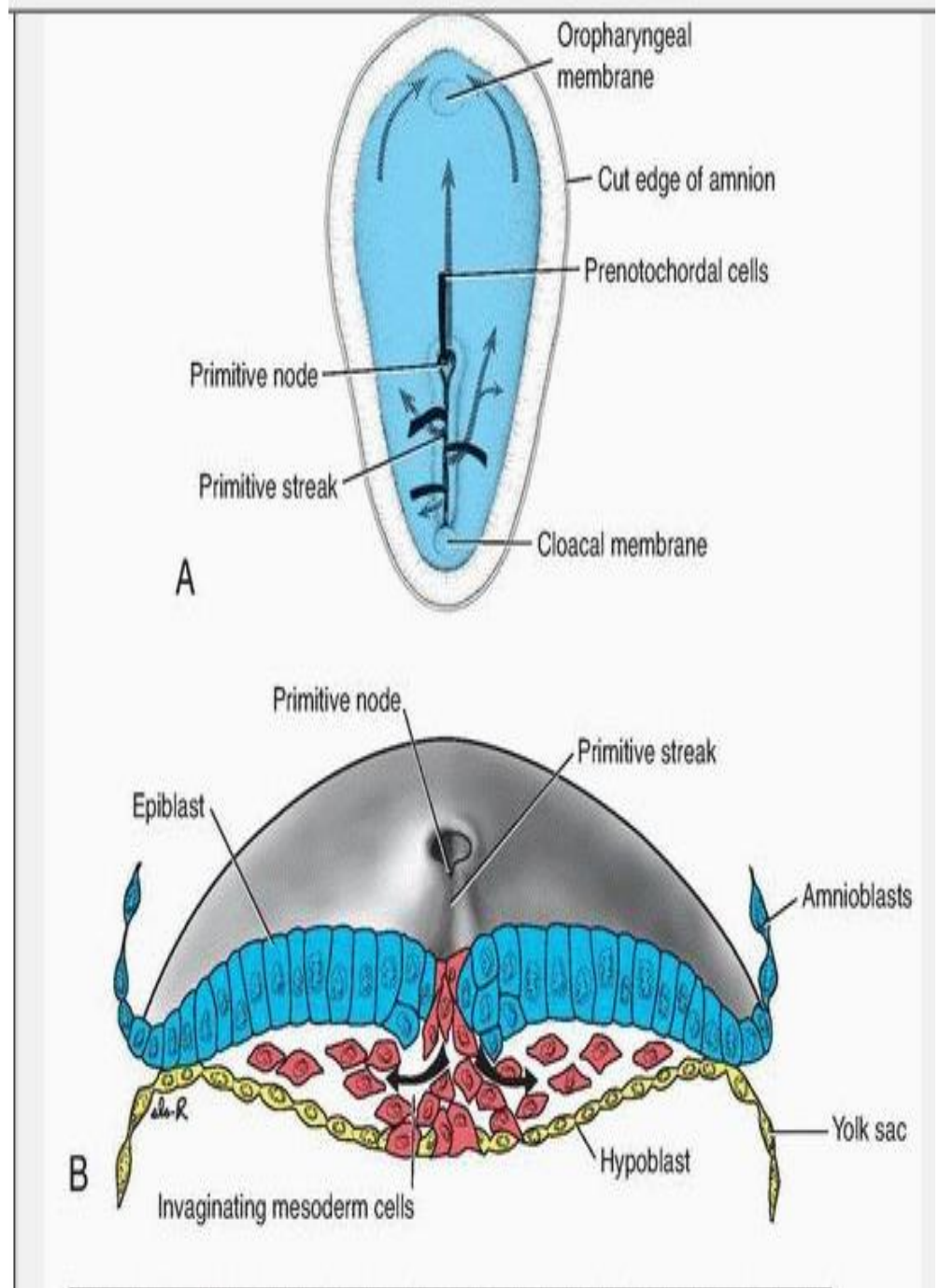
Third Week of Development: Trilaminar Germ Disc

- GASTRULATION
- The process that establishes all three germ layers (ectoderm, mesoderm, and endoderm) in the embryo

- **Primitive streak** on the surface of the epiblast.
- On 15- to 16-day embryo, it is clearly visible as a narrow groove with slightly bulging regions on either side.
- The cephalic end of the streak, the **primitive node**, consists of a slightly elevated area surrounding the small **primitive pit**



- Cells of the epiblast migrate toward the primitive streak . Upon arrival in the region of the streak, they become flask-shaped, detach from the epiblast, and slip beneath it.
- Invagination
- fibroblast growth factor 8 (FGF8)



- Invaginated cells displace the hypoblast, creating the embryonic endoderm
- **Others come to lie between the epiblast and newly created endoderm to form mesoderm.**
- Cells remaining in the **epiblast** then form ectoderm.

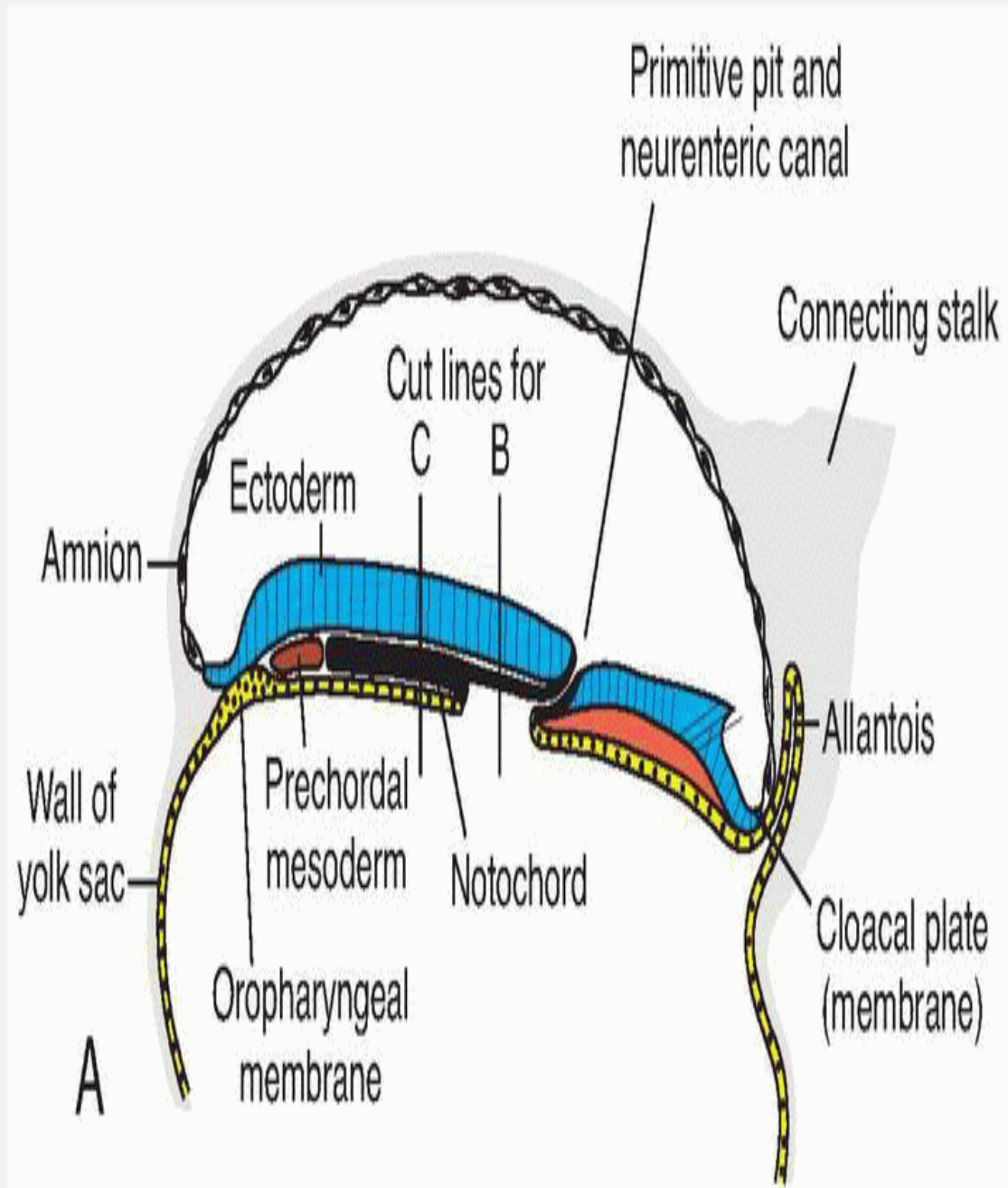
- In the cephalic direction, they pass on each side of the **prechordal plate**.
- The prechordal plate itself forms between the tip of the notochord and the oropharyngeal membrane and is derived from some of the first cells that migrate through the node in the midline and move in a cephalic direction.
- Prechordal plate important for induction of the forebrain

- The oropharyngeal membrane is tightly adherent ectoderm and endoderm cells that represents the future opening of the oral cavity.

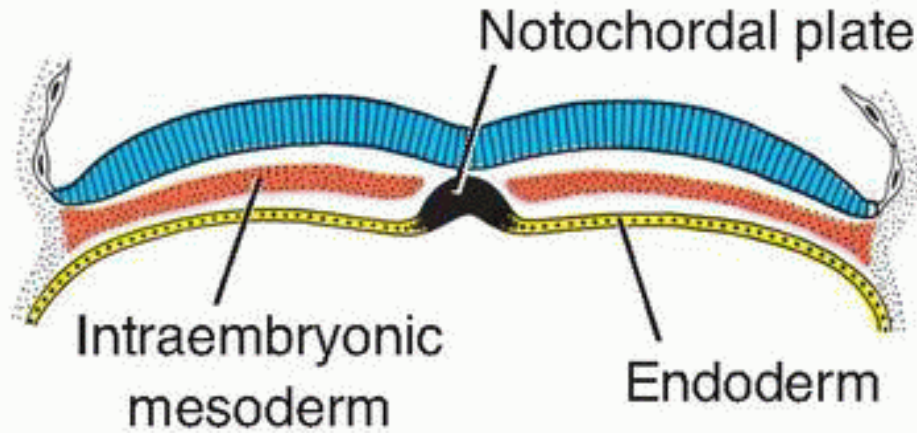
- **FORMATION OF THE NOTOCHORD**

- Prenotochordal cells invaginating in the primitive node move forward cranially in the midline until they reach **the prechordal plate** . These prenotochordal cells become **intercalated** in the hypoblast so that for a short time, the midline of the embryo consists of **two cell** layers that form the **notochordal plate** .

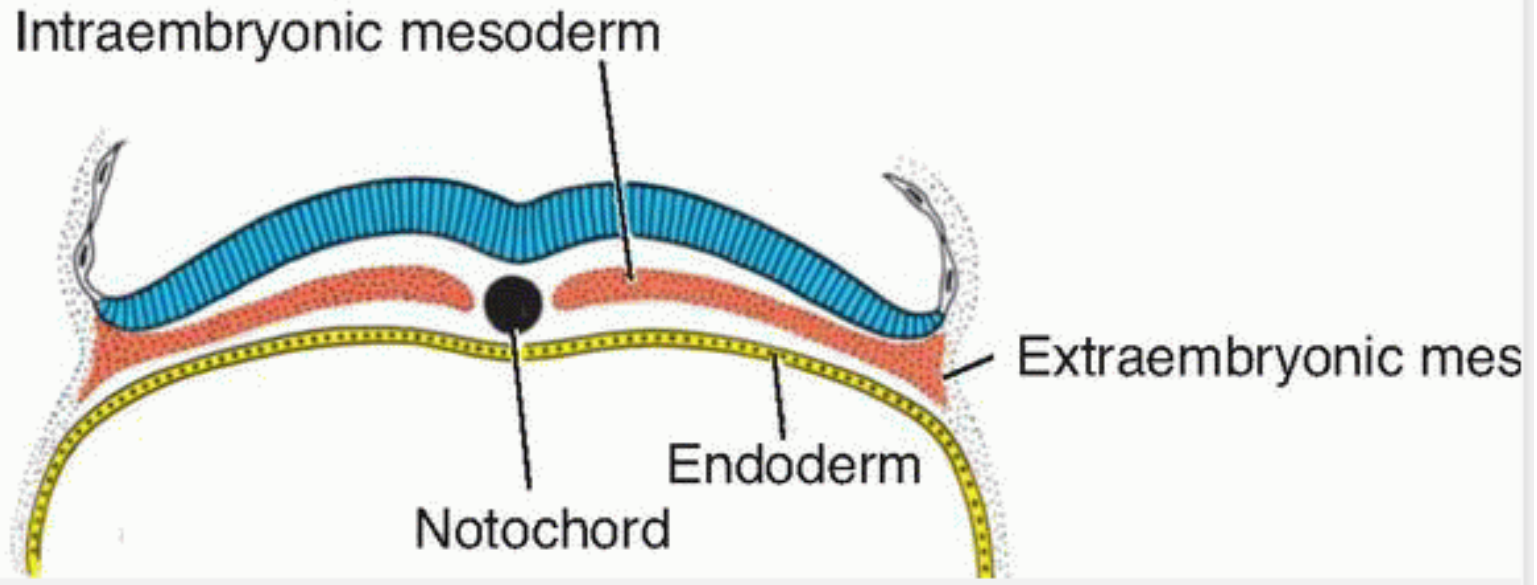
- As the hypoblast is replaced by endoderm cells moving in at the streak,
- Cells of the **notochordal plate proliferate** and detach from the endoderm.
- They form a **solid cord** of cells, the **definitive notochord**



B



C



which underlies the neural tube and serves as the basis for the axial skeleton. Elongation of the notochord the cranial end forms first, caudal regions are added as the primitive streak assumes a more caudal position. The notochord extend cranially to the prechordal plate and caudally to the primitive pit..

- At the point where the pit forms an indentation in the epiblast, the neurenteric canal temporarily connects the amniotic and yolk sac cavities

- The cloacal membrane is formed at the caudal end which consists of tightly adherent ectoderm and endoderm cells with no intervening mesoderm.
- **Allantois** , is a small diverticulum in the posterior wall of the yolk sac that extends into the connecting stalk. This appears around the 16th day of development
- In humans, it remains rudimentary.

**I am living in the past for my future to
come and that is my child.**

THANKS



Infant