Brainbox learn easy

Chapter 03

HUMAN REPRODUCTION

GASTRULATION

- Development of early embryo, which involves movement of cell masses – rearranges the **cells of Blastula** & Ultimately **form 3 Germ layers** of the **Embryo**.
- Finally these cell masses form 3 – Primary Germinal layers.
    - These movements are **called " Morphogenetic Movements"**

Primitive streak:

- It is the earliest trace of the embryo.
- Formation of primitive streak means begining of **beginning of Gastrulation.**

Primitive groove:

- A furrow in the posterior region of the Embryonic disc.
- It indicates the cephalocaudel axis that results from the active involution of cells forming the primitive streak.

Furrow:

- A long, narrow trench made in the ground by a plough.(General meaning).

- Formation of groove – (Embryology)

Cephalo caudel axis:

- Long axis of the body,

- Imaginary straight line in the medium plane that runs from apex of the skull through the center of the perineum & continuing between the lower lombs.

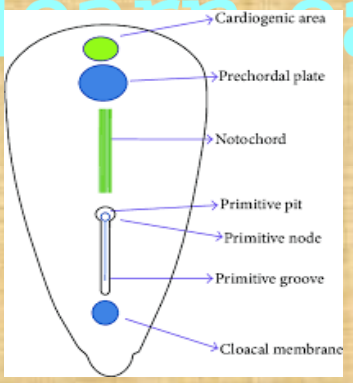
Primitive Folds:

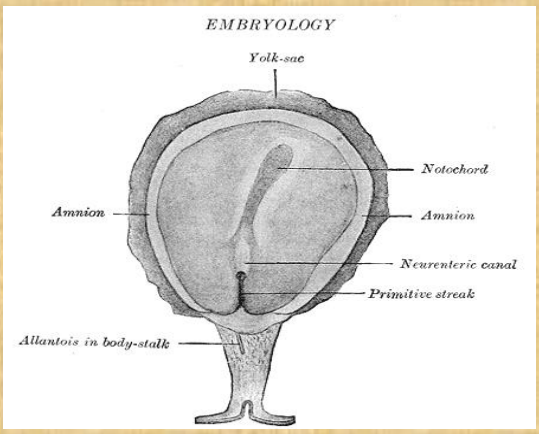
Embryo:

- Cell layer fold over.
- Endo derm forms a long tube surrounded by Mesoderm, with an Ectodermal layer around the whole.

Primitive pit:

It forms on the dorsal (back) face of the developing Embryo, towards the caudal or posterior end.





Primitive Knot:

- Also called **primitive node or Hensen's node.**
- It is also involve pit during development of Embryo-
- Dorsalback face – towards caudel posterior end.
- Hensen's node provide places / avenues for the migration / ingression of the **Future Mesodermal & Chorda – Mesodermal cells**. To their respective places for further differentiation.
- This process of migration of cells is called – **Gastrulation**.

TRILAMINAR EMBRYO – FORMATION OF PRIMARY GERM LAYERS

- Ingression (Many changes in the location (or) relative position of cells) of the future endo dermal cells from the Epiblast replaces the Hypoblast & forms the **Endoderm** of the Embryo.
- Future mesodermal cells coverage towards the primitive folds, move through the primitive groove & reach between Epiblast & Endoderm.
- Remaining epiblast no constitutes the ectoderm.
- **3 Germ layers:**
  - **Ectoderm**
  - **Mesoderm**
  - **Endoderm**
- All are in differentiated cells of **Epiblast**.
- Now Bilaminer Embryonic disc transformed into Trilaminar embtyonic disc.

Formation of the Notochorel & Neural Tube:

Notochoral:

- Primitive begging of Backbone.
- Formation of notochord occurs through Epiblast of the Embryo, which contains **Chorda mesodermal cells.**
- These cells converge & Involute through the Hensen's node & external forward as N**otochordal process / Notochordal rudiment.**
- Later transformed in to **NOTOCHORD**.(Solid Rod)
- Embryonic axial skeleton **– Vertebral column.**
- Notochordal mesoderm induces the overlying Ectodermal cells to form **Neural plate.**
- Neural plate invaginates towards the Notochord to form a **neural groove**. - Finally form a tube **– Neural tube.**

3 – Germ layers:

1. **Ectoderm** – Eye, Retina, Eyelens, brain, sweat glands, Nervous system.
2. **Mesoderm** – Vascular & Excretory organs, vascular tissue, Eye, Notochrod, Gonads, Testis.
3. **Endoderm** – Eustachian tube – canal connects middle ear & Nasopharynx.

Primitive Gut – Dorsal Part of the Yolksac. A flat sheet of intra Embryonic Endoderm.

Atubular gut – Pharyngeal gut, Foregot, Midgut, Hindgut, Intertive, liver, pancreas, thymus, throid.

Archenteron – Alimentory canal & Respiratory organs develop.

Formation of Coelom: Development occurs through intraembryonic coelom (somatic coelom) portion of Conceptus forming in the Mesoderm during 3rd week of Development.

Formation of 3 – layers:

Ectoderm (Outer layer):

Eye, Retina, Eyelens, Brain & skin, Sweet glands, Neruous system.

Mesoderm (Middle layer):

Vascular & Excretory organs, Gunada, testis, vascular tissue, Eye, Notochrod.

Endoderm (Inner layer):

Eustachian tube – canal that connects the niddle ear to nasopharynx.

Primitive gut – Dorsal part of the Yolk sac, a flat sheat of intra embryonic ondodern.

A tubular gut – Pharyngeal gut, foregut, midgut, hindgut.

Intertine , Liver, Pancreas, thymus, Thyroid.

- Archenteron – Alimentory canal & Respiratory organs develop.

Inner cell mass:

Contain certain cells called **Stem cells, which** have the potency to give rise to all the tissues & organs.

MAJOR FEATURES OF EMBRYONIC DEVELOPMENT OF VARIOUS MONTHS OF PREGNANCY:

Human pregnancy last 9 – months (or) 265 days.

- 1st month – Heart (1st sign – notice – heart sound)
- -2nd month – Limbs & dogits.
- 1st Trimester – Limbs & external genital organs. Major organs are formed.
- 5th month – Hair on the Head.
- II nd Trimestor fine hair(body) Eye lids & Eye Lasles.

- End of 9th month complete Foetus develop ready for Delivery.