

Name: Eberechukwu

Obua Zoe

Matric Number:

18/MHS01/247

Department: Medicine and

Surgery

College: MHS

Course: Embryology

Assignment: Discuss the

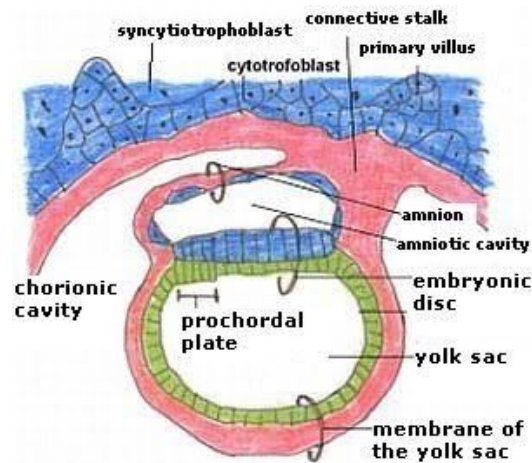
second week of

embryonic development

The main events of the second week of embryonic development are as follows :

- Complete Implantation of the blastocyst in the endometrium
  - Formation of the bilaminar germ disc
  - Formation of extra embryonic structures

### Day 8

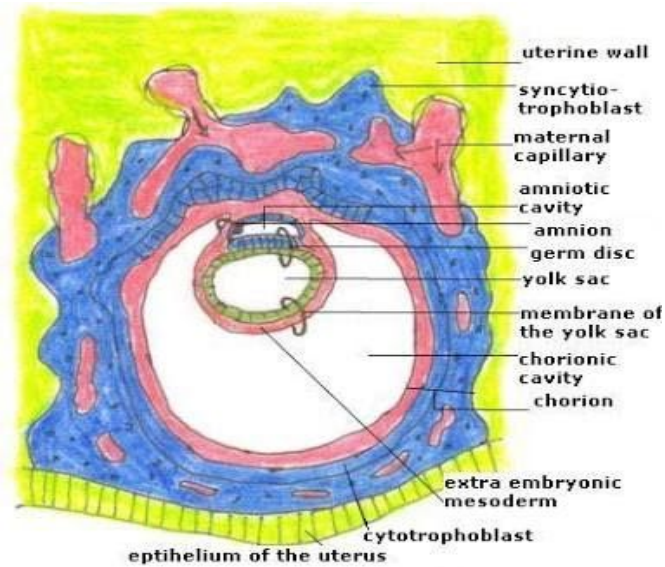


The blastocyst is partially embedded in the endometrium, and the syncytiotrophoblast continues the process of embedding by breaking down blood vessels and tissues in the endometrium. The cytotrophoblast cells divide and move to join the syncytiotrophoblast where they lose their membranes.

The embryoblast divides into two layers

- Hypoblast: cuboidal cells that face the blastocystic cavity
- Epiblast: These cells are columnar and are adjacent to the amniotic cavity. The epiblasts near the cytotrophoblasts are called amnioblasts.

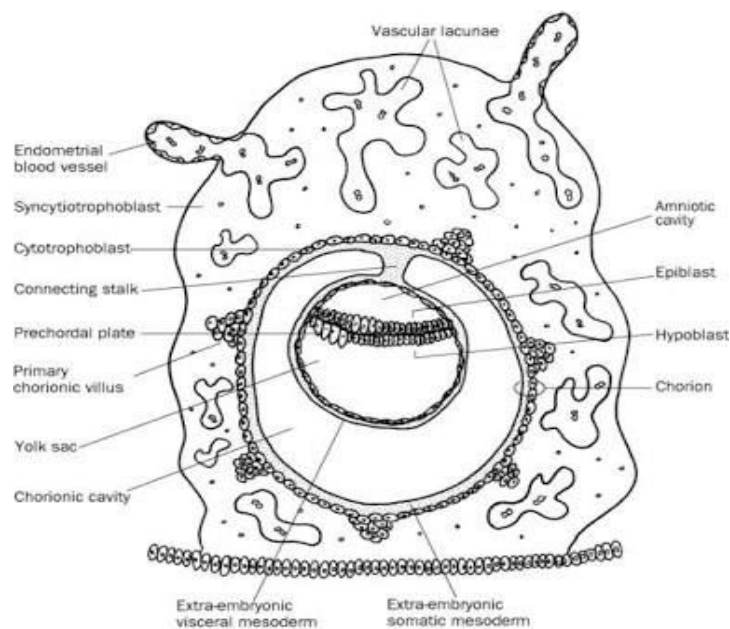
### Day 9



This is the lacunae stage as large spaces develop in the trophoblast that fuse to form lacunae. Also, as the syncytiotrophoblast digs into the endometrium, the penetration defect caused is closed by fibrin.

The hypoblast develops an exocoelomic/Heusser's membrane adjacent to the cytotrophoblast. These form the lining of the primary umbilical vesicle/primitive yolk sac/exocoelomic cavity.

### Days 11-12

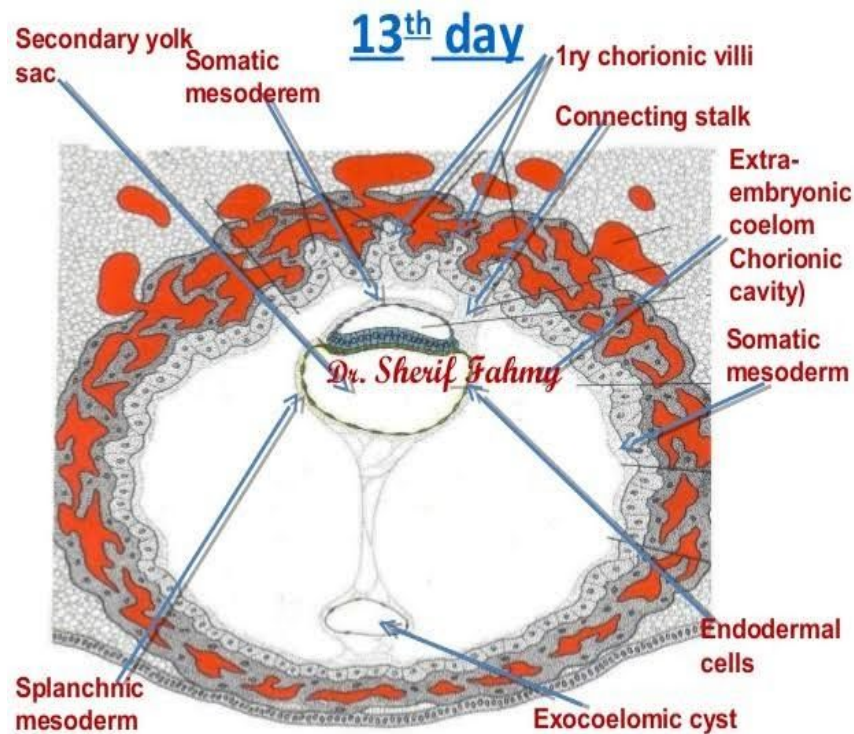


By this time, the blastocyst is fully embedded in the endometrium, and the surface defect is covered by epithelium. Now, as the syncytiotrophoblasts break down the capillaries of the endometrium, the eroded capillaries form sinusoids. These communicate with the lacunae in the trophoblast, and begin the primordial uteroplacental communication, which is necessary for the nutrition and oxygen supply of the embryo.

Cells from the inner layer of the cytotrophoblast, and the outer layer of the Heusser's membrane come together to form an extraembryonic mesoderm. Large spaces from within this mesoderm, then coalesce, and form an extraembryonic cavity/coelom or chorionic cavity. The part of the extraembryonic mesoderm lining the cytotrophoblast and the amniotic cavity is known as the extraembryonic somatic mesoderm (forms the connecting stalk between the trophoblast and embryoblast) while the part lining the yolk sac is known as extraembryonic splanchnic mesoderm.

Decidual cells in the endometrium become impregnated with glycoproteins and lipids in what's known as the decidual reaction. This is necessary for nutrient supply to the embryo.

### Day 13



Cytotrophoblasts grow into the syncytiotrophoblast and form primary chorionic villi due to covering by syncytium.

Exocoelomic cavity reduces in size to form the secondary umbilical vesicle/definitive yolk sac.

This is due to the pinching off of large parts of the primary umbilical vesicle, to form exocoelomic cysts. These are found in the extraembryonic cavity. The extraembryonic cavity developed into the chorionic cavity, hence, extraembryonic mesoderm adjacent to the cytotrophoblast is known as the chorionic plate. Vascularization of the connecting stalk begins.

This is the process that turns the connecting stalk into the umbilical cord.