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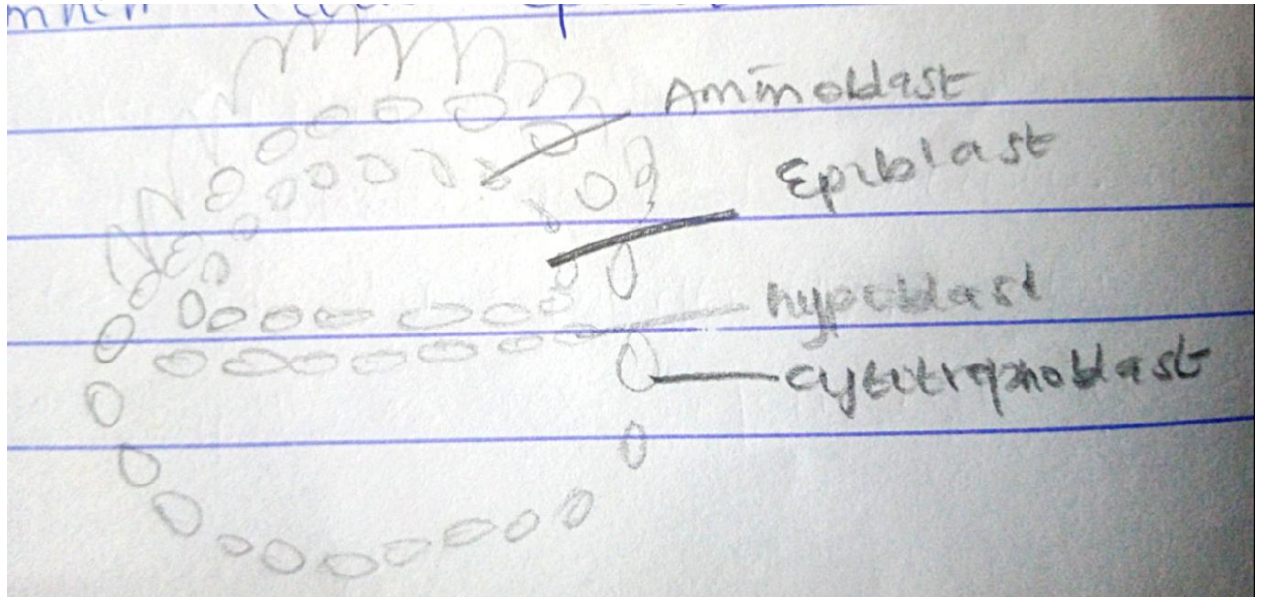
## EMBRYOLOGY ASSIGNMENT

Discuss the second week of development

Three major events take place during the second week;

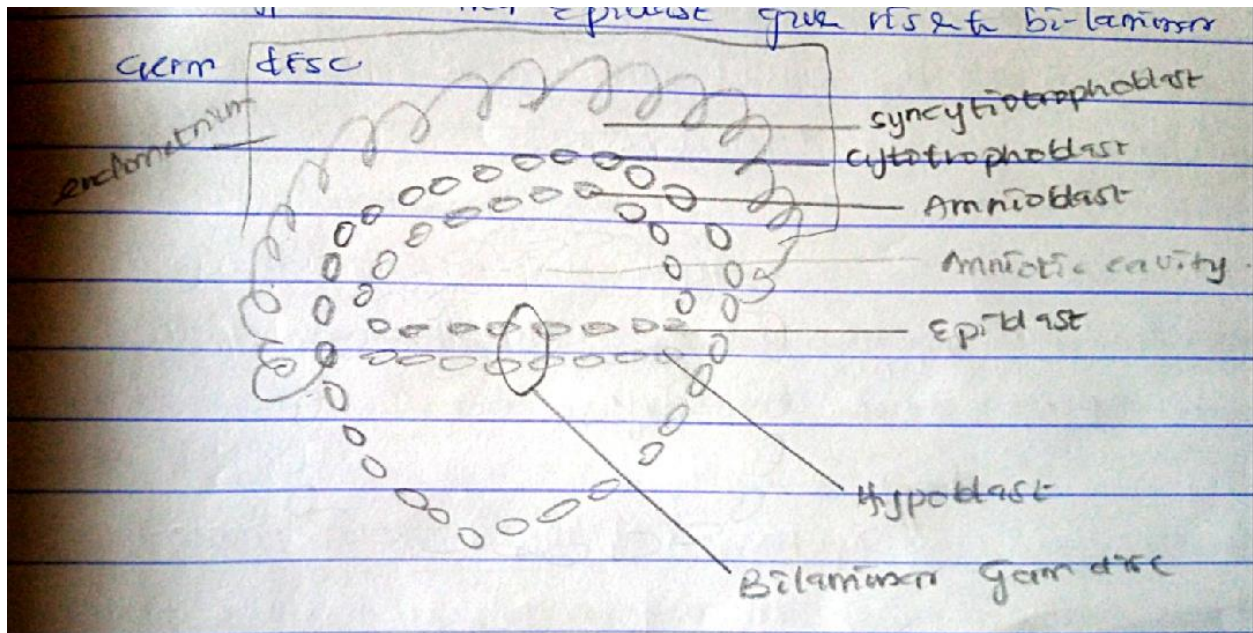
1. Completion of implantation
2. Formation of bilaminar germ disc
3. Development of different extra embryonic structures

On day 8,



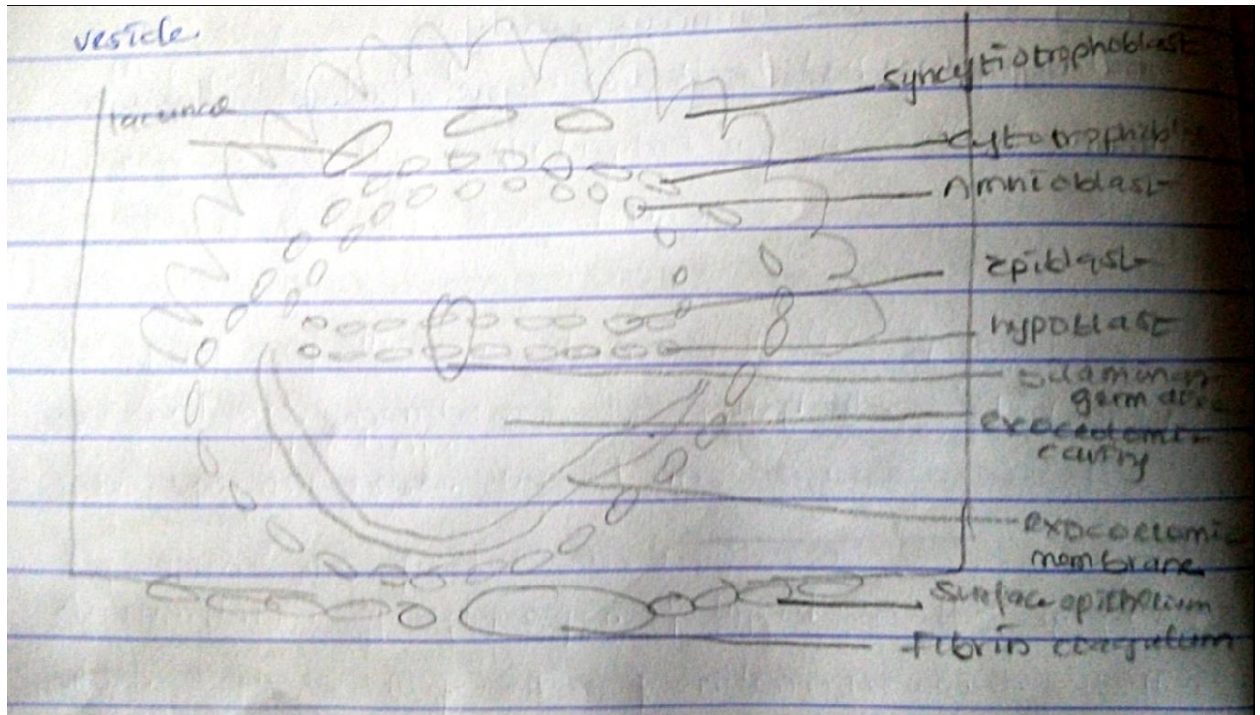
- **The implantation is completed** and the syncytiotrophoblast is slowly and partially embedded in the endometrium, the blastocyst is also partially embedded in the endometrium.
- The cytotrophoblast continues to divide and migrate to the endometrium (syncytiotrophoblast)
- The embryoblast divides into two cells; cuboidal cells called hypoblast and columnar cells called epiblast.
- The cells adjacent to the cytotrophoblast in the endometrium is called the Amnioblast. The amnioblast and epiblast cells surround the Amniotic cavity.

- The hypoblast and the epiblast gives rise to the **Bilaminar germ disc**.



On day 9,

- The blastocyst is deeply embedded in the endometrium.
- The surface epithelium is closely covered by a coagulum called the Fibrin coagulum.
- The presence of a membrane lying adjacent to the cytotrophoblast which is called Exocoelomic membrane/ Heusers's membrane.
- Syncytiotrophoblast will erode the endometrium.
- There will be a vacuole developing in the region of the syncytiotrophoblast which is called the Lacunae. At this stage, they are called the trophoblastic lacunae.
- A cavity called the exocoelomic cavity which lies between the hypoblast and the exo-ceolomic membrane. It is also called Primary yolk sac/ primary umbilical vesicle.

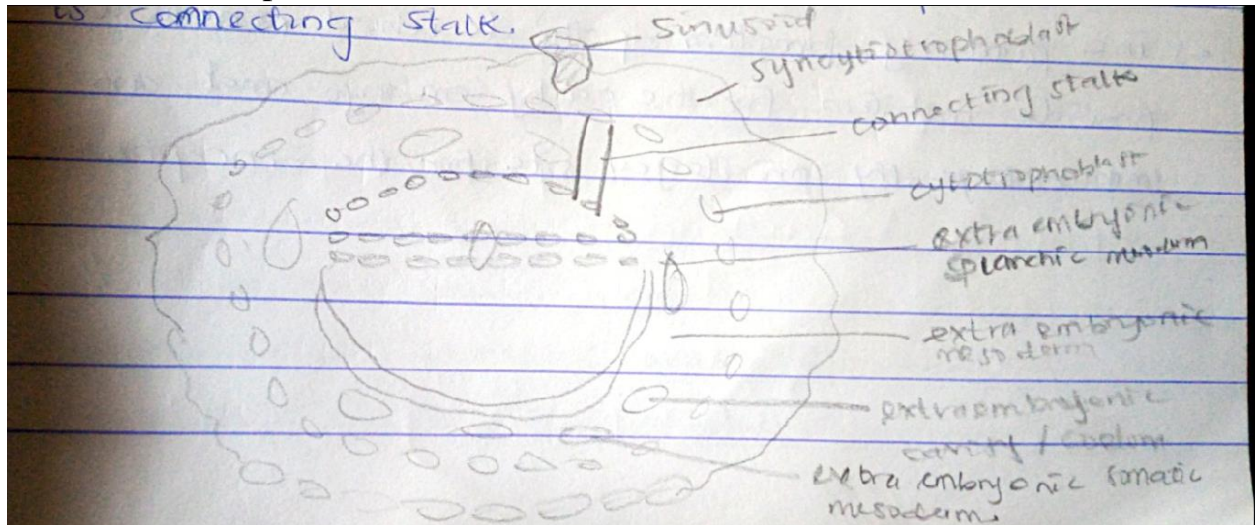


### Day 10-Day12

- The blastocyst is completely embedded in the endometrium.
- The syncytiotrophoblast will continue to erode the endometrium
- The cytotrophoblast will continue to divide and migrate into the syncytiotrophoblast
- The blastocysts rupture the endometrium leading to spillage of blood, the ruptured capillaries are called the sinusoid
- The sinusoid comes into the endometrium to communicate with the lacunae. At this stage, it transfers nutrients, oxygen and blood between the mother and the child.
- At this stage, a pre-mordial utero-placenta circulation is established
- A space of mesoderm develops between the cytotrophoblast and the exocoelomic membrane is called **Extra-embryonic mesoderm**
- Mesoderm covers the whole space between the cytotrophoblast & the exocoelomic membrane and the cytotrophoblast and the epiblast except the point where there is a connecting stalk
- A cavity develops in the extra-embryonic mesoderm called the **Extra-embryonic cavity**, this cavity divides the mesoderm into two different parts
- The part of the mesoderm that lies adjacent to the region of the cytotrophoblast is called the **Extra-embryonic somatic mesoderm**.



- The part of the mesoderm that lies and surrounds the exo-ceolomic membrane is called the **Extra-embryonic splanchnic mesoderm**
- Accumulation of glycogen and lipid in the cytoplasm which causes the cells of endometrium to swell is called decidual cells. Its primary function is to provide nutrients for the early embryo and an immunologically privileged site for the conceptus.



### Day 13

- The cytotrophoblast develops a syncytium called the Primary villi
- The extra-embryonic cavity becomes enlarged and gives rise to chorionic cavity
- A portion of the secondary yolk sac is pinched off to form a cyst which is called **Exocoelomic cyst**
- Syncytiotrophoblast produces an hormone called human chorionic gonadotrophin (hcG) which enters the maternal blood via lacunae which keeps the corpus luteum secreting estrogens and progesterone
- hcG maintains the hormonal activity of the corpus luteum in the ovary during pregnancy
- can be detected in day 10 of pregnancy and is the basis for pregnancy.

Day 13

