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MATRIC NO: 18/MHS01/090

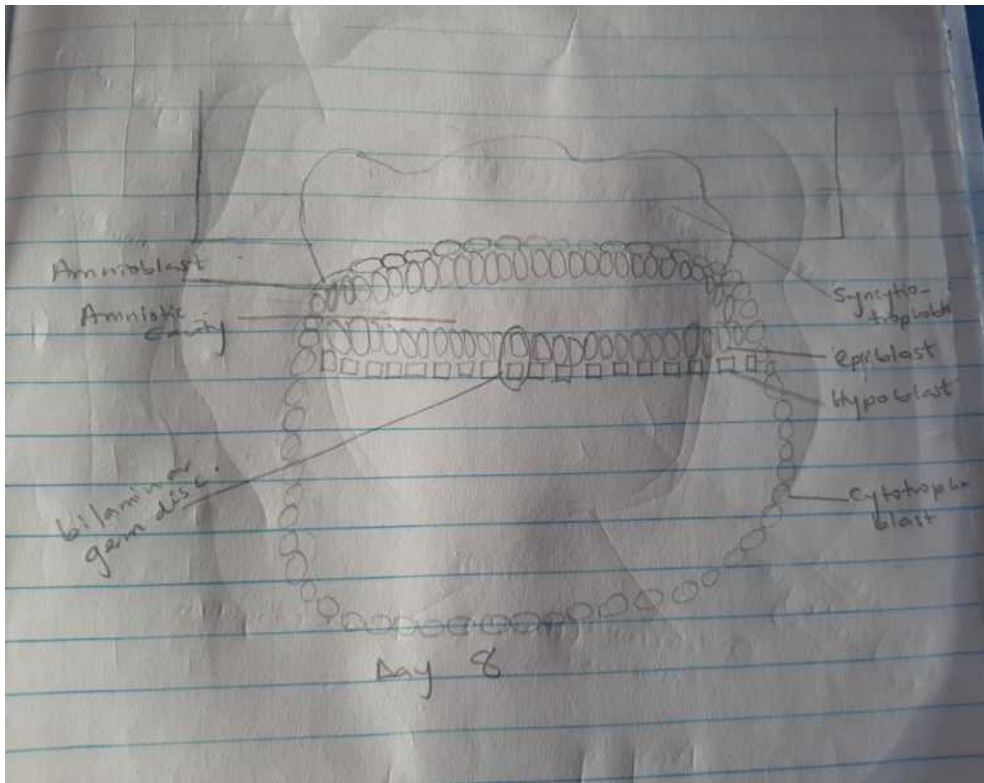
2ND WEEK OF DEVELOPMENT

Three events take place during the 2nd week of development which are:

- Completion of implantation takes place
- Formation of a bilaminar germ disc
- Development of extra embryonic structures

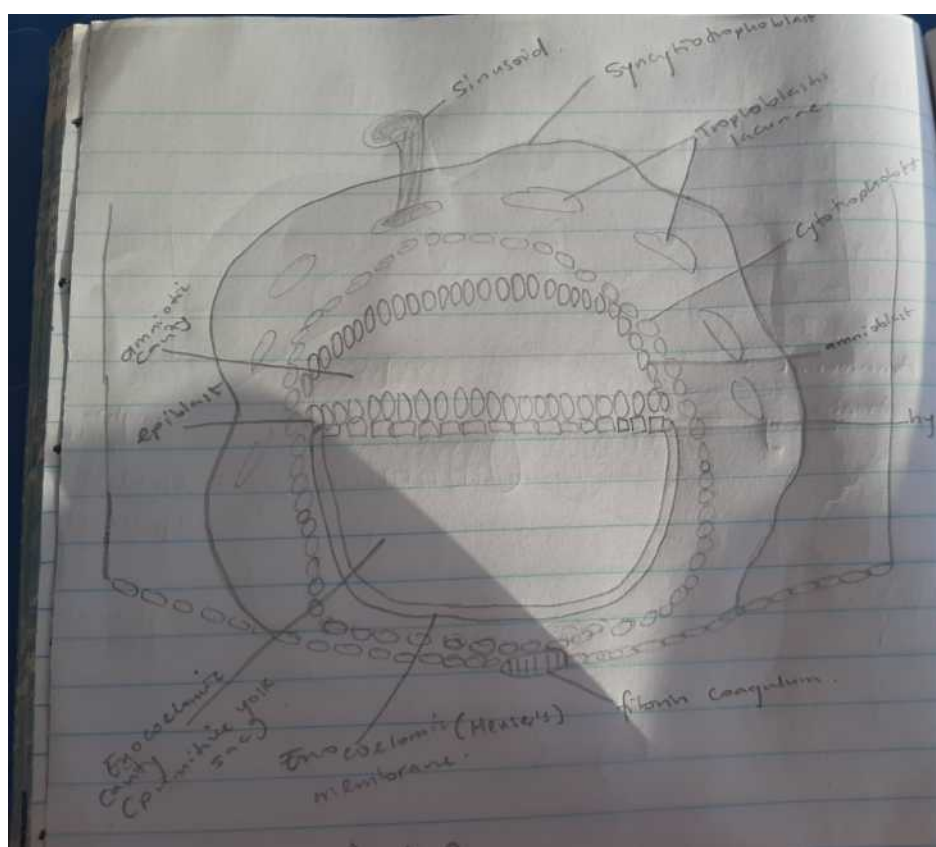
Day 8

- At the eighth day of development, the blastocyst is partially embedded in the endometrium.
- The syncytiotrophoblast will continue to erode the endometrium.
- The cells of the cytotrophoblast will continue to divide and move to the region of the syncytiotrophoblast.
- The embryoblast differentiates into two types of cells called cuboidal cells (hypoblast) and columnar cells (epiblast). The hypoblast and epiblast layers together form a flat ovoid shaped disc called bilaminar embryonic disc.
- A small cavity appears within the epiblast which enlarges to form the amniotic cavity.
- Epiblast cells adjacent to the cytotrophoblast are called amnioblasts. Amnioblasts together with the rest of the epiblast line the amniotic cavity.



Day 9

- The blastocyst is more deeply embedded in the endometrium and the penetration defect in the surface epithelium is closed by a coagulum called fibrin.
- Vacuoles appear in the region of the trophoblast and they fuse to form larger lacunae. This phase of trophoblast development is known as the lacunar stage.
- Membrane develops adjacent to the cytotrophoblast called exocoelomic (Heuser's) membrane. This membrane lines the inner surface of the cytotrophoblast.
- The exocoelomic (Heuser's) membrane together with the hypoblast forms the lining of the exocoelomic cavity, or primitive yolk sac or primary umbilical vesicle.

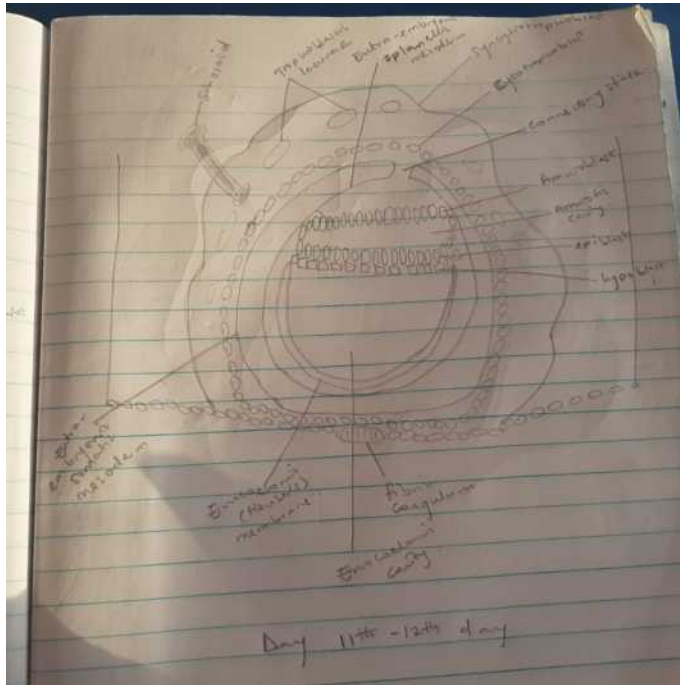


Day 11th-12th day of development

- Blastocyst is deeply embedded in the endometrium and the surface epithelium almost entirely covers the original defect in the uterine wall.
- The syncytiotrophoblast will continue to erode the endometrium.
- As it moves deeply, it begins to rupture capillaries. Ruptured capillaries are called sinusoids.
- The sinusoid communicate with trophoblastic lacuna helping to transfer oxygen and nutritive substances available to the embryo. At this stage, a primordial uteroplacenta circulation is established.
- A space of mesoderm develops between the cytotrophoblast and exocoelomic membrane and also between cytotrophoblast and amnion except from connective stalk. This mesoderm is called extra-embryonic cavity or chorionic cavity or extraembryonic coelom.
- The extra-embryonic cavity divides the mesoderm into two which are extra-embryonic splanchnic and extra-embryonic somatic mesoderm.
- The mesoderm lining the region of the cytotrophoblast is the extra-embryonic

somatic. The mesoderm lining the region of the amnioblast is the extra-embryonic splanchnic mesoderm.

- As the conceptus implants, the endometrial connective tissue cells undergo a transformation called decidual reaction.



13th day of development

- The surface defect in the endometrium has been completely covered by the surface epithelium.
- Cells of the cytotrophoblast proliferate and penetrate into the syncytiotrophoblast forming cellular columns surrounded by syncytium.
- Cellular columns with the syncytial covering are known as primary villi.
- The primary yolk sac becomes reduced in size and is known as the secondary yolk sac or definitive yolk sac or the secondary umbilical vesicle.
- During the formation of the secondary yolk sac, large portions of the

exocoelomic cavity are pinched off to form exocoelomic cysts.

- The embryonic coelom expands and forms a large cavity called the chorionic cavity.
- With the development of blood vessels, the connecting stalk becomes the umbilical cord.

