**SECOND WEEK OF EMBRYONIC DEVELOPMENT**

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Medicine and Surgery

200Level.

Implantation occurs at the end of the first week of human development. Then, during the second week of human development, the trophoblast forms the cytotrophoblast and syncytiotrophoblast, the embryoblast forms the epiblast and hypoblast, the extraembryonic mesoderm forms the somatic and splanchnic layers, and the amniotic and yolk sac cavities form.

Day 8

* Human blastocyst, partially embedded in the endometrial stroma.
* The trophoblast consists of an inner layer with mononuclear cells, the cytotrophoblast, and an outer layer without distinct cell boundaries, the syncytiotrophoblast.
* The embryoblast is formed by the epiblast and hypoblast layers.
* The amniotic cavity appears as a small cleft.

Day 9

* A 9-day human blastocyst.
* The syncytiotrophoblast shows a large number of lacunae.
* Flat cells form the exocoelomic membrane.
* The bilaminar disc consists of a layer of columnar epiblast cells and a layer of cuboidal hypoblast cells.
* The original surface defect is closed by a fibrin coagulum.

Day 11&12

* The blastocyst is completely embedded. Defect is almost covered by the mucosal cells.
* The blastocyst now produces a slight protrusion into the lumen of the uterus
* The trophoblast is characterized by lacunar spaces in the syncytium that form an intercommunicating network.
* This network is particularly evident at the embryonic pole; at the abembryonic pole, the trophoblast still consists mainly of cytotrophoblastic cells
* The intercommunicating network of lacunae at the embryonic pole penetrate the maternal sinusoidal capillaries and the maternal blood begin to flow in the trophoblast lacunae establishing the uteroplacental circulation.
* In the meantime, a new population of cells appears between the inner surface of the cytotrophoblast and the outer surface of the exocoelomic
* New cells originate from the yolk sac cells forming the extraembryonic mesodermal connective
* Except connecting stalk region, cavitations of this mesoderm will form the chorionic cavity or called the extraembryonic coelom
* The chorionic cavity divides the extraembryonic mesoderm into two parts;

1. Somatopleuric mesoderm (or called the chorionic plate) lining the cytotrophblast and the amnion.
2. Splanchnopleuric mesoderm covering the primitive yolk sac.

Decidual reaction occur in the endometrial cells of the uterine mucosa, the mucosal cells become polyhedral, loaded with glycogen and lipid.

Day 13

The mucosal defect heals. Sometimes bleeding occurs from the increased

lacunar blood flow, this bleeding may be confused with the normal menstrual bleeding as it occurs near the 28th day of the cycle. This bleeding called false menstruation.

Day 14

The epiblast forms the floor of the amniotic cavity, and the hypoblast forms the roof of the definitive yolk sac.

The buccopharyngeal membrane appears as a thickening in the cephalic region of the hypoblast that is firmly attached to the epiblast.