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ANA 205

General Embryology

College Of Medicine And Health Sciences

Medicine And Surgery

Discuss the second week of development.

Day 8: The blastocyst is partially embedded in the endometrium at the start of week two. The syncytiotrophoblast continues to erode the endometrium. Cells of the cytotrophoblast will divide and migrate into the region of the syncytiotrophoblast. The embryoblast divides into cuboidal (hypoblast) and columnar (epiblast) cells. The epiblasts surround a cavity called the amniotic cavity. The epiblast and hypoblast form a bilaminar germ disc.

Day 9: The blastocyst is deeply embedded in the endometrium. The surface epithelium is covered by fibrin coagulum. The syncytiotrophoblast continues to erode the endometrium. Vacuoles form in the syncytiotrophoblast eventually becoming trophoblastic lacunae. Cells of the cytotrophoblast divide and migrate into the syncytiotrophoblast. A membrane develops lining the cytotrophoblast and is called the exocoelomic membrane/heuser's membrane. The membrane lines a cavity called the exocoelomic cavity or primitive yolk sac.

Days 11-12: The blastocyst is completely embedded in the endometrium. The syncytiotrophoblast continues to erode the endometrium and the cytotrophoblast continues to divide and migrate into the region of the syncytiotrophoblast. Endometrial capillaries rupture and communicate with the trophoblastic lacunae. The ruptured capillaries are called sinusoids. This allows the movement of blood from mother to child. It is a primitive utero-placental circulation. A space of mesoderm develops between the region of the amnion and cytotrophoblast and between the exocoelomic membrane and cytotrophoblast except at a point where there is a connecting stalk. This space is called the extra-embryonic mesoderm. In the mesoderm, some cavities begin to develop. The cavities are called extraembryonic cavity/coelom. The part of the mesoderm that lines the cytotrophoblast is called the extraembryonic somatic mesoderm. The mesoderm lining the amnion and exocoelomic membrane is called the extraembryonic splanchnic mesoderm.

Glycogen and lipid are accumulated in the cytoplasm of endometrial cells to serve as an energy source for the developing embryo. This is called a desidual reaction.

Day 13: The surface defect in the endometrium has been completely covered by surface epithelium. There is increased blood flow from the lacunar spaces. There is bleeding at the implantation site. Cytotrophoblast acquire syncytium (primary villi) that extends into the region of the syncytiotrophoblast.

The connecting stalk gives rise to the primordial umbilical cord. The extraembryonic cavity enlarges to form the chorionic cavity. Primary yolk sac becomes smaller to form a secondary yolk sac/ umbilical vesicle. A portion of it is pinched off to form the exocoelomic cyst.



