DISCUSS THE SECOND.WEEK OF DEVELOPMENT

In the second week of development the following take place

–completion of implantation of blastocyst

–Formation of bilaminar germ disk

–Formation of extra embryonic structure.

DAY8 :on the eighth day, the blastocyst is partially embedded in the endometrium. The syncythiotrophoblast continues its in invasion of the endometrium thereby eroding endometrial blood vessels and endometrial glands. More cells in the cytotrophoblast divide and migrate into the syncytiotrophoblast where they fuse and loose their individual cell membranes. Cells of the inner cell mass or embryoblast differentiate into 2 layers

–The hypoblast layer, which is made up of small cuboidal cells and its adjacent to the blastocyst cavity.

–The epiblast layer, which is made of high columnar cells and is adjacent to the amniotic cavity.

The hypoblast and epiblast together farm the bilaminar embryonic germ disc.

Epiblast cells adjacent the cytotrophoblast are called amnioblast. Amnioblast together with the rest of the epiblast form the amniotic cavity.

DAY9-10: The blastocyst is more deeply embedded in the endometrium and the penetration defect on the surface epithelium is closed by a coagulum called fibrin coagulum. Vacuoles appear at the region of the trophoblast and fuse to form larger lacunae. This stage is known as lacunae stage. The cells of the hypoblast adjacent to the cytotrophoblast form a thin membrane which lines the inner surface of the cytotrophoblast. The exocoelomic membrane along with the hypoblast form the lining of the exocoelomic cavity or primary yolk sac or primary umbilical vesicle.

DAY11-12: The blastocyst is completely embedded in the endometrium and the cells of the syncytiotrophoblast penetrate deeper into the tissue and erode the endometrium damaging the capillaries. The ruptured capillaries are called sinusoids. The lacunae the communicate with the sinusoids and maternal blood enters the lacunar system. Communication between the eroded endometrial capillaries and lacunae establishes the primordial uteroplacental circulation. When maternal blood flows into the lacunae, oxygen and nutritive substances are available to the embryo, a new population of cells appear between the inner surface of the cytotrophoblast and the outer surface of the exocoelomic cavity forming a fine loose connective tissue called extraembryonic mesoderm. Soon large cavities develop in the extraembryonic mesoderm when they become confluent they form a new space called extraembryonic cavity. As the conceptus implants, the cells of the endometrial tissue undergo a transformation called decidual reaction.

During this transformation, the cells of the endometrium swell as a result of the accumulation of glycogen and lipid in their cytoplasm and are called decidual cells.

DAY13: The surface defect on the endometrium has been completely covered by the surface epithelium. Occasionally, bleeding occurs at the implantation site as a result of increased blood flow into the lacunar spaces. Cells of the cytotrophoblast proliferate locally and penetrate into the syncytiotrophoblast forming cellular columns surrounded by syncytium. The primary yolk sac becomes reduced in size and is known as secondary yolk sac. During its formation, large portions of the exocoelomic cavity are pinched of to form exocoelomic cysts, which are found in the extraembryonic cavity.