**NAME: BABAGBALE QUEEN-ESTHER JOSEPHINE**

**MATRIC NUMBER: 18/MHS01/101**

Question

Discuss the second week of embryonic development

Answer

During the second week of embryonic development, three events take place:

1. Completion of implantation
2. Formation of bilaminar germ disc; and
3. Development of extra embryonic structures e.g. amniotic cavity, amnion, umbilical vesicle (yoke sac), connecting stalk and chorionic sac.

DAY 8

The blastocyst is partially embedded in the endometrium. The syncytiotrophoblast continues to erode the endometrium while the cells of the cytotrophoblast continue to divide and migrate deeper into the region of the syncytiotrophoblast.

The embryoblast then differentiates into two which gives rise to the bilaminar germ disc. They are:

* Cuboidal cells called, hypoblast
* Columnar cells called, epiblast

The cells of the epiblast adjacent to the cytotrophoblast are called amnioblast or the amnion. The amnioblast and epiblast surround a cavity called the amniotic cavity.

DAY 9

The blastocyst is deeply embedded in the endometrium. The syncytiotrophoblast continues to erode the endometrium while the cells of the cytotrophoblast continue to divide and migrate deeper into the region of the syncytiotrophoblast. The surface epithelium of the endometrium is then covered with a coagulum called fibrin.

A membrane called exo-coelomic membrane or the Heuser’s membrane develops adjacent to the cytotrophoblast. A cavity then appears between the exo-coelomic membrane and hypoblast called the exo-coelomic cavity or primary yolk sac or primary umbilical vesicle.

Vacuoles develop in the region of the syncytiotrophoblast then become larger and are called trophoblastic lacunae.

DAY 11-12

The blastocyst is completely embedded into the endometrium. The syncytiotrophoblast continues to erode the endometrium while the cells of the cytotrophoblast continue to divide and migrate deeper into the region of the syncytiotrophoblast. As the syncytiotrophoblast is eroding the endometrium, it ruptures some blood vessels and these ruptured vessels are called sinusoids. This in turn causes spillage of blood which communicates to the trophoblastic lacunae and this establishes the primordial utero-placental circulation.

A space of mesoderm developed between the region of cytotrophoblast and exo-coelomic membrane and also between the region of cytotrophoblast and amnioblast if formed except at the point of the connecting stalk. This space of mesoderm is called the extra embryonic mesoderm.

Inside the extra embryonic mesoderm, there is development of different cavities and they are called extra embryonic cavities or extra embryonic coelom. These cavities divide the mesoderm into two parts:

* Extra embryonic somatic mesoderm: the part of the mesoderm which lies adjacent the cytotrophoblast
* Extra embryonic splanchnic mesoderm: the part of the mesoderm which lines the amnioblast and exo-coelomic membrane

As the conceptus implants, the endometrial connective tissues undergo a transformation called decidual reaction. During this transformation, the cells of the endometrium swell due to the accumulation of glycogen and lipids in their cytoplasm and are then known as decidual cells. The primary function of this reaction is to provide nutrition for the early embryo and an immunological privileged site for conceptus.

DAY 13

The cells of the cytotrophoblast acquire a syncytium and have the shape of villi. When this occurs, they are called primary villi.

 The connecting stalk gives rise to the primordial or future umbilical cord. The extra embryonic cavity becomes enlarged and gives rise to a larger cavity called chorionic cavity. The exo-coelomic cavity shrinks and is then called secondary yolk sac or secondary umbilical vesicle. A portion of the primary yolk sac is pinched off and removed to form the exo-coelomic cyst.