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Department; Medicine and surgery

Level; 200

Answer;

Three major events would take place during the 2nd week of embryonic development which are;

1. Completion of implantation
2. Formation of bilamina germ disk
3. Development of extra embryonic structures

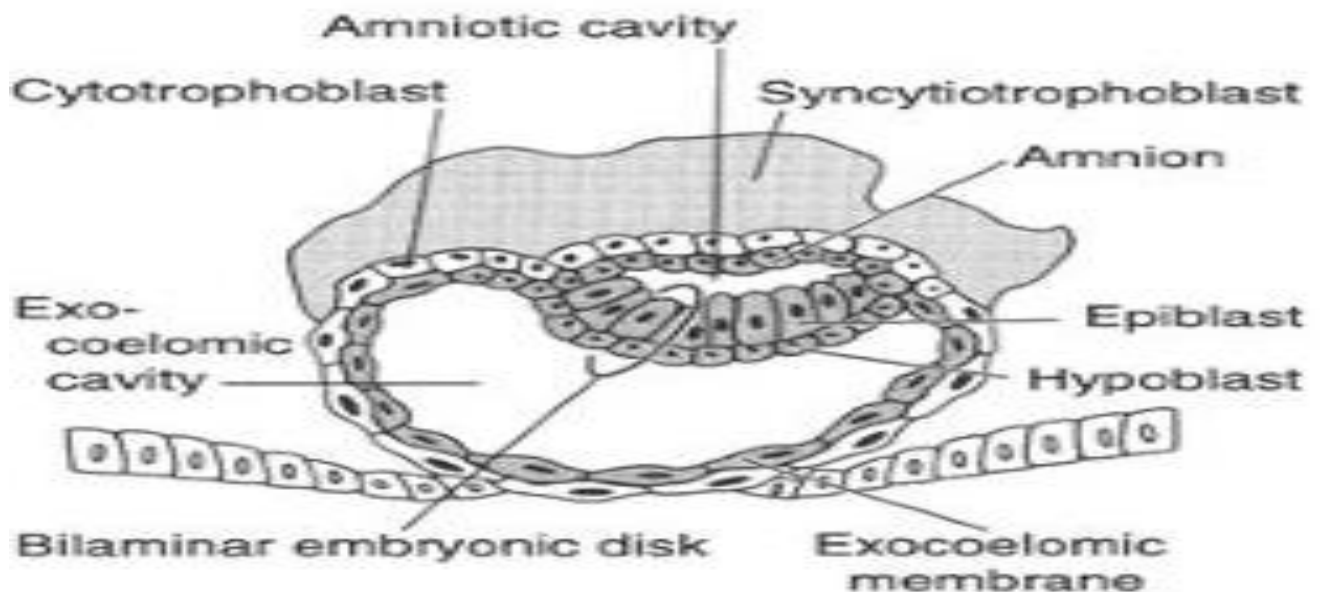
Day 8

1. The blastocyst is partially embedded in the endometrium
2. The cytotrophoblast will continue to erode the endometrium

The cytotrophoblast will continue to divide and move into the syncytiotrophoblast, Embryoblast will differentiate into two cells types;

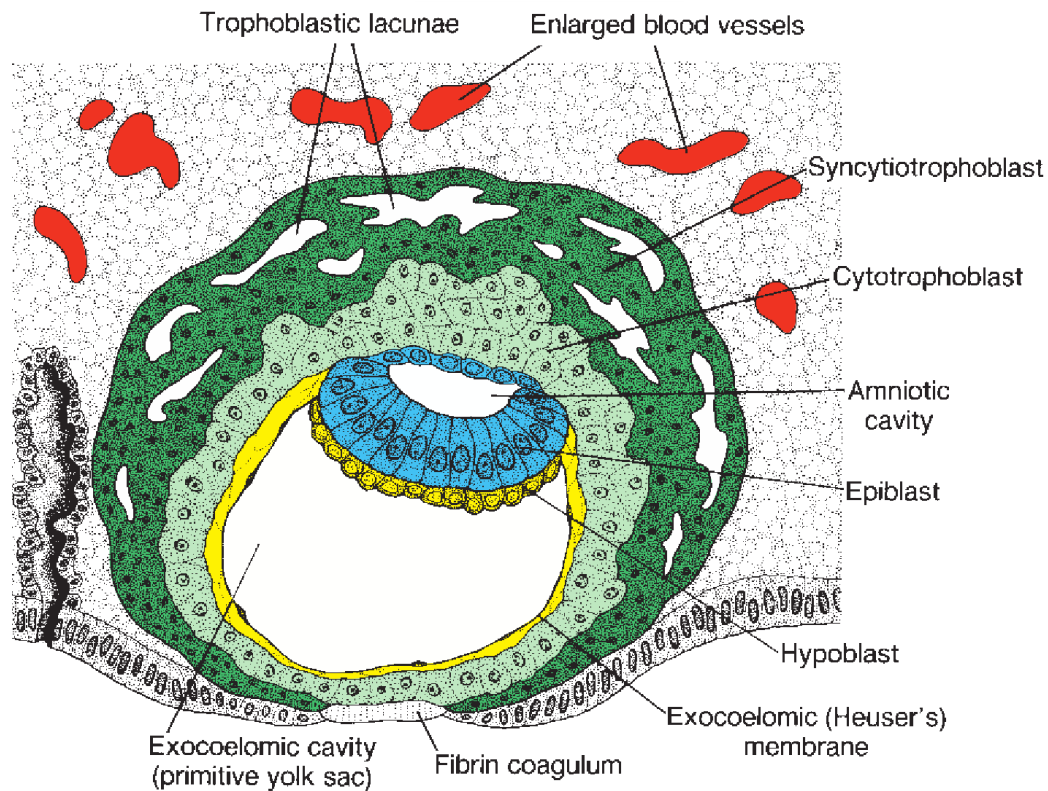
- I. Cuboidal called Hypoblast
- II. Columnar called Epiblast

Amnioblast are the cells adjacent/nearer to the cytotrophoblast, they surround a cavity called the amniotic cavity. The epiblast and the hypoblast give rise to the bilaminar germ disk.



Day 9

1. The blastocyst is deeply embedded in the endometrium
2. The surface epithelium is closed by fibrin coagulum
3. As development continues, a membrane forms at the region of the cytotrophoblast called the exocoelomic membrane/Heuser's membrane, then between the hypoblast and the membrane there's a cavity called the exocoelomic cavity/primary yolk sac/primary umbilical vesicle.
4. Vacuoles develop in the region of the syncytiotrophoblast and become larger as lacunae.



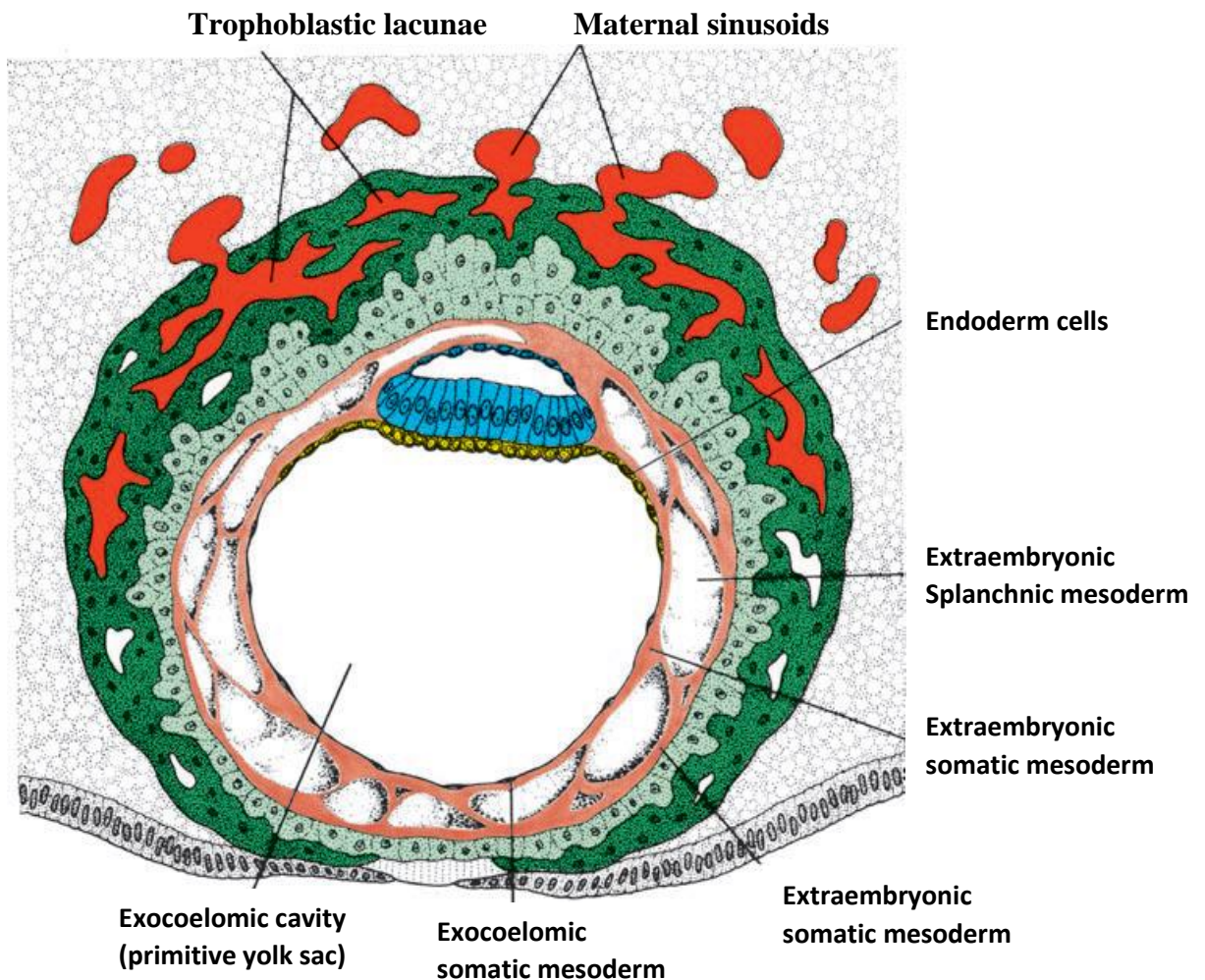
Day 10 to 12

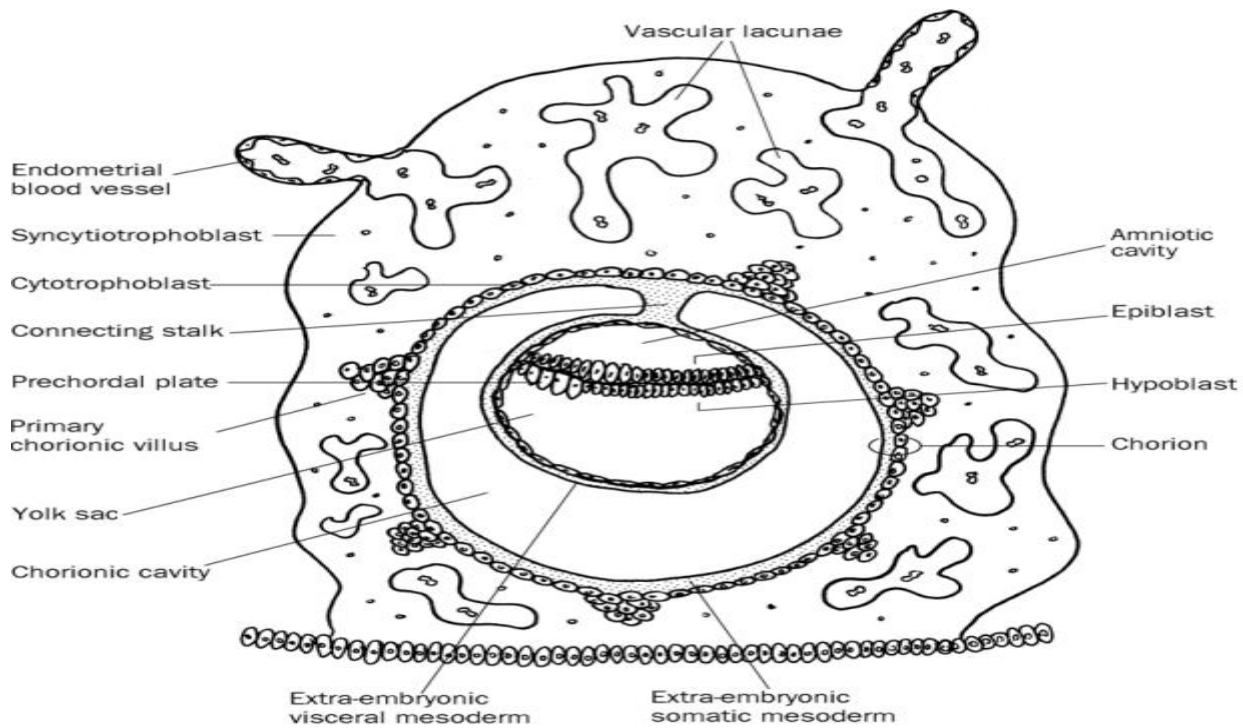
The blastocyst is completely embedded in endometrium, this causes the capillaries of the endometrium to rupture, and the ruptured capillaries are called sinusoid. The sinusoid communicate with the trophoblastic lacunae making a primordial uteroplacental circulation which is established between a mother and embryo.

A space of mesoderm develops between cytotrophoblast and exocoelomic membrane, cytotrophoblast and exocoelomic membrane and also between the cytotrophoblast and amnioblast, with the exception of a structure called connecting stalk. The space of mesoderm is called extra embryonic splanchnic mesoderm.

In the mesoderm we have the development of some cavities called the extra embryonic cavity/coelom. The cavity divides the mesoderm into two parts;

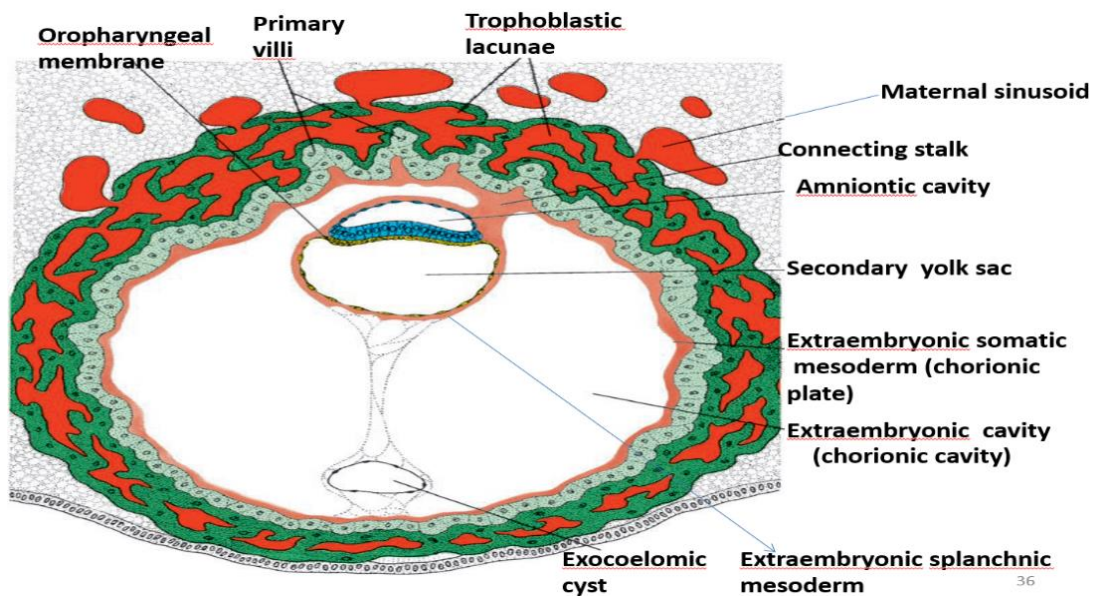
- I. Extraembryonic cavity
- II. Extraembryonic splanchnic mesoderm (closer the exocoelomic cavity)
Decidual reaction involves accumulation of glycogen and lipid in the cytoplasm. During the decidual reaction the primary function is to provide nutrition for the early embryo and an immunologically privileged site for the conceptus.





Day 13

The cells of the cytotrophoblast acquire syncytium resulting to a villi shape. They are called primary villi, The connecting stalk gives rise to the future umbilical cord. The extra embryonic cavity enlarges and forms chorionic cavity. The primary yolk sac becomes a smaller secondary yolk sac. A portion of the yolk sac is pinched off to form the exocoelomic cyst.



Clinical correlate

The syncytiotrophoblast produce a hormone called the human chorionic gonadotrophin (hCG), which enters the maternal blood through the lacunae keeps the corpus luteum secreting estrogens and progesterone, hCG maintains the hormonal activity of the corpus luteum in the ovary during pregnancy.

hCG can be detected in maternal blood or urine as early as day 10 of pregnancy and is the basis for pregnancy tests, enough hCG is produced by the syncytiotrophoblast at the end of the second week to give a positive pregnancy test, even though the woman is probably unaware that she is pregnant

Extrauterine Implantation

Blastocysts may implant outside the uterus, These implantations result in ectopic pregnancies

95% to 98% of ectopic implantations occur in the uterine tubes, most often in the ampulla and isthmus .