BAYAGBON OGHENETEGA

18/MHS01/109

MHS/MBBS

ANATOMY

EMBRYOLOGY ASSIGNMENT

1. Discuss the 2nd week of embryonic development

2ND WEEK OF EMBRYONIC DEVELOPMENT

8TH DAY

- Blastocyst is partially embedded in the endometrium.
- Syncytiotrophoblast continues to erode the endometrium.
- The cells in the cytotrophoblast divide and migrate into the region of syncytiotrophoblast where they fuse and lose their individual plasma membrane.
- Cells of embryoblast differentiate into: hypoblast made of cuboidal cells nearer to the blastocystic cavity and epiblast made of columnar cells nearer to the amniotic cavity.
- The hypoblast and epiblast layers fuse to form the bilaminar germ disc.

9TH DAY

- Blastocyst is deeply embedded in the endometrium and the surface epithelium is closed by fibrin coagulum.
- Vacuoles appear at the region of the trophoblast and fuse to form trophoblastic lacunae.
- Cells of the hypoblast form the exocoelomic membrane which lines the inner surface of the cytotrophoblast.
- The exocoelomic membrane and the hypoblast form the lining of the exocoelomic cavity or primary yolk sac.

10TH – 12TH DAY

- Blastocyst is completely embedded in the endometrium.
- Cells of the syncytiotrophoblast penetrate deeper into the stroma and erode the endothelial lining of the endometrial capillaries forming ruptured capillaries called sinusoids.
- The trophoblastic lacunae communicates with the sinusoids forming a primordial uteroplacental circulation.
- A new population of cells appear between the inner surface of the cytotrophoblast and the outer layer of the exocoelomic cavity.
- Cells derived from yolk sac form the extraembryonic mesoderm,
- Large cavities develop in the extraembryonic mesoderm forming a space called the extraembryonic cavity.
- The extraembryonic cavity surrounds the exocoelomic cavity and amniotic cavity.

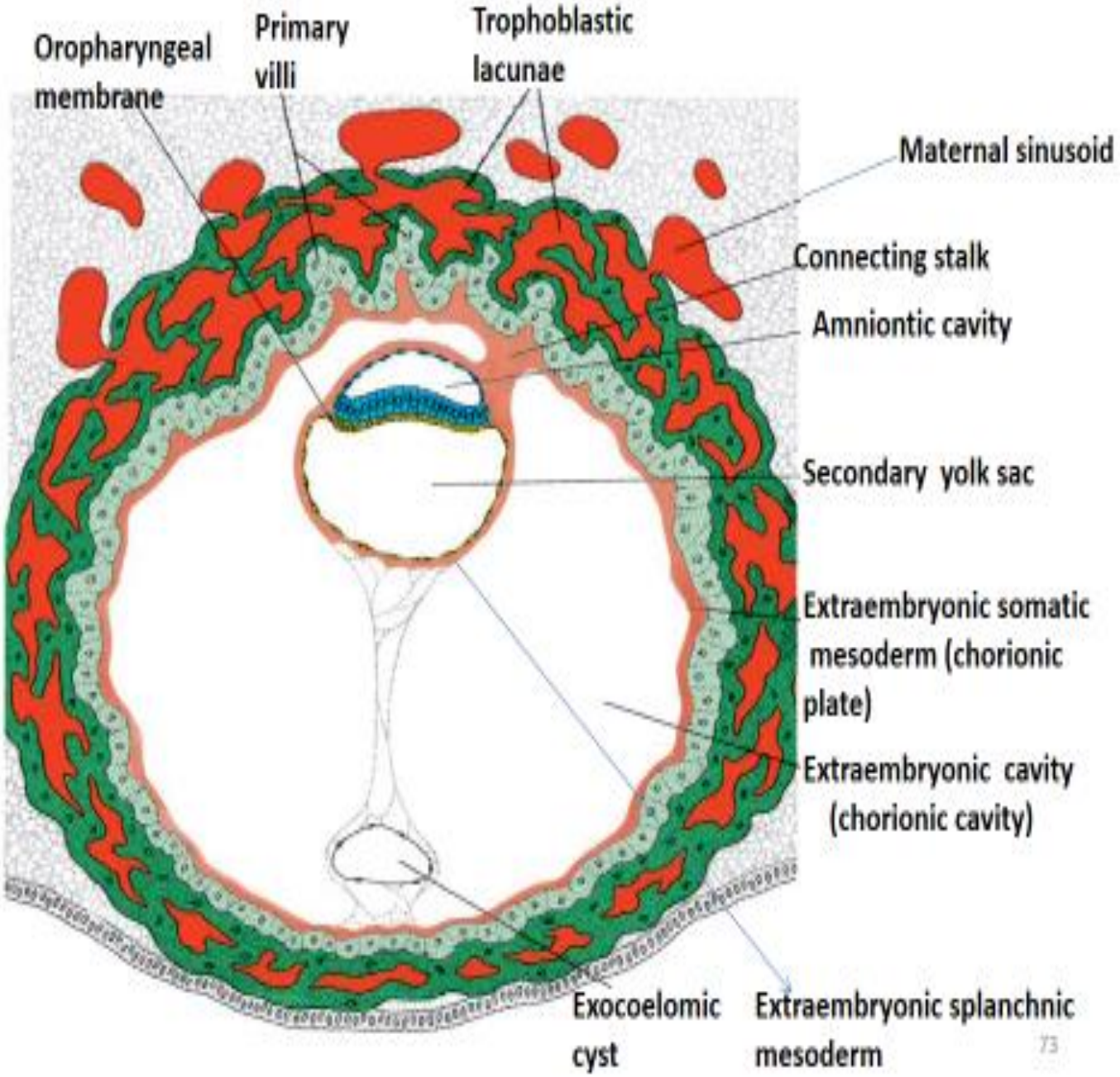
- The extraembryonic mesoderm lining the cytotrophoblast and amnion is called the extraembryonic somatic mesoderm.
- The lining covering the exocoelomic cavity is called the extraembryonic splanaic mesoderm.
- As the conceptus implants the endometrial connective tissue cells which undergoes decidual reaction which provides nutrition

13^{TH} DAY

- Cells of the cytotrophoblast penetrate into the syncytiotrophoblast forming cellular columns known as primary villi.
- Primary yolk sac becomes reduced in size and is called secondary yolk sac.
- In humans, the yolk sac contains no yolk but is important for the transfer of nutrients between the fetus and mother.
- During the formation of the secondary yolk sac large portions of the extraembryonic cavity are pinched off to form exocoelomic cyst which are found in the extraembryonic cavity.
- The extraembryonic cavity expands and forms a large cavity called the chorionic cavity.
- The extrembryonic mesoderm lining the inside of the cytotrophoblast is known as the chorionic plate.
- With the development of blood vessel, the connecting stalk becomes the umbilical cord.

CLINICAL CORRELATES

Human Chorionic gonadotropin (hCG) keeps the corpus luteum secreting estrogen and progesterone which is a basis for pregnancy.


Oropharyngeal membrane
Primary villi
Trophoblastic lacunae
Maternal sinusoid
Connecting stalk
Amniontic cavity
Secondary yolk sac
Extraembryonic somatic mesoderm (chorionic plate)
Extraembryonic cavity (chorionic cavity)
Exocoelomic cyst
Extraembryonic splanchnic mesoderm