

NAME: OJEME DORA EBEHIREMEN

COLLEGE: MEDICINE AND HEALTH SCIENCES

DEPARTMENT: MEDICINE AND SURGERY

COURSE: EMBRYOLOGY

COURSE CODE: ANA 211

MATRIC NUMBER: 18/MHS01/257

The second week of development

These events take place during the second week of development:

- I. Completion of implantation of the blastocyst
- II. Formation of bilaminar embryonic disc (epiblast and hypoblast)
- III. Formation of extraembryonic structures (amniotic cavity, amnion, umbilical vesicle [yolk sac], connecting stalk, and chorionic sac)

Day eight

At the eighth day of development, the blastocyst is partially embedded in the endometrium. The syncytiotrophoblast continues to invade the endometrium, thereby eroding endometrial blood vessels and endometrial and More cells in the cytotrophoblast divide and migrate into the syncytiotrophoblast, where they fuse and lose their individual cell membranes. The embryoblast differentiates into 2; the hypoblast which is cuboidal and the epiblast which is columnar. The epiblast and hypoblast then form the trilaminar germ disk, the amnioblast lines the amniotic cavity.

Day nine

The blastocyst is deeply embedded in the endometrium and the surface epithelium is closed by the fibrin coagulant. Vacuoles appear at the region of the trophoblast and they fuse to form larger lacunae, this phase of trophoblast development is known as the lacunar stage, the cells of the hypoblast adjacent to the cytotrophoblast form a thin membrane called the exocoelomic membrane, this membrane lines the inner surface of the cytotrophoblast. The exocoelomic membrane together with the hypoblast forms the lining of the exocoelomic cavity, or primitive yolk sac.

Day ten to twelve of development

The blastocyst is completely embedded in the endometrium, and the surface epithelium almost entirely covers the original defect in the uterine wall. Cells of the syncytiotrophoblast penetrate deeper into the stroma and erode the endothelial lining of the endometrial capillaries. The ruptured endometrial capillaries are known as sinusoids. The lacunae begin to communicate with the sinusoids, as a result the maternal blood enters the lacunar system. The communication results in the formation of a primordial uteroplacental circulation. When maternal blood flows into the lacunae it provides oxygen and nutrients for the fetus.

- A whole new population of cells appears between the inner surface of the cytotrophoblast and the outer surface of the exocoelomic cavity. These cells form a fine, loose connective tissue called the extraembryonic mesoderm. The large cavities develop in the extraembryonic mesoderm, and form a new space known as the extraembryonic cavity, or chorionic cavity or extraembryonic coelom. This space surrounds the primitive yolk sac and amniotic cavity, except where the germ disc is connected to the trophoblast by the connecting stalk. The extraembryonic mesoderm lining the cytotrophoblast and amnion is known as the extraembryonic somatic mesoderm, the lining covering the yolk sac is known as the extraembryonic splanchnic mesoderm. As the conceptus implants, the endometrial connective tissue cells undergo a transformation known as decidual reaction. The main function of the decidual reaction is to provide nutrition for the early embryo and an immunologically privileged site for the conceptus

Day thirteen of development

The surface defect in the endometrium has been completely covered by the surface epithelium, bleeding occurs occasionally at the implantation site as a result of increased blood flow into the lacunar spaces, the Cells of the cytotrophoblast proliferate locally and penetrate into the syncytiotrophoblast, and forms cellular columns surrounded by syncytium .The primary yolk sac becomes reduced in size and is known as the secondary yolk sac. The new cavity is called the secondary yolk sac or definitive yolk sac or the secondary umbilical vesicle. the Exocoelomic cysts are found in the extraembryonic cavity. The extraembryonic mesoderm lining the inside of the cytotrophoblast is then known as the chorionic plate. The only place where extraembryonic mesoderm traverses the chorionic cavity is in the connecting stalk. With development of blood vessels, the connecting stalk becomes the umbilical cord