

Name: IMASUEN ISIWANWEN

Medicine and surgery

Embryology assignment

2nd week of embryonic development

- Completion of implantation of the blastocyst
- Formation of embryonic layer
- Formation of extra embryonic structure (amniotic cavity, amnion, umbilical vessel, connective stalk, chorionic sac)

Implantation of the blastocyst

Implantation is a complex biochemical and mechanical process that begins in the first week of gestation and extends into the second week. There are many influencing factors that affect the process. These can be grouped into maternal and embryonal factors. However, both entities work synchronously in order to effectively achieve implantation. The process of implantation can be subdivided into three phases:

- There is a period of apposition where the blastocyst establishes weak interactions with the uterine wall.
- The attachment phase occurs when definitive binding of the blastocyst to the uterine epithelium is more established, such that the blastocyst cannot be flushed from the uterine cavity.
- Finally invasion occurs when the blastocyst begins to burrow into the endometrium.

This period usually occurs between the 19th and 24th day of the menstrual cycle. This coincides roughly with the 6th to 10th day following ovulation.

Formation of embryonic layer

The embryonic disc (or embryonic disk) forms the floor of the amniotic cavity. It is composed of a layer of prismatic cells, the embryonic ectoderm, derived from the inner cell mass and lying in apposition with the endoderm.

It is the stage of development that occurs after implantation and prior to the embryonic folding (e.g. seen between about day 14 to day 21 post fertilization). It is derived from the epiblast layer, which lies between the hypoblast layer and the amnion. The epiblast layer is derived from the inner cell mass. Through the process of gastrulation, the bilaminar

embryonic disc becomes trilaminar. The notochord forms thereafter. Through the process of neurulation, the notochord induces the formation of the neural tube in the embryonic disc.