

NAME: Adeola Temiloluwa

MATRIC NUMBER: 18/MHS02/015

DEPARTMENT: NURSING

LEVEL: 200

IMPLANATION

Implantation is defined as the process by which the embryo attaches to the endometrial surface of the uterus and invades the epithelium and then the maternal circulation to form the placenta. Before the initiation of implantation, however, both embryo and the endometrium should embark on an elaborated process in a time- and location- specific manner. The crosstalk between a receptive uterus and a competent blastocyst can only occur during a limited time span known as “window of implantation”. The window of endometrial receptivity is restricted to days 16-22 days of a normal menstrual cycle, 5-10 days after the luteinizing hormone (LH) surge. The uterus continues into the non-receptive period for the remaining cycle as the late luteal phase until menstruation ensues.

Implantation is also defined as the stage of pregnancy at which the embryo adheres to the wall of the uterus. At this stage of prenatal development, the conceptus is called a blastocyst. It is by this adhesion that the embryo receives oxygen and nutrients from the mother to be able to grow.

In humans, implantation of a fertilized ovum is most likely to occur around nine days after ovulation; however, this can range between six to 12days.

Stages of implantation

1. Apposition and adhesion

Implantation begins with apposition of the blastocyst at the uterine epithelium, generally about 2-4 days after the morula enters the uterine cavity. The implantation site in the human uterus is in the upper and posterior wall in the midsagittal plane. Implantation is considered as a pro-inflammatory reaction in which endometrial vascular permeability is markedly increased at the attachment site, mediated by Cyclooxygenase (CoX) - derived prostaglandins

During apposition process, the blastocyst differentiates into an inner cell mass (embryo) and trophectoderm (placenta). Stromal cells surrounding the implanting blastocyst differentiate into a specialized cell type called decidual cells, via a process known as decidualization.

2. Invasion

The process of implantation allows fetal trophoblast cells to invade and migrate into the maternal decidua. By this time the trophoblasts at the implantation site have formed masses of cytotrophoblasts and syncytiotrophoblasts. Eventually, trophoblast cells destroy the wall of the maternal spiral arteries, converting them from muscular vessels into flaccid sinusoidal sacs lined with endovascular trophoblast.

Possible signs of implantation

- Bleeding

Implantation bleeding is light bleeding from the vagina that happens in some women few days after conceiving a baby and a few days before menstrual cycle. Implantation bleeding is light and doesn't require treatment.

- Nausea

Nausea and vomiting are popular and unpleasant implantation symptoms. One may start noting changes in appetite or feel irritated by food one loved before

- Tender breasts

As hormone changes, breasts start to swell and feel a lot more sensitive than usual. Others are:

- Constipation and bloating
- Fatigue
- Cramps
- Mood swing

When does implantation occur?

On average, implantation occurs about 8-10 days after ovulation, but it can happen as early as six and late as 12. This means that for some women, implantation can occur around cycle day 20, while for others, it can be as late as day 26

How long does implantation last?

Implantation typically lasts only a few days. Once it is complete and the fertilized egg - now called embryo is burrowed snugly inside the uterine walls, it will produce hCG. The body's progesterone levels will also begin to rise nourishing the uterine lining and preventing period from the beginning.