بسم الله الرحمن الرحيم
CLEAVAGE OF THE ZYGOTE
Dont weep any more

I need just milk. Why you dont understand?

Infant
CLEAVAGE OF THE ZYGOTE

• Cleavage is the repeated mitotic divisions of the zygote, resulting in a rapid increase in the number of cells.

• These cells are called blastomeres which become smaller with each successive cleavage division.

• During cleavage, the zygote is within the rather thick zona pellucida.

• Division of the zygote into blastomeres begins approximately 30 hours after fertilization.
After the nine-cell stage, the blastomeres change their shape and tightly align themselves against each other to form a compact ball of cells.

Compaction permits greater cell-to-cell interaction.

It causes segregation of the internal cells that form the inner cell mass or embryoblast of the blastocyst.

When there are 12 to 32 blastomeres, the developing human is called a morula.

Internal cells of the morula (inner cell mass) are surrounded by a layer of cells that form the outer cell layer.

The spherical morula forms approximately 3 days after fertilization and enters the uterus.
• FORMATION OF THE BLASTOCYST
• Shortly after the morula enters the uterus (approximately 4 days after fertilization), a fluid-filled space called the blastocystic cavity appears inside the morula.
• The fluid passes from the uterine cavity through the zona pellucida to form this space.
• As fluid increases in the blastocystic cavity, it separates the blastomeres into two parts:
• A thin, outer cell layer, the trophoblast (Greek, trophe, nutrition), which gives rise to the embryonic part of the placenta
• A group of centrally located blastomeres are called the inner cell mass (embryoblast).
During this stage of development-blastogenesis-the conceptus is called a blastocyst.

The embryoblast now projects into the blastocystic cavity and the trophoblast forms the wall of the blastocyst.

After the free blastocyst has floated in the uterine secretions for approximately 2 days, the zona pellucida gradually degenerates and disappears.

Shedding of the zona pellucida and hatching of the blastocyst have been observed in vitro.

Shedding of the zona pellucida permits the hatched blastocyst to increase rapidly in size.

While floating in the uterus, this early embryo derives nourishment from secretions of the UTERINE GLANDS.
• Approximately 6 days after fertilization (day 20 of a 28-day menstrual cycle), the blastocyst attaches to the endometrial epithelium,
• usually adjacent to the embryonic pole.
• The trophoblast starts to proliferate rapidly and gradually differentiates into two layers:
• An inner layer of cytotrophoblast
• An outer layer of syncytiotrophoblast
• At approximately 6 days, the fingerlike processes of syncytiotrophoblast extend through the endometrial epithelium and invade the connective tissue.

• By the end of the first week, the blastocyst is superficially implanted in the compact layer of the endometrium

• It deriving its nourishment from the eroded maternal tissues.
THANKS