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**DEPARTMENT: NURSING**

1. **Write short note on implantation**

**Implantation**

Implantation is the process by which the fertilized ovum called zygote implants (fixes itself or gets attached) in the endometrial lining of uterus. After the fertilization, the ovum is known as zygote. Zygote takes 3 to 5 days to reach the uterine cavity from fallopian tube. While travelling through the fallopian tube, the zygote receives its nutrition from the secretions of fallopian tube. After reaching the uterus, the developing zygote remains freely in the uterine cavity for 2 to 4 days before it is implanted. Thus, it takes about 1 week for implantation after the day of fertilization. During the stay in uterine cavity before implantation, the zygote receives its nutrition from the secretions of endometrium, which is known as uterine milk. Just before implantation, the zygote develops into morula and then the implantation starts. A layer of spherical cells called trophoblast cells is formed around morula. Trophoblast cells release proteolytic enzymes over the surface of endometrium. These enzymes digest the cells of the endometrium. Now, morula moves through the digested part of endometrium and implants itself.

**Development of placenta and embryo**

Already uterus is prepared by progesterone secreted from the corpus luteum during secretory phase of menstrual cycle. After implantation, placenta develops between morula and endometrium. When implantation occurs, there is further increase in the thickness of endometrium because of continuous secretion of progesterone from corpus luteum. At this stage, the endometrial stromal cells are called decidual cells and the endometrium at the implanted area is called decidua. Now the trophoblastic cells of morula develop into cords, which are attached with decidual portion of endometrium. Blood capillaries grow into these cords from the blood vessels of the newly formed embryo. At about 16th day after fertilization, heart of embryo starts pumping the blood into the trophoblastic cords. At the same time, blood sinusoids develop around the trophoblastic cords. These sinusoids receive blood from the mother. Trophoblastic cells form some vascular projections into which fetal capillaries grow. These vascular projections become placental villi. Thus, the final form of placenta has got the fetal part and the maternal part. Fetal part of placenta contains the two umbilical arteries, which carry fetal blood to the placental villi through the capillaries. The blood returns back to fetus through umbilical vein. Maternal part of placenta is formed by uterine arteries through which blood flows into sinusoids that surround the villi. The blood returns back to mother’s body through uterine vein.

**REFERENCE**

K Sembulingam phD and Prema Sembulingam phD (sixth edition: 2012). Jaypee brothers medical publisher (P) ltd. ISBN 978-93-5025-936-8