

# Obstetrics

## Lec. 1

المرحلة الرابعة

## Female Reproductive system

### Anatomy

The female reproductive organs can be subdivided into the internal and external genitalia. The internal genitalia are those organs that are within the true pelvis. These include the **vagina, uterus, cervix, uterine tubes (oviducts or fallopian tubes), and ovaries**. The external genitalia lie outside the true pelvis. These include the **perineum, mons pubis, clitoris, urethral (urinary) meatus, labia majora and minora, vestibule, greater vestibular (Bartholin) glands, Skene glands, and periurethral area.**

### Functions :-

Female reproductive system is designed to carry out several functions.

#### The Reproductive Cycle

The female reproductive cycle is the process of producing an ovum and readying the uterus to receive a fertilized ovum to begin pregnancy. If an ovum is produced but not fertilized and implanted in the uterine wall, the reproductive cycle resets itself through menstruation. The entire reproductive cycle takes about 28 days on average, but may be as short as 24 days or as long as 36 days for some women

It produces the female egg cells necessary for reproduction, called the ova or oocytes. The system is designed to transport the ova to the site of fertilization. Conception, the fertilization of an egg by a sperm, normally occurs in the fallopian tubes. The next step for the fertilized egg is to implant into the walls of the uterus, beginning the initial stages of pregnancy. If fertilization and/or implantation does not take place, the system is designed to menstruate (the monthly shedding of the uterine lining). In addition, the female reproductive system produces female sex hormones that maintain the reproductive cycle

### Oogenesis and Ovulation

Under the influence of follicle stimulating hormone (FSH), and luteinizing hormone (LH), the ovaries produce a mature ovum in a process known as ovulation. By about 14 days into the reproductive cycle, an oocyte reaches maturity and is released as an ovum. Although the ovaries begin to mature many oocytes each month, usually only one ovum per cycle is released .

## **How Many Eggs Does a Woman Have?**

The vast majority of the eggs within the ovaries steadily die, until they are depleted at menopause. At birth, there are approximately 1 million to 2 million eggs; by the time of puberty, only about 300,000 remain. Of these, only about 500 will be ovulated during a woman's reproductive lifetime. Any remaining eggs gradually die out at menopause

## **Fertilization**

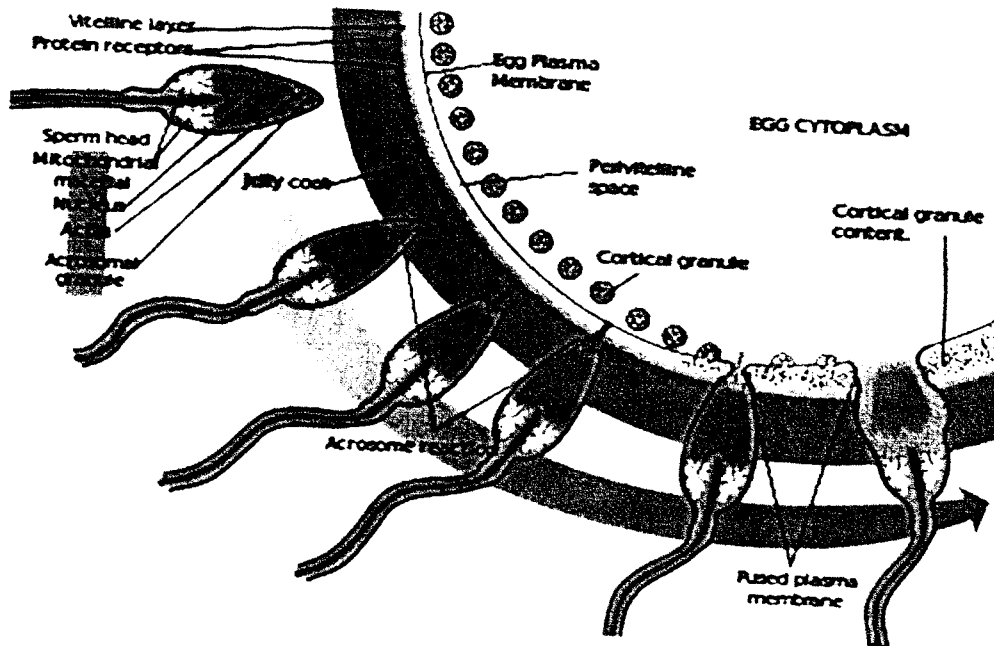
the sperm cell is released into the female organ. The cells make their way through to the top of the vagina, through the

cervix and into the uterus. But they do not stay there — they .continue their journey into the fallopian tube and travel upward

If there is any ovum (egg cell) released, the egg cell and the sperm cells meet, the fimbriae catch the egg and direct it down the fallopian tube to the uterus. It takes about a week for the .ovum to travel to the uterus

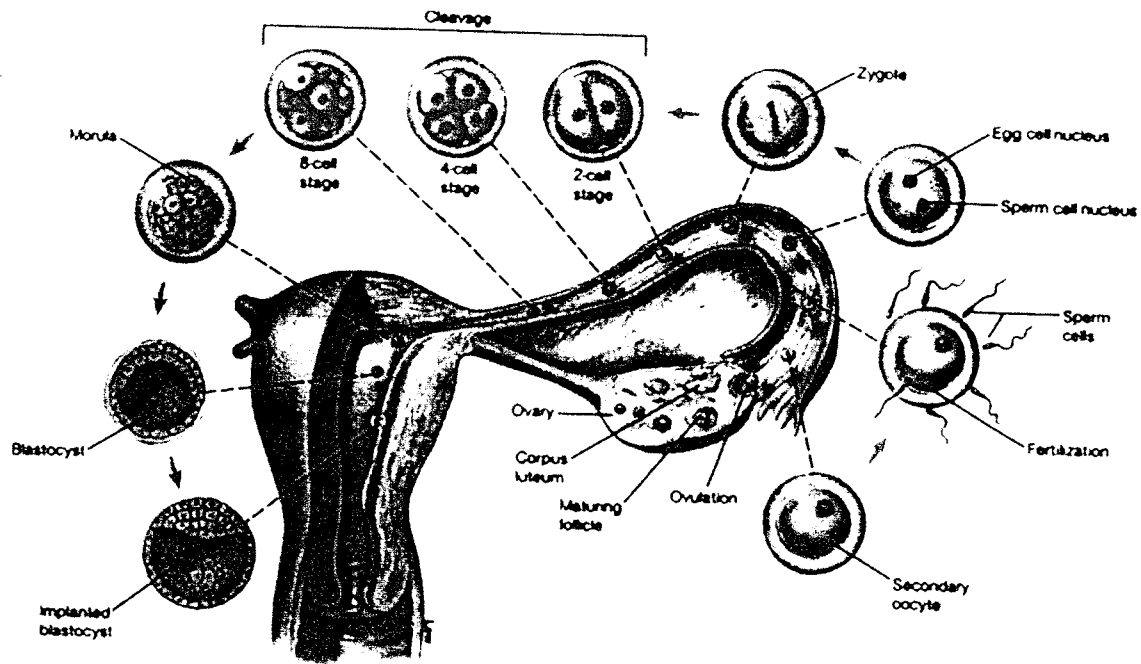
When they meet, there are millions of sperm cells, and they will all meet the only egg. When the sperm cells meets the egg, only the sperm cell that is able to break through the egg membrane win . When the male and female gametes fused in the ampulla of the tube, the spermatozoa fertilize the oocyte after undergoing the capacitation and acrosomal reaction in the sperm head under influence of substance from corona radiata cells of the oocytes then multiple fusion point between plasma membrane of the oocytes and the outer membrane of the acrosomes permit the release of acrosomal contents needed to penetrate the corona radiata and zona pellucida . After a two-week period of rapid cell division known as the germinal period of development, the zygote forms an embryo. The embryo will then implant itself into the uterine wall and develop there during pregnancy

## Fertilization



In the diagram, notice how millions of sperm cells all trying to break through the membrane of the egg cell

Once a sperm fertilizes an egg cell, it becomes a zygote. The zygote (fertilized egg) at this stage possesses half the DNA (characteristics) of each of its two parents. The zygote then divides itself to form a very tiny ball called an embryo.



Zygote-by mitotic division – blastomere stage – Morela (12-16) cell stage – the inner the cell mass give the embryo and the outer cell mass give the trophoblast ( the future placenta ) the morela inter the uterine cavity 4 days after fertilization .

### Implantation

The zygote stays in the fallopian tube for about 3-4 days but within 24 hours of being fertilized it starts dividing very fast into many cells it keeps dividing as it moves slowly through the fallopian tube to the uterus . In human , implantation of a fertilized ovum ( blastocyst stage ) is most likely to occur about 9 days after ovulation ,ranging between 6-12 .

The trophoblast over the embryo give protolytic enzymes to penetrate deep between the cells of endometrium at 6<sup>th</sup> day after fertilization at time of implantation ( the secretory endometrium , the glands become coiled and highly edematous )

The blastocyst embedded itself in the stratum compactum of the decidua most frequently in the upper and posterior part of the

uterine cavity producing slight projection into the uterine lumen.

The decidua:::--

Transformation of secretory endometrium to decidua by hormones, according to its relation to the embryo , it is divided into 3 parts

1—Decidua basalis :- site of placental attachment .

2---decidua capsularis

3---decidua parietalis

