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18/MHS01/274

MEDICINE AND SURGERY

EMBRYOLOGY ASSIGNMENT

1. DISCUSS OVULATION

​This is the release of a secondary oocyte from the ovarian follicle, a few days before ovulation, under the influence of FSH and LH, the secondary follicle grows rapidly to a diameter of  about 25 mm to become mature vesicular/ mature secondary or Graafian follicle Coincident with final development of the vesicular follicle, there is an abrupt  increase in LH that causes;the primary oocyte to complete meiosis I ,the follicle to enter the preovulatory mature vesicular stage Meiosis II is also initiated, but the secondary oocyte is arrested in metaphase approximately 3 hours before ovulation, the surface of the ovary begins to enlargen and at the apex, an avascular spot, the stigma, appears for the oocyte to be released, 2 events occur which are caused by LH surge: it increases collagenase activity, resulting in digestion of collagen fibers (connective tissue) surrounding the follicle , prostaglandin levels also increase in response to the LH surge and cause local muscular contractions in the ovarian wall Those contractions extrude the oocyte, which together with its surrounding follicular (granulosa) cells from the region of the cumulus oophorus, this causes ovulation in which oocyte floats out of the ovary some of the cumulus oophorus cells then rearrange themselves around the zona pellucida to form the corona radiata.

2) Differentiate between meosis 1 and meosis 2

* The main Difference between Meiosis 1 and Meiosis 2 is that the former is reduction division while the latter is equational division
* Crossing over takes place during meiosis 1 while there is no crossing over in the subsequent decision.
* 2 daughter cells are formed at the end and the cell becomes haploid during meiosis 1.
* At the end of meiosis 2, the cells are haploid and 4 daughter cells form.
* Meiosis 2 is shorter and less complicated as compared to meiosis 1

  ​3) Discuss the stages involved in ferterlization

                     **Fertilization**

•The usual site of fertilization is the ampulla of the uterine tube

•The fertilization process takes approximately 24 hours

•It is a sequence of coordinated events which include the following stage

**Passage of a sperm through the corona radiata:**

•For sperms to pass through the corona radiata, they must have been capacitated (removal of the glycoprotein coat and seminal plasma proteins from the plasma membrane that overlies the acrosomal region of the spermatozoa)

Fertilization

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    **Formation of the male pronucleus**

    Within the cytoplasm of the oocyte, the nucleus of the sperm enlarges to form the male pronucleus and the tail of the sperm degenerates

* The 2 pronuclei fuse into a single diploid aggregation of chromosomes, the ootid becomes a zygote
* The chromosomes in the zygote become arranged on a cleavage spindle in preparation for cleavage of the zygo

4) differentiate between monozygotic twins and dizygotic twins

Twins are siblings who are the result of a single pregnancy. They can be either monozygotic or dizygotic. The main difference between monozygotic and dizygotic twins is that monozygotic twins originate from a single zygote — or fertilized egg — and dizygotic twins come from two zygotes.