***Iqra National University Peshawar***

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***CLASS: MLT 4TH***

***SUBJECT: General pathology***

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**QNo1 :Differentiate between hypertrophy and hyperplasia?**

**Ans : Hyperplasia: An increase in the number of cells in an organ or tissue, which may then have increased volume.**

**Types of Hyperplasia:**

**(1) physiological :**

**(a) Hormonal: It is due to the influence of hormonal stimulation.**

**EXAMPLES:**

* **Hyperplasia of the female breast epithelium at puberty or in pregnancy.**
* **pregnant uterus**
* **normal endometrium after a normal menstrual cycle.**

**(b) Compensatory:**

**Hyperplasia occurring following removal of part of an organ or a contralateral organ in paired organ.**

**EXAMPLES:**

* **Regeneration of the liver following partial hepatectomy**
* **Regeneration of epidermis after skin abrasion**
* **Following nephrectomy on one side, there is hyperplasia of nephrons of the other kidney.**

**(2) pathological:**

**Excessive stimulation of hormones or growth factors**

**EXAMPLES:**

1. **Endometrial hyperplasia**
2. **Wound healing - of granulation tissue due to proliferation of fibroblasts and endothelial cells.**
3. **Skin warts from hyperplasia of epidermis due to human papilloma virus .**

**Hypertrophy:**

**Definition: An increase in the size of cells, and with such change, an increase in the size of the organ.**

**Types:**

1. **Physiologic:**

 **Physiologic growth of the uterus during pregnancy involves both hypertrophy and hyperplasia.**

**2. Pathologic:**

 **Increased workload, hormonal stimulation and growth factors stimulation e.g. hypertrophy of heart- the most common stimulus is chronic hemodynamic overload.**

**QNo2:what is the difference between coagulative and liquefactive necrosis?**

**Ans : Difference between coagulative and liquefactive necrosis. Coagulative necrosis,**

**Coagulative necrosis is a type of accidental cell death that is usually caused by ischemia or infection. In group necrosis, dead tissue architecture is preserved for at least a day or two. It is thought that injury identifies structural proteins as well as lysosomal enzymes, thus preventing proteolysis of damaged cells. The lack of lysosomal enzymes allows it to maintain "coagulated" forms for some time. Like most types of necrosis, if there are enough viable cells around the affected area, they are usually found at this time.Coagulative necrosis can also be stimulated by high local temperatures. This is the desired effect of therapeutic high-intensity ultrasound applied to cancer cells.**

**Liquefactive necrosis,**

**The first is liquefactive necrosis, also called colloidal necrosis, which is characterized by partial or complete dissolution of dead tissue and massive conversion of liquid, adhesive mass. Loss of tissue and cellular profile occurs within hours in liquefaction necrosis.**

**QNo3: write a note on labile and stable cell?**

**Ans: (a) labile cell:**

**continuously dividing cell are called laibile cell they are normally present on the living surfaces**

**Examples:**

 **squmous ,epithelium :these Bothe are skin regenerate.**

**(2) Stable cell: thease cell have the power of division but nit always regunrating but it wil regunrate when a stimulus come.**

**Example:**

**Liver ,kidney and pancrease.**

 **QNo4: Differentiate between healing by primary intention and heilling by secondary intention?**

**Ans : primary intesion:** Occurs when the sides of the wound are not opposed, therefore **healing** must occur from the bottom of the wound upwards. It occurs in the same four stages as primary **intention**: Haemostasis - a large fibrin mesh forms, which fills the wound.

1:the wound must be clean cut.

2:morgen must be clouseer.

3:no infection in the cut.

4:small granulation tissue.

5:few complication.

6:less neutrophils

7:less impimation

**Secondary intension:**

Primary wound healing occurs when the tissue surfaces are closed by stitches, staples, skin glue, or steri-strips. A surgical incision that is closed by stitches is a good example.

1:no clean cut wound

2:margins not closely opposed.

3:infection in cut

4:larg granulation tissue .

5:mor comlicaton.

6:more neutrophils .

7:more implimation.

**QNo5: write briefly about the cellular response to adverse effects?**

Ans : An **immune response** is a reaction which occurs within an organism for the purpose of defending against foreign invaders.

These invaders include a wide variety of different microorganisms including [viruses](https://en.m.wikipedia.org/wiki/Virus), [bacteria](https://en.m.wikipedia.org/wiki/Bacteria), [parasites](https://en.m.wikipedia.org/wiki/Parasitism), and [fungi](https://en.m.wikipedia.org/wiki/Fungus) which could cause serious problems to the health of the host organism if not cleared from the body.

 There are two distinct aspects of the immune response, the [innate](https://en.m.wikipedia.org/wiki/Innate_immune_system) and the [adaptive](https://en.m.wikipedia.org/wiki/Adaptive_immune_system), which work together to protect against pathogens. The innate branchth e body's first reaction to an invader—is known to be a non-specific and quick response to any sort of pathogen. Components of the innate immune response include physical barriers like the skin and mucous membranes, immune cells such as [neutrophils](https://en.m.wikipedia.org/wiki/Neutrophil), [macrophages](https://en.m.wikipedia.org/wiki/Macrophage), and [monocytes](https://en.m.wikipedia.org/wiki/Monocyte), and soluble factors including [cytokines](https://en.m.wikipedia.org/wiki/Cytokine) and [complement](https://en.m.wikipedia.org/wiki/Complement_system).

 On the other hand, the adaptive branch is the body's immune response which is catered against specific [antigens](https://en.m.wikipedia.org/wiki/Antigen) and thus, it takes longer to activate the components involved. The adaptive branch include cells such as [dendritic cells](https://en.m.wikipedia.org/wiki/Dendritic_cell), [T cell](https://en.m.wikipedia.org/wiki/T_cell), and [B cells](https://en.m.wikipedia.org/wiki/B_cell) as well as [antibodies](https://en.m.wikipedia.org/wiki/Antibody)—also known as immunoglobulins—which directly interact with antigen and are a very important component for a strong response against an invader.

The first contact that an organism has with a particular antigen will result in the production of effector T and B cells which are activated cells that defend against the pathogen. The production of these effector cells as a result of the first-time exposure is called a primary immune response. [Memory T](https://en.m.wikipedia.org/wiki/Memory_T_cell) and [memory B cells](https://en.m.wikipedia.org/wiki/Memory_B_cell) are also produced in the case that the same pathogen enters the organism again. If the organism does happen to become re-exposed to the same pathogen, the secondary immune response will kick in and the immune system will be able to respond in both a fast and strong manner because of the memory cells from the first exposure.

[Vaccines](https://en.m.wikipedia.org/wiki/Vaccine) introduce a weakened, killed, or fragmented microorganism in order to evoke a primary immune response.

This is so that in the case that an exposure to the real pathogen occurs, the body can rely on the secondary immune response to quickly defend against it.

***..Thank you..***