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THE ORGAN AND CELLS OF IMMUNE

SYSTEM AND THEIR FUNCTIONS.

PERIPHERAL LYMPHOID ORGANS

Lymph nodes- The lymph nodes are small, round or ovoid bodies placed along the course of lymphatic vessels. they are surrounded by fibrous capsule from which trabeculae penetrate into the nodes, the node can be differentiated into an outer cortex and an inner medulla in the cortex are accumulations of lymphocytes (primary lymphoid follicles) within which germinal centres (secondary follicle) develop during antigen stimulation. the follicle contain , besides proliferating lymphocytes , dendritic macrophages which capture and process the antigen in the medulla , the lymphocytes , dendritic antigen stimulation the follicle contain , beside proliferating lymphocytes , dendritic macrophages which capture the process the antigen in the medulla, the lymphocytes are arranged as elongated branching bands (medullary cords). the cortical follicles and medullary cords contain B lymphocytes and constitute the bursa dependent areas . between the cortical follicle and

medullary cords , there is a board , ill defined inter mediate zone (paracortical area) which contain T-lymphocytes and constitutes the thymus dependent area.

Lymph node act as a filter for the lymph . each group of nodes draining a specific part of the body , they phagocytose foreign materials including microorganisms. they help the porifiltration and circulation of T and B- cell. they enlarge following local stimulation.

(Fig...2) diagram of selection node , arrows indicate the path of lymph follow.

SPLEEN:-

The spleen is the largest of the lymphoid organs. It has a capsule from which descends trabeculae dividing the organ into several interconnected compartments. The branches of the splenic artery travel along the trabeculae, and on leaving them branch again to form the central arterioles. Which are surrounded by a sheath of lymphoid tissues. This part is known as the white pulp of the spleen and may constitute about half to three quarters of the organ, following antigenic stimulation. The central arterioles proceed onto the red pulp, so called because of the abundance of red blood cells in it.

(Fig...3) Schematic diagram of spheric artery.

The periarterial lymphoid collections in the white pulp of the spleen are called the malpighian corpuscles or follicles. Germinal centres develop following antigenic stimulation surrounding the germinal center in a 'Mantle layer' of lymphocytes.

The organ and cells of the immune system and their function.

Immediately outside the periarterial lymphatic sheath and sprouting it from the red pulp lies the marginal zone. The lymphatic sheath immediately surrounding the central arteriole is the thymus dependent area of the spleen. The perifollicular region germinal centre and mantle layer form the bursa dependent (thymus independent) areas.

The spleen serves as the graveyard for senescent blood cells, as a reserve tank and settling bed for blood and as a systematic filter for trapping circulating bloodborne foreign particles. The immunological function of the spleen is primarily directed against bloodborne antigen.

Mucosa associated lymphoid tissue (MALT):

The mucosa lining the alimentary respiratory and other lumina and surfaces are constantly exposed to numerous antigens. These areas are endowed with a rich collection of lymphoid cells. Either specialised

aggregates as peyer's patches or scattered isolated lymph follicles – collectively called the mucosa associated lymphoid tissue (MALT). Such lymphoid tissue in the gut. Form the adenoids and tonsils the follicles in the colon, are called the gut associated lymphoid tissue (GALT) and those in respiratory tract , the bronchus associated lymphoid tissue (BALT).

Malt contain lymphoid as well as phagocytic cells. Both B and T- cells are present while the predominant immunoglobulin produced in the mucosa is secretory IgA. Other immunoglobulin classes IgA, IgM and IgE are also formed locally.

There appears to be a free traffic of antigen special effector lymphocytes between the various mucosa and secretory areas. So that an antigenic exposure one site may cause production of the specific antibody at the other mucosal and secretory sites also. This indicates the existence of a common mucosal or secretory immune system and explains the superiority oral or nasal immunisation over the parenteral route for many enteric and respiratory infections.

Cells of the lymphoreticular system.

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