

LYMPHOID TISSUE

Consist of close system of vessels which ramify in the tissue spaces in and around the blood capillaries and conveys tissue fluid into the blood vascular system. Lymphatic system is auxiliary to the venous system.

LYMPHATIC CAPILLARIES ---- Larger lymphatic vessel



THORACIC DUCT



LEFT SUBCLAVIAN VEIN

(At the junction with internal jugular vein)

----RIGHT LYMPHATIC DUCT—RIGHT
SUBCLAVIAN VEIN

In their course , the lymphatic vessels are intercepted by chains of small bean shaped lymph nodes which filter the lymph and lymphocytes in the circulating lymph.

LYMPH NODES

- Usually present in groups.
- They are masses of lymphoid tissue.
- As a rule , lymph from any part of body passes through one or more lymph nodes before entering blood stream.
- Lymph nodes acts as filters –
 - removing bacteria and other particulate matter from lymph and lymphocyte added to the lymph.
- Bean shaped
- Consist of connective tissue framework and numerous lymphocytes and other cells.
- CAPSULE --- TRABECULAE --- LOBULES --- CORTEX --- MEDULLA --- HILUM

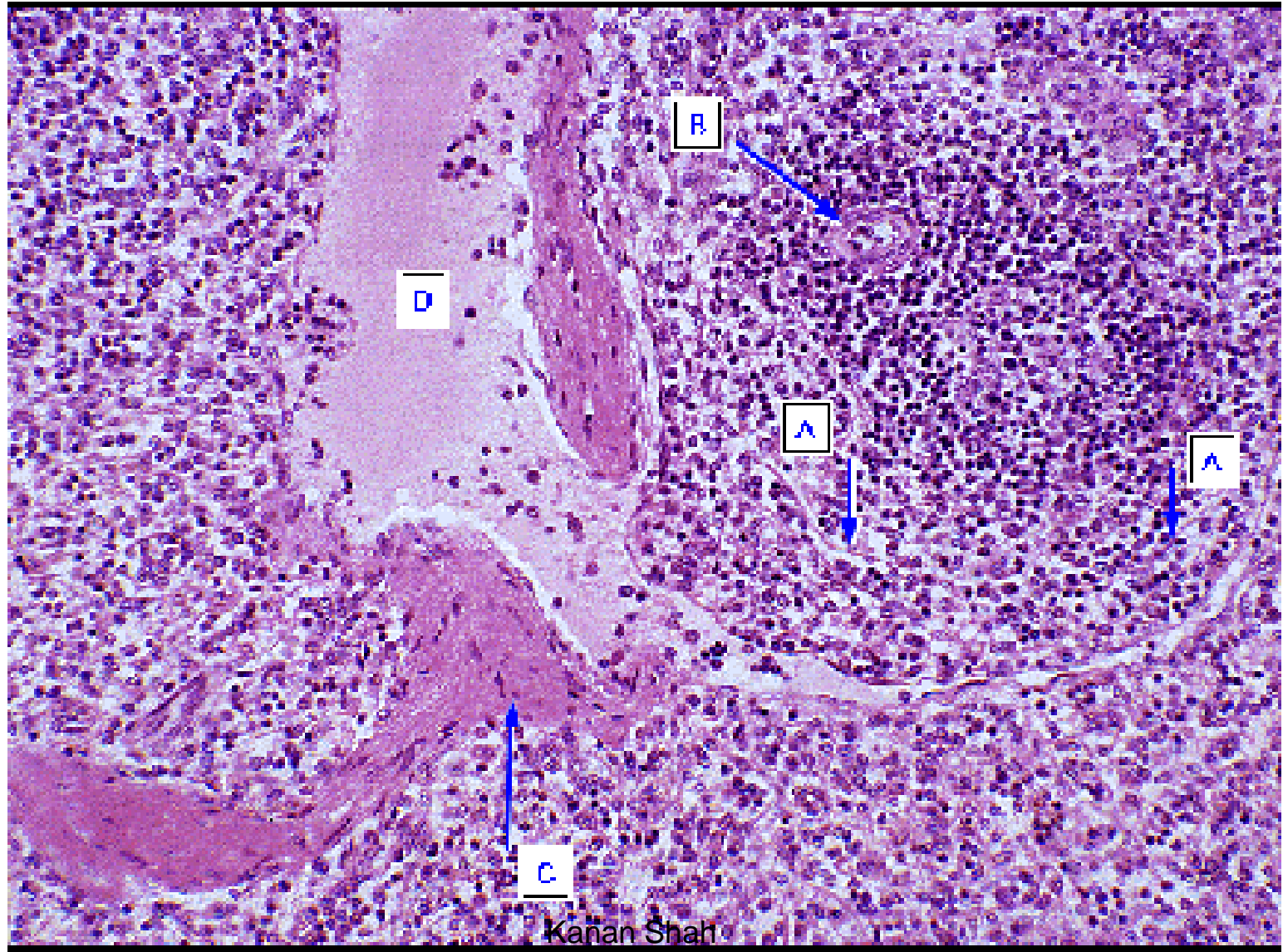
LYMPH NODES

- They are usually arranged in groups and are frequently situated along the blood vessels.
- Variable in shape & size.
- Almost , each lymph node is bean shaped and present a hilum which gives attachment to a single efferent lymph vessel.
- About 800 lymph nodes are present in the human body.
- STRUCTURE : CAPSULE + GLAND SUBSTANCE
- Capsule -- sub capsular space -- trabeculae
- Gland substance -- CORTEX + MEDULLA
- Cortex -- trabeculae , paratrabecular spaces
- Medulla -- Medullary cords(irregular cords of lymphocytes).

SPLEEN

- Aggregation of lymphoid tissue are also found at various other sites . The two organs ,the spleen and the thymus are almost entirely made up of lymphoid tissue.
- Largest lymphoid organ of the body.
- Peritoneum form serous coat covers whole spleen except at the hilum.
- CAPSULE---TRABECULAE---SPACES Between trabeculae are pervaded by a network formed reticular fibers embedded in an amorphous matrix . Fibroblast and macrophages are also present in relation to the reticulum. The interstices of reticulum are pervaded by lymphocytes , blood vessels and blood cells , by macrophages.

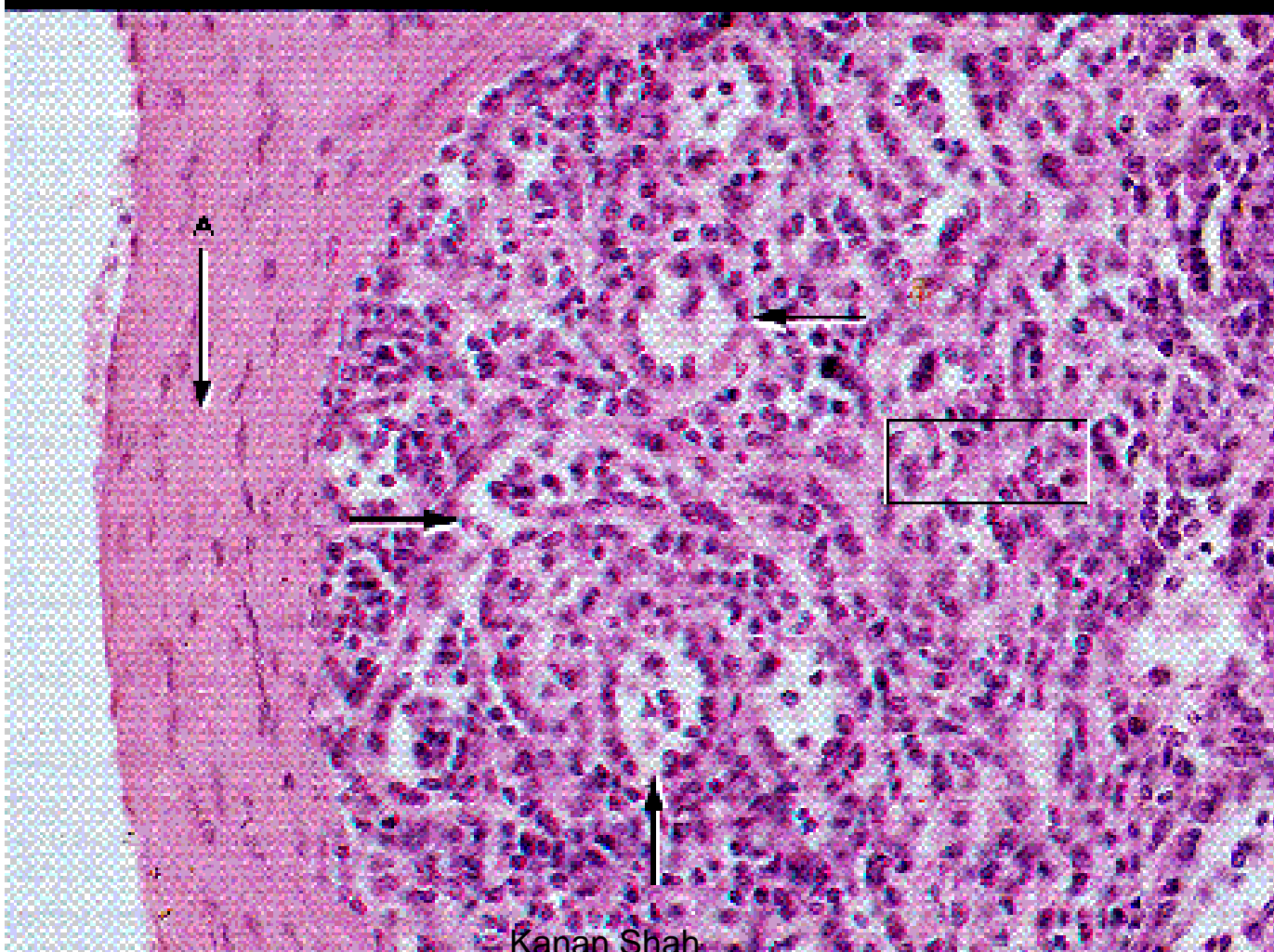
SPLEEN



CIRCULATION THROUGH SPLEEN

SPLENIC ARTERY--- 5 BRANCHES ENTERS THE SPLEEN--- Divide & subdivide--- ARTERIOLE (inter trabecular spaces)--- WHITE PULP (arteriole surrounded by a dense sheath of lymphocytes.)--- PENICILLI ---ELLIPSOID (Concentric lamellae formed by aggregation of fibroblast & macrophages.)---AMPULLA --- RETICULAR FRAMEWORK (RED PULP) --- SINUSOIDS (stave cells)---VEINS in trabeculae.

SPLEEN



- **WHITE PULP** : Cord like aggregations of lymphocytes . At places cords are thicker than elsewhere and contain lymphatic nodules. These nodules are called **MALPIGHIAN BODIES** . Each nodule has a germinal centre and a surrounding cuff of densely packed lymphocytes.
- **RED PULP** : Like a sponge. Spaces lined by reticular cells. Interval between spaces are filled by cords of B , T -Lymphocytes , macrophages and blood cells. These cords are called **SPLenic CORDS OF BILLROTH**

MUCOSA ASSOCIATED LYMPHOID TISSUE (MALT)

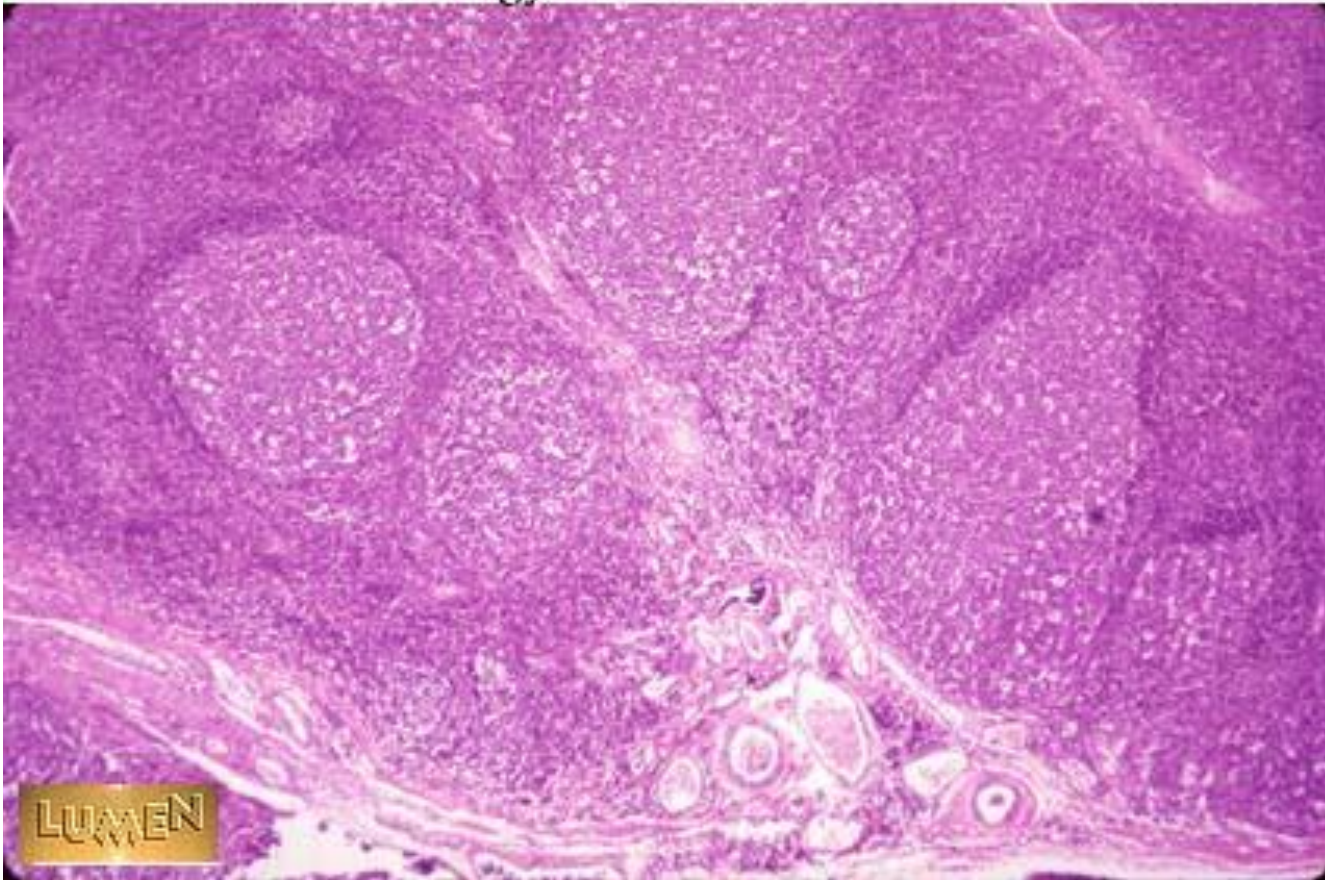
- Small numbers of lymphocytes may be present almost anywhere in body but significant aggregations are seen in relation to the mucosa of the respiratory , alimentary and urogenital tracts.
- In alimentary system they are called GUT ASSOCIATED LYMPHOID TISSUE. (GALT)They are
 - 1) palatine tonsil
 - pharyngeal tonsil
 - lingual tonsil
 - tubal tonsil
 - 2)Solitary lymphatic follicles(aggregated)
 - payer's patches

PALATINE TONSIL

- Diffuse lymphoid tissue in which lymphatic nodules are present.
- Cover by stratified squamous epithelium.
- Tonsillar crypts.
- Mucous glands open in crypts.
- Lumen of crypt contain some lymphocytes.
- Numerous lymphatic follicles which surround the tonsillar crypts. Each follicle presents a germinal centre composed of lymphoblast from which lymphocytes appear in crypts and are washed out in the saliva as salivary corpuscles.

TONSIL

Histology Lab Part 12: Slide 42

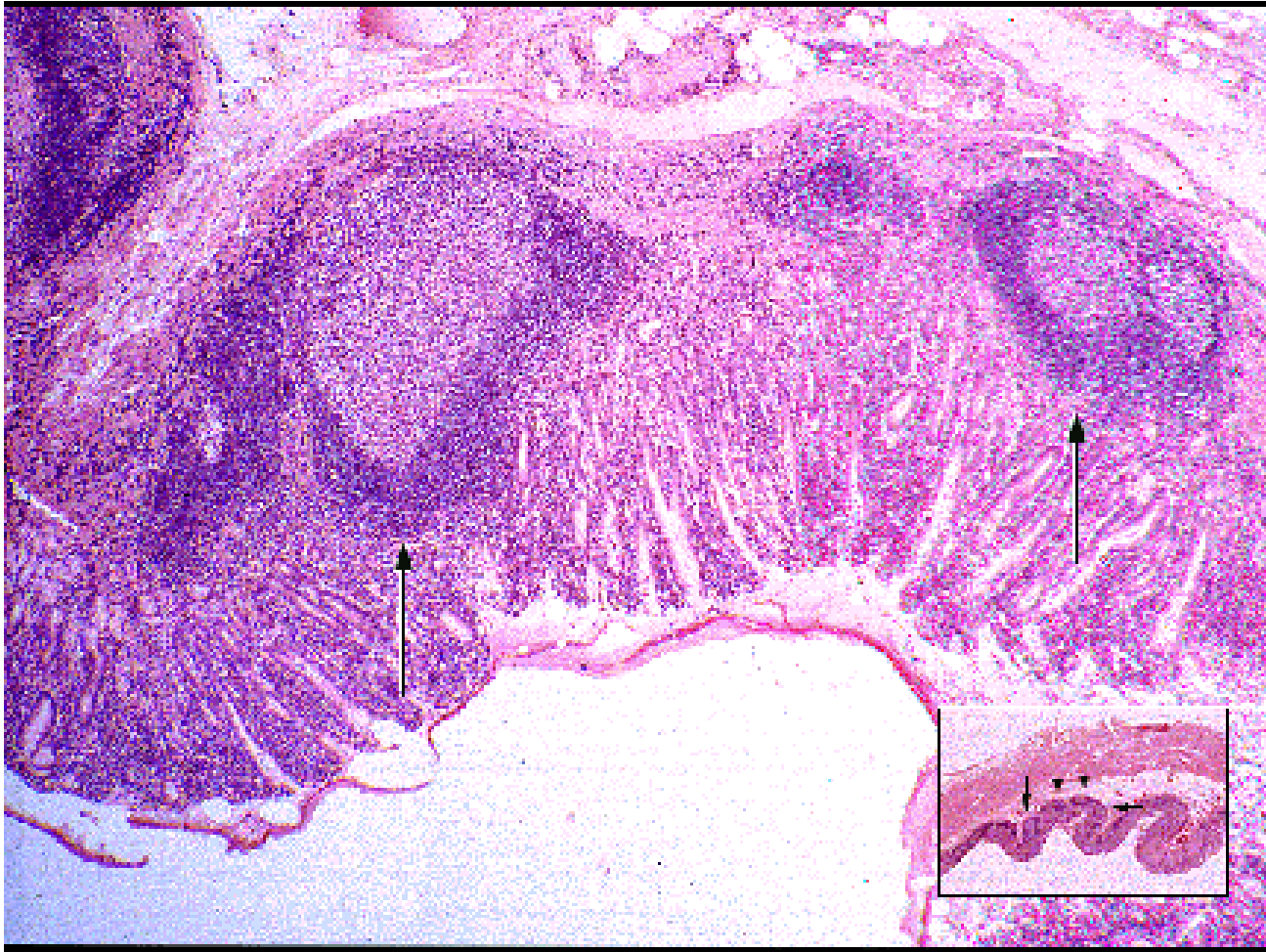


- Appendix also contain lymphatic follicle in sub mucosa. Hence appendix is considered as ABDOMINAL TONSIL.

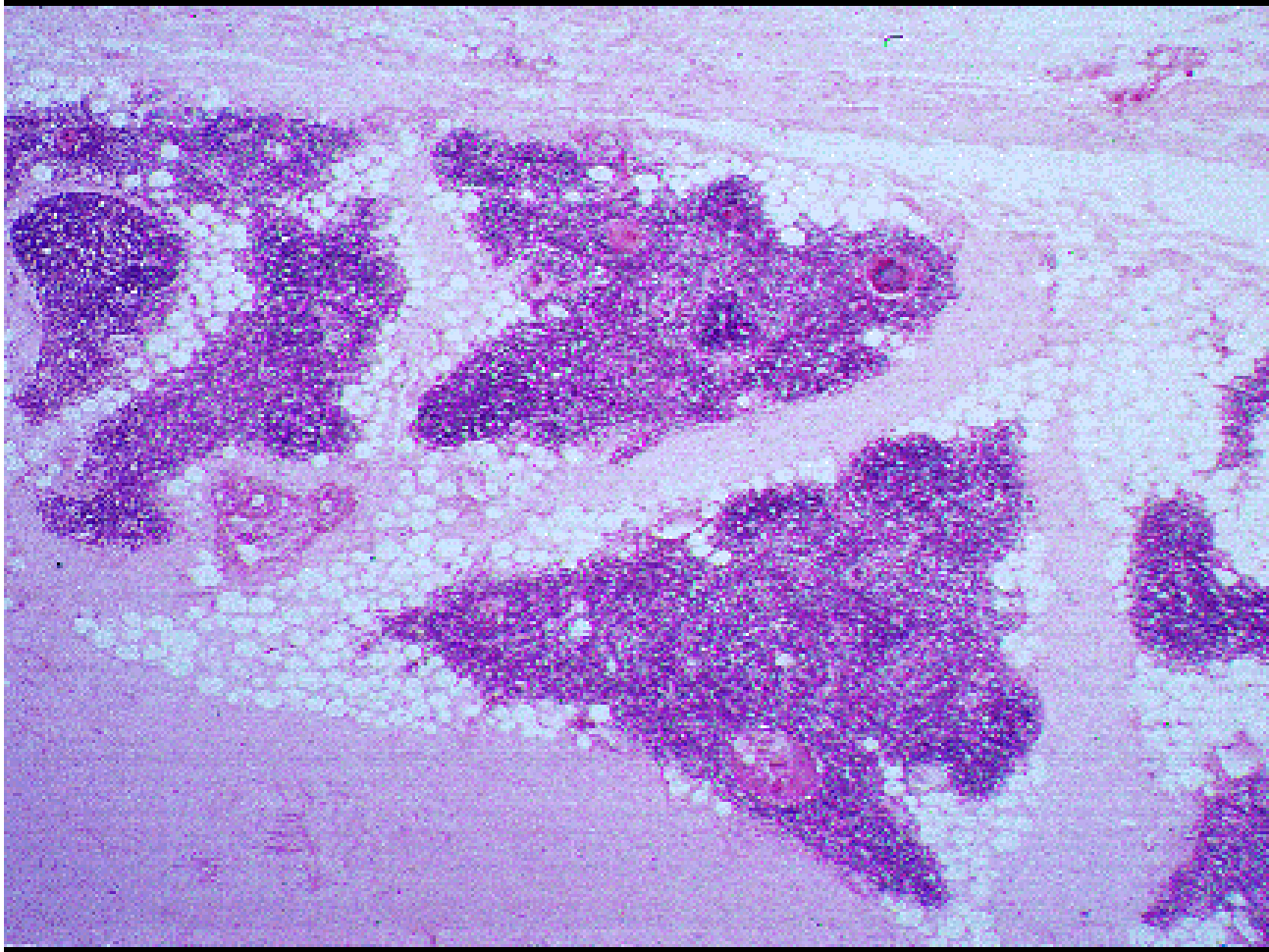
PEYER 'S PATCHES

- Large aggregation of lymphoid tissue.
- 2 – 10 cm in size.
- increases in number and in size as we proceed caudally along the small intestine.
- They are more numerous in the ileum and are produced by aggregation of about 260 solitary follicles.
- They are 20 – 30 in number, more prominent in children and disappear in old age.
- The patches are formed by collection of lymphocytes and plasma cells and situated in the antimesenteric border along the long axis of the small gut. Villi are absent over the patches.

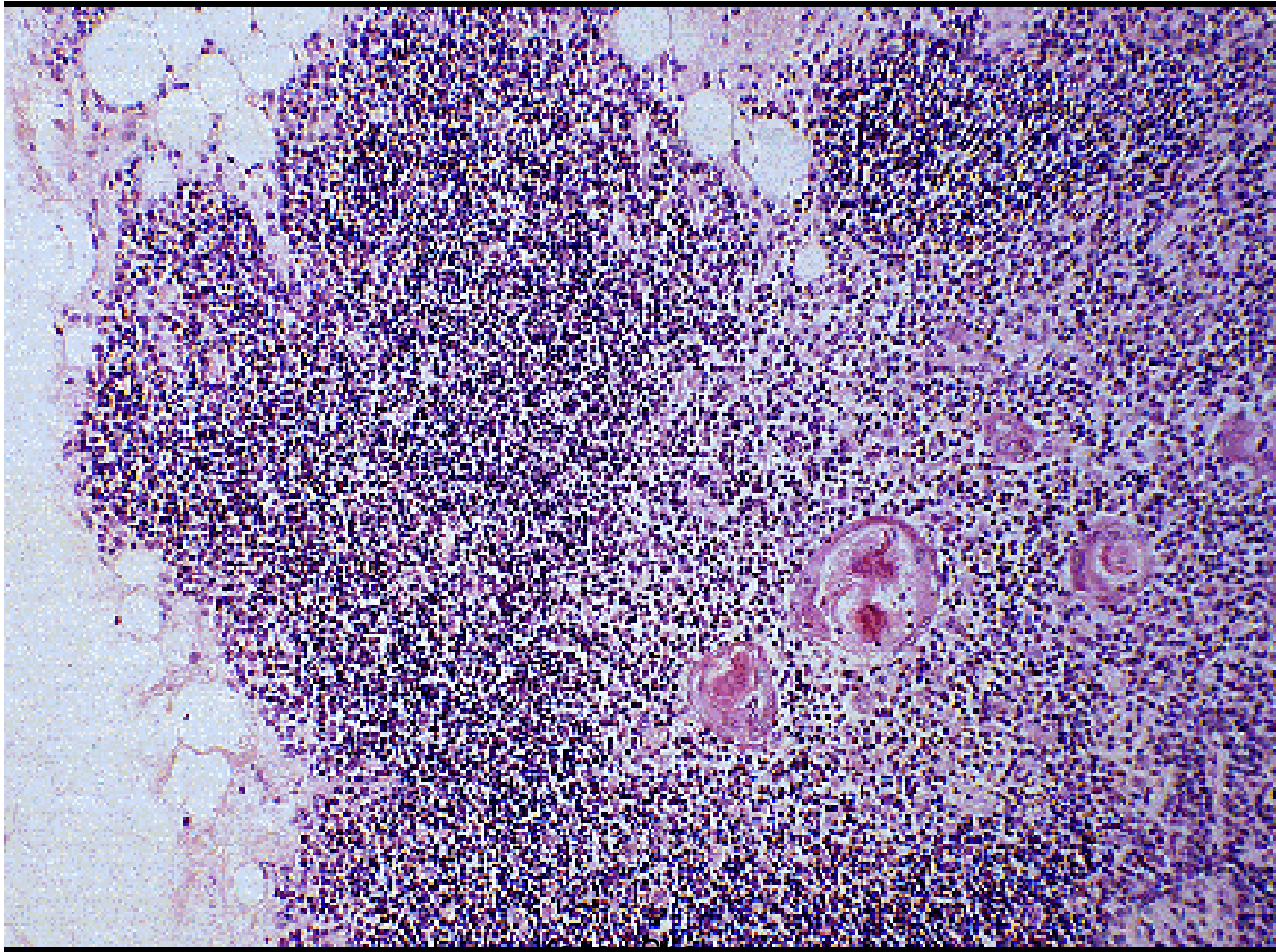
PEYER'S PATCHES



THYMUS



THYMUS



Aknowledgement

- Inderbir Singh's Textbook of Human Histology
- Textbook of Histology- Atlas and Practical Guide by JP Gunasegaran
- Difiore's Atlas of Histology
- Images from Google
- Histology Text & Atlas -Brijeshkumar