

Topic: HUMAN PHYSIOLOGY

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Diseases of Blood Vessels

Atherosclerosis

This is disease of the arteries. There is patchy changes which develop in the tunica media of arteries. There is accumulation of cholesterol compounds & calcium deposits. This makes the lumen narrower and thereby obstructing blood flow. Obesity & sedentary life style can lead to this.

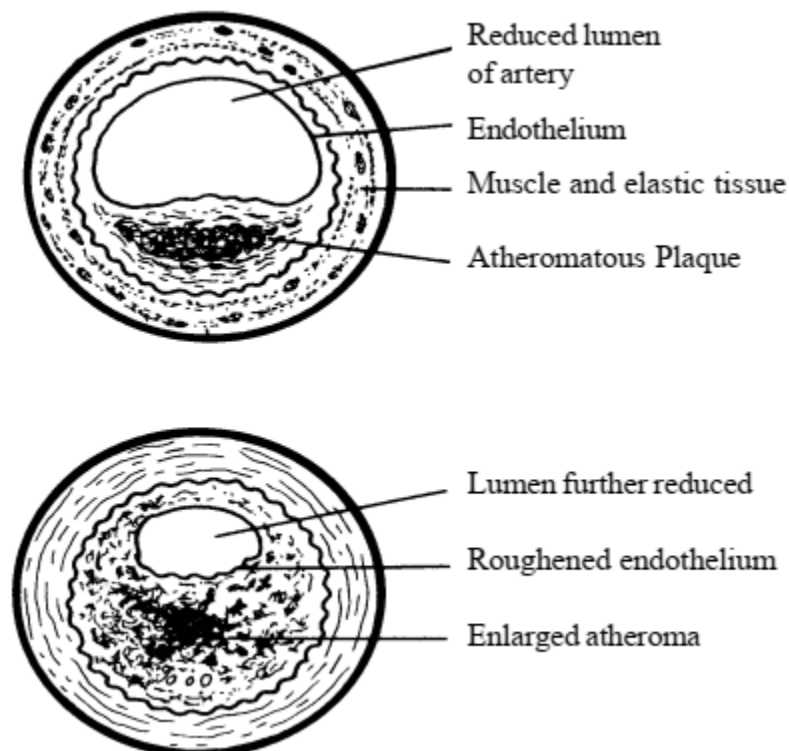


Fig. 1. - Reduced lumen of artery during atherosclerosis

Hypertension

The term hypertension is used to describe blood pressure that is sustained at a

higher level than the normal level of 120/80 mmHg. The normal value differs as per age group. Prolonged hypertension affects the heart, brain & kidneys.

Cardiac failure

This is otherwise heart failure which occurs when the muscles of the ventricles are unable to maintain the circulation of sufficient blood to meet the needs of the body.

Lymphatic system

The Lymph, lymph vessels and a series of small masses of lymphoid tissue called lymph nodes make up the lymphatic system. Lymph is the intracellular fluid or tissue fluid that flows through the lymphatic vessel. This tissue fluid is derived from the blood plasma. Lymph contains plasma proteins of 3 to 4 percent and variable number of leucocytes. Lymphatic vessels originate as blind-end tubes that begin in spaces between cells. The tubes are called lymph capillaries. They are slightly larger and more permeable than the blood capillaries. Lymph capillaries unite to form larger and larger lymph vessels called **lymphatic ducts**. The Lymph vessels are found in the skin, subcutaneous tissues and in the connective tissue of the abdominal and thoracic viscera. The lymph vessels present in the villus of the small intestines are called as **lacteals**. These lacteals help in absorbing fat from the food in to the circulation. Lymph is not present in the bone marrow and the nervous system. The two main lymphatic vessels are the thoracic duct and the right lymphatic duct. The thoracic duct receives all the lymph of the body except that from the right side of the head, neck, arm, lungs, heart and the upper surface of the liver. The lymphatics of these parts drain into the right lymphatic duct. These two vessels open into the subclavian vein of the corresponding side of the body. Lymphatic duct resembles vein in structure but have thinner walls, and contain lymph nodes at various intervals.

Lymph nodes: These are oval or bean-shaped structures located along the length of the lymphatics. It is also named as lymph glands. Structurally the lymph node contains a slight depression on one side called a hilum, where the blood vessels enter and leave the node. Lymph nodes give rise to lymphocytes which produce antibodies.

Functions

1. To return fluid and protein from the tissues to the circulation.
2. To transport lymphocytes from the lymphatic glands to the circulation.
3. To carry emulsified fat from the intestine to the circulation.
4. To filter out and destroy microorganisms in order to prevent infection spreading from the point where the organisms entered the tissues, to other parts of the body.
5. To produce antibodies to protect the body against subsequent infection