

ARTERIAL SYSTEM:

- Blood vessels that supply blood from heart to different parts of the body are called arteries. The walls of arteries are thick and muscular.
- Their lumen is narrow and without valves. Arteries are deeply seated in the body and blood flow in them is wavy. Arteries always terminate with capillaries.
- Wall of an artery is formed by three layers, namely, outer **tunica externa** (formed by elastic, collagen fibres), **tunica media** (formed by smooth, circular muscles) and inner **tunica interna** or endothelium (formed by a single layer of epithelial cells).
- The arterial system of rabbit consists of two large aortic arches, namely systemic arch and pulmonary arch and their branches.

1. Systemic arch:

- It is a large blood vessel arising from the left ventricle.
- It arches towards left side. Immediately after coming out of heart, systemic arch gives off a pair of **coronary arteries**, which supply blood to the muscles of heart.
- Just before arching, systemic arch gives an **innominate artery**, which soon divides into left and right carotid arteries.
- They pass through the neck into head, and each one is divided into an external carotid and an internal carotid artery.
- **External carotid artery** supplies blood to tongue, lips, salivary glands, back of the head, jaws, pinnae etc.
- **Internal carotid artery** supplies blood to different parts of brain. The right **subclavian artery** arises from the base of right carotid artery.
- It is divided into the following branches :
 - a) **Vertebral artery** - supplying blood to vertebral column.
 - b) **Internal mammary artery** - supplying blood to mammary glands, pericardium, diaphragm etc.
 - c) **Brachial artery** - supplying blood to right fore limb.
- **Left subclavian artery** arises from the arching systemic arch, a little left of innominate artery.
- It is also divided into a vertebral artery, internal mammary artery and a brachial artery (to left fore limb).
- After branching off as left subclavian artery, systemic arch bends towards dorsal side and runs posteriorly, passes through the diaphragm and extends as **dorsal aorta** below the vertebral column.
- As it passes through the thorax and abdomen, the dorsal aorta gives off a series of branches to various organs in the following order :
 - A. In the thoracic region, 5-7 pairs of inter **costal arteries** are formed and they supply blood to the inter costal muscles.
 - B. Behind the inter costal arteries, a pair of **phrenic arteries** is formed and they supply blood to the muscles of diaphragm.
 - C. In the abdomen, a **coeliac artery** arises from the dorsal aorta just behind the diaphragm. It is divided into –
 - i) **A hepatic artery** - supplying blood to liver
 - ii) **A lineo gastric artery** - supplying blood to stomach and spleen
 - D. Behind the coeliac artery, an **anterior mesenteric artery** is formed, which is divided into many arteries and supplies blood to duodenum, ileum, caecum, colon and pancreas.
 - E. Opposite the kidneys a pair of **renal arteries** arises from the dorsal aorta and they supply blood to the kidneys (left renal artery is situated below the right renal artery).
 - F. Further down, a pair of **gonadial arteries** is formed from the dorsal aorta and supply blood to the gonads.
 - i) In **males**, gonadial arteries are called **spermatic** arteries and they supply blood to testes.
 - ii) In **females**, gonadial arteries are called **ovarian arteries** and they supply blood to ovaries.
 - G. Just behind the gonadial arteries, a **posterior mesenteric artery** arises from the dorsal aorta, and supplies blood to colon and rectum.
 - H. A pair of **ileo lumbar arteries** is formed behind the posterior mesenteric artery and they supply blood to dorsal abdominal wall and muscles of back.
 - I. In the pelvic region, dorsal aorta bifurcates into a pair of **common iliac arteries**. Each common iliac artery is divided into an internal iliac artery and an external iliac artery.

Internal iliac artery supplies blood to the dorsal part of the pelvic region.

External iliac artery gives rise to the following arteries and is continued as a femoral artery and supplies blood to the hind limb.

1. **Vesicular artery** - supplying blood to the urinary bladder.
2. **Uterine artery** - supplying blood to the uterus in female.
3. **Posterior epigastric artery** - supplying blood to the ventral abdominal wall.

J. Just in front of the bifurcation of dorsal aorta into common a thin, median caudal artery arises and supplies blood to the tail region.

2. Pulmonary arch:

- It is another large blood vessel. It arises from the right ventricle.
- Soon after coming out of heart, pulmonary arch is divided into two pulmonary arteries (left and right) and supply deoxygenated blood to lungs for oxygenation.