

## **Venous system in Mammals**

The hepatic portal system includes: Gastro-duodenal vein which is formed by the pancreaticoduodenal vein and left gastric vein. The pancreaticoduodenal vein also gets a vein from the last part of the small intestine and the right gastric vein.

The mesenteric veins are included under this system onary sinus. In monotremes, marsupials, elephants, rodentia, insectivora and chiroptera both right and left precavals persist. In monotremes all the pulmonary veins open by a common trunk.

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Venous system of Rat

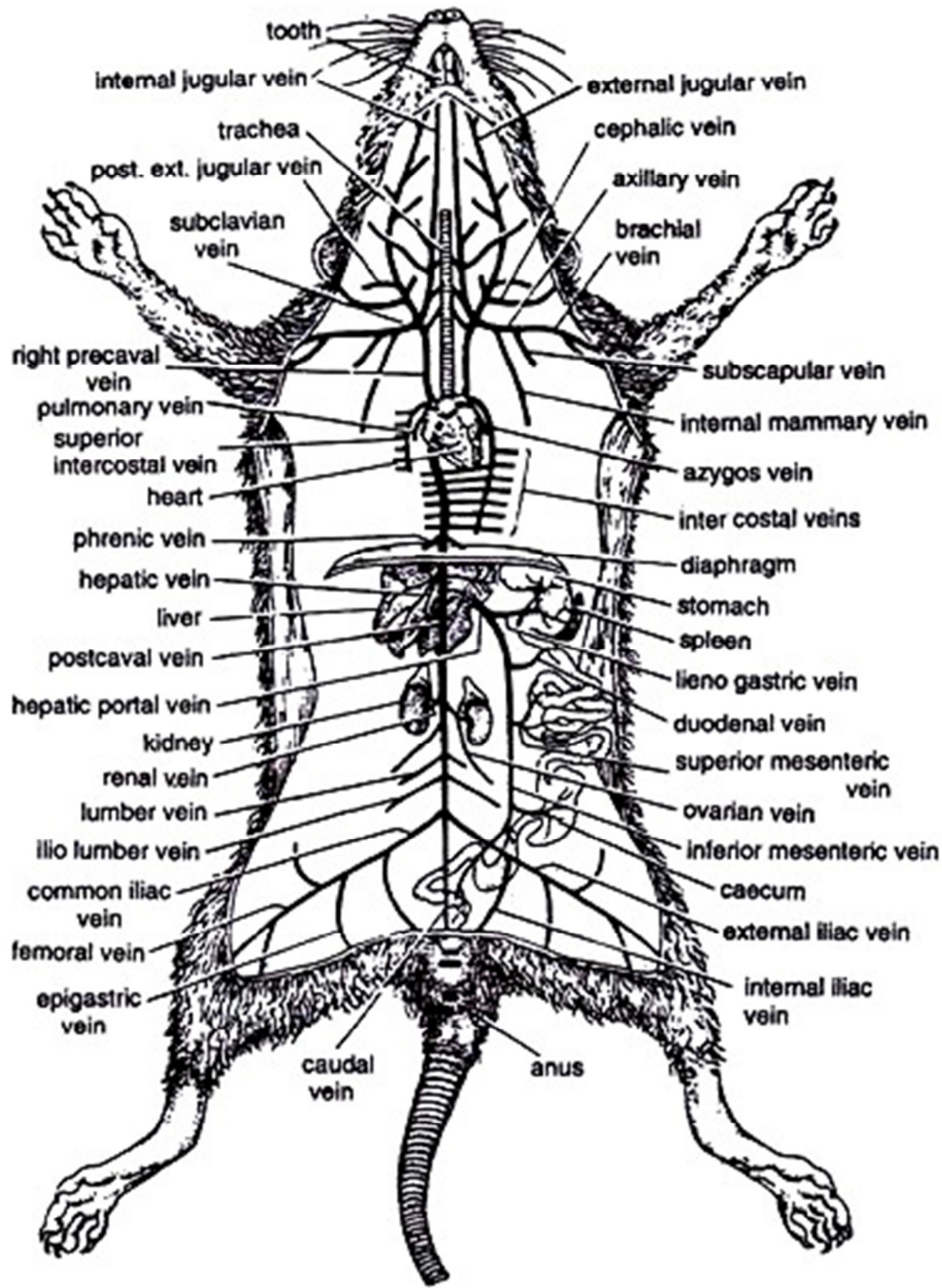


Fig. 19.4 : *Rattus* sp. Heart and venous system. Female

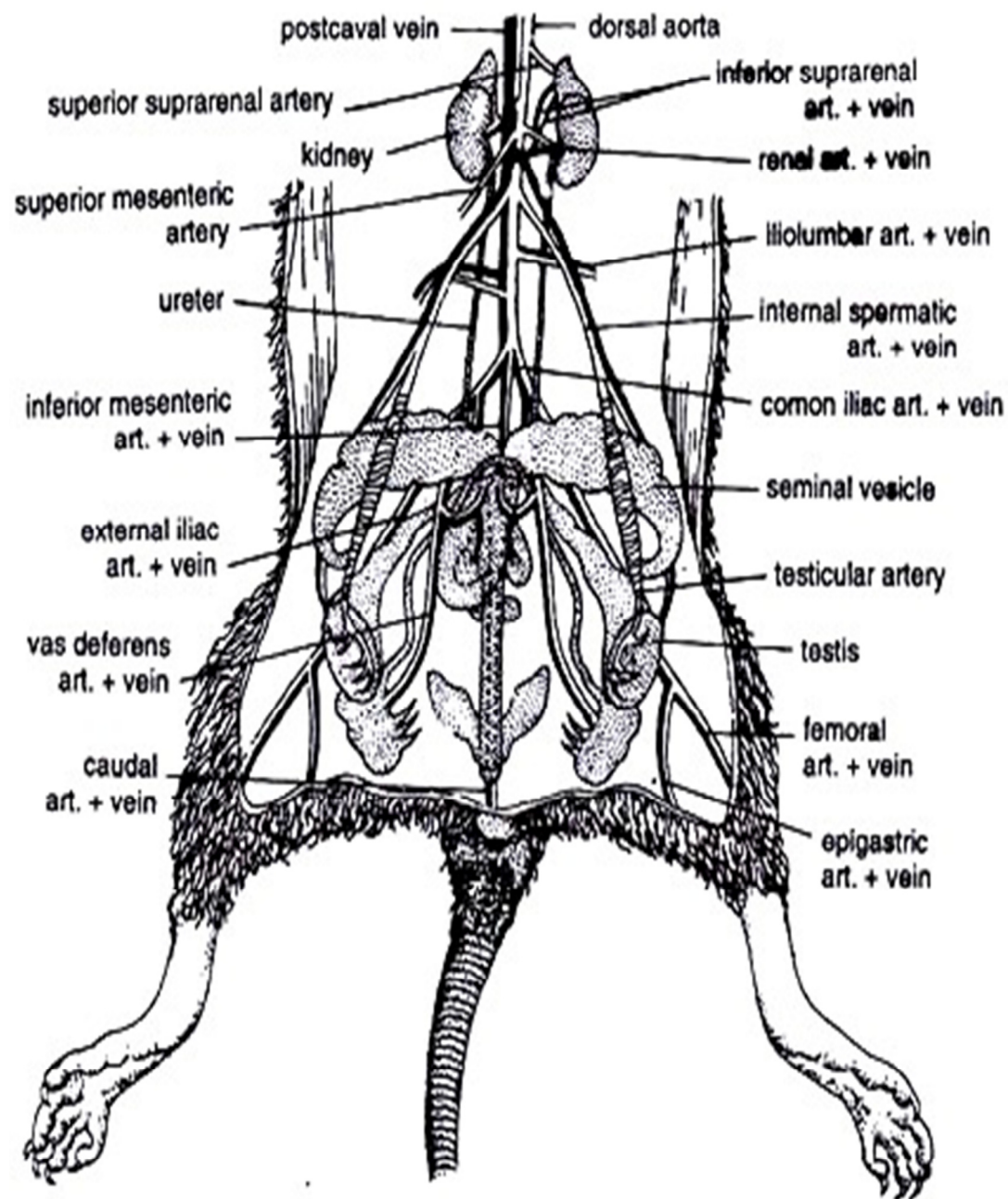


Fig. 19.5 : *Rattus* sp. Male. Genital arteries and veins

The three systemic veins, two precavals and a postcaval open directly into the right atrium. The two pulmonary veins open in the left atrium through a common opening.

### **A. Precaval veins:**

Precaval veins bring back blood from the anterior region of the body. The right precaval is short and the left one is quite long. A precaval vein is formed by the union of a number of veins. The veins forming right and left precavals are similar except superior intercostal in the right and azygos in the left.

a. External jugular is formed by the union of anterior and posterior facial veins from the muscles of the head, jaws, tongue and salivary glands.

#### **In its way back it receives:**

i. Posterior external jugular from the muscles of the back and neck.

ii. Cephalic from the shoulder.

b. Internal jugular drains blood from the sternal region.

c. Subclavian is a short vein.

#### **It receives:**

i. Internal mammary from the sternal

ii. Axillary is formed by the union of brachial and subscapular, region and axillary vein.

iii. Brachial from the forelimb.

iv. Subscapular from the shoulder region.

Precaval vein is formed by the union of external and internal jugulars and subclavian vein.

#### **Right precaval:**

In addition to the above veins it receives superior intercostal from the upper part of the thoracic wall.

**Left precaval:**

In addition to the above veins it receives azygos formed by the union of intercostal and subcostals from the lower pari of the thoracic wall.

**B. Postcaval vein:**

It is a large, median vessel formed by the joining of a number of veins bringing blood from the organs in the posterior and middle region of the body.

Caudal drains blood from the tail and joins the postcaval at the point of its formation.

Internal iliac from the bladder and pelvic region.

**External iliac formed by the union of:**

- i. Femoral from the hind limb.
- ii. Epigastric from abdominal muscles and urinogenital system.

The two iliacs join to form a common iliac. The two common iliacs unite and form the postcaval vein. The caudal joins the postcaval at their junction.

**Lumbar and iliolumbar:**

A few pairs from the lumbar region.

**Genital:**

Paired, arise from the testes or ovaries and their associated structures. The right one joins precaval and the left one joins the renal vein. In male, these veins are long, since the testes are lodged in the scrotum (Fig. 19.6). In female, they are short.

**Renal:**

Paired, arise from the kidneys. The right renal is a little anterior in position.

**Hepatic:**

Paired, arise from the lobes of the liver.

The postcaval vein pierces the diaphragm and on reaching the thoracic cavity receives

**Phrenic:**

Paired, from the diaphragm.

**Hepatic Portal System:**

It consists of veins opening in the liver. It is formed near the pylorus and ends in the liver.

Inferior (posterior) mesenteric from rectum.

Superior (anterior) mesenteric from ileum, caecum and colon.

Duodenal from duodenum.

Lienogastric from stomach, spleen and pancreas.

The veins join to form the hepatic portal vein, which ends in the liver through branches.

**C. Pulmonary veins:**

Small but wide veins not connected with major veins. Blood is brought back by a single vein from the right lung and two veins, which join to form one, from the left lung. The two join to form a common pulmonary vein and opens in the left atrium.