## Venous System in Birds:

**The venous system of birds is peculiar and shows the following characteristics:**

(i) Each lung gives out two pulmonary veins opening into the left auricle,

(ii) Two Percival's and one postcaval open directly into the right auricle.There is no trace of sinus venosus.

(iii) Considerable reduction of renal portal vein.

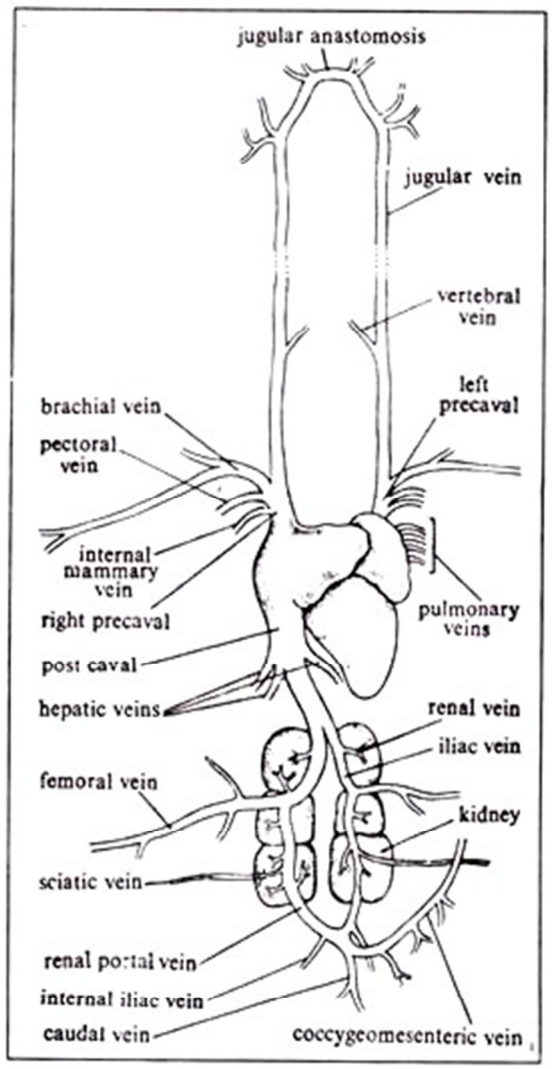


Fig. 9.25 : Venous system of *Columba*. Note that the figure is diagrammatic.

**The veins in pigeon may be divided into three categories:**

i. Pulmonary,

ii. Systemic and

iii. Portal veins

**i. Pulmonary veins:**

The pulmonary veins constitute a very short circulatory circuit and carry oxygenated or pure blood from the lungs. These veins enter the left auricle.

**ii. Systemic veins:**

Three principal systemic veins—two precavals and one postcaval — drain deoxygenated blood from the capillaries of the body and open separately into the right auricle.

**Veins anterior to the heart:**

The paired precavals with all the veins opening into them are included under this category. Each precaval receives (i) Jugular vein, (ii) Brachial vein, (iii) Pectoral vein and (iv) Internal mammary vein.

**Jugular vein:**

This vein receives several small veins from the crop and the shoulder, the vertebral vein and other veins from the head and neck. The vertebral vein brings blood from the vertebral column and spinal cord to the jugular vein. The veins from the crop and shoulder are small and numerous.

Their number and disposition are variable—so they are not given specific names. The left and right jugular veins are connected anteriorly by a small transverse connecting vein, called jugular anastomosis. The anastomosis gets veins from the venous sinuses of the brain. This cross-connection in the jugular veins is a special adaptation for the flexibility of neck.

The connection below the head prevents stoppage of blood circulation if one jugular vein is compressed during universal movement of the neck or head.

The jugular vein receives facial vein (carrying blood from the skin and muscles of the head), tracheal vein (brings blood from the trachea), cervical cutaneous vein (originates from a plexus in the skin of neck) and oesophageal vein (gets blood from the oesophagus). These are very small veins,

The precaval vein is formed by the union of the following three veins: Brachial vein. The brachial vein receives blood from the corresponding wing. Some small branches from the shoulder also open into it. Pectoral vein. This vein is formed by the union of profusely branched veins from the pectoral region. Internal mammary vein. This vein brings blood from the sternum, coracoid region and the ribs.

**Veins posterior to the heart:**
The veins which are posterior to the heart include the following: Postcaval vein. This vein is formed by the fusion of two iliac veins. Each iliac vein is the continuation of the femoral vein bringing blood from the leg region. The femoral vein passes through the kidney tissue.

The postcaval receives few hepatic veins from the liver and a small vein from the ligament of the gizzard. Genital veins (spermatic vein in case of male and ovarian vein in female) are short veins which emptily in the iliac veins. Renal veins.

These veins bring blood from the kidneys and open into the iliacs as well as into the renal portal vein. Sciatic vein. This vein from the thigh opens into the renal portal vein. Internal iliac veins. These paired veins bring blood from the dorsal pelvic region.

**Caudal vein:**
This small vein comes from the uropodium. Coccygeomesenteric or inferior mesenteric vein. This vessel runs anteriorly in the mesentery to participate in the hepatic portal system. It also gets branches from the rectum. The blood from this vein also flows to the renal portal vein (Fig. 9.26).

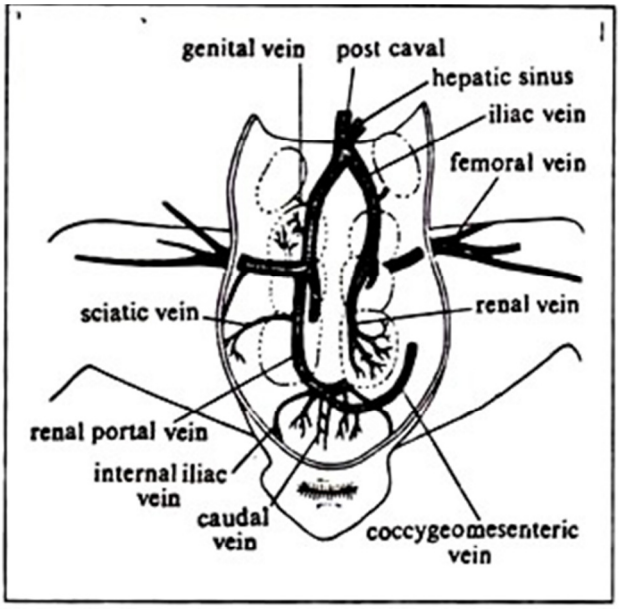


Fig. 9.26 : Showing the abdominal veins of *Columba* except the hepatic portal veins.

**iii. Portal veins:**

The hepatic and renal portal veins are also considered under the posterior veins. The renal portal vein originates at the junction of the coccygeomesenteric, internal iliac and caudal veins. Each renal portal vein passes through the kidney tissue of that side and opens into the femoral vein and also receives sciatic vein.

The renal portal vein is peculiar, because it never breaks up into capillaries in the kidney, but sends off a few small branches. Small renal veins open to this vessel. The hepatic portal vein forms an elaborate system. This system drains blood into the liver from the abdominal viscera (Fig. 9.27).

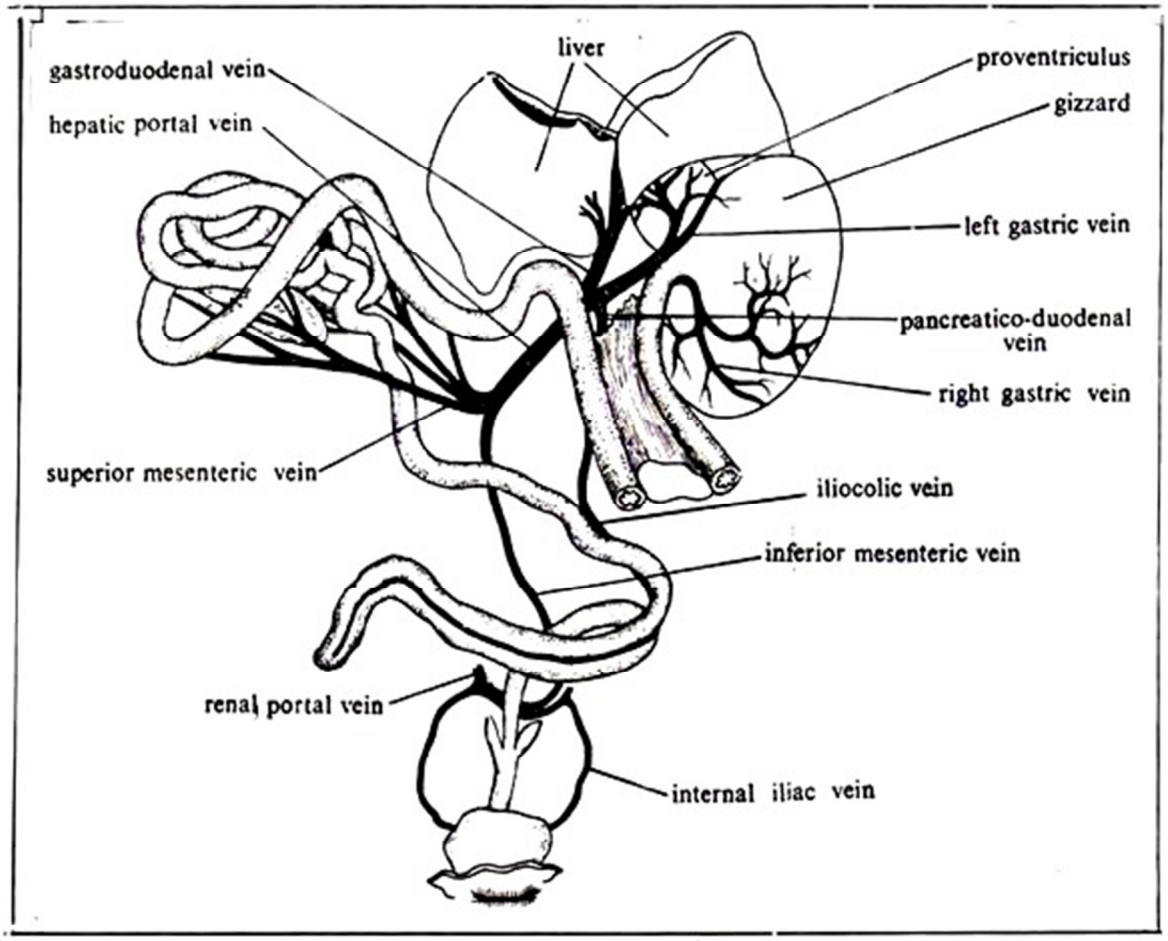


Fig. 9.27 : Hepatic portal veins of *Columba*.