



**Lecture title:** Cardiovascular system

**Lecturer Affiliation:** department of pathology and poultry diseases

**Summary:** The function of cardiovascular system is to assist in the maintaining life & health by supplying the lung & tissues of the body with blood adequate for respiration & nutrition.

### **Congenital Cardiovascular Anomalosis:**

Congenital disorders of the heart & great vessels are among the most frequently encountered & most important anomalies, in animals. They are includes:-

- 1 - Patent ductus arteriosus.
- 2- Aterial septal defect.
- 3- Persistent right aotric arch.
- 4- Pulmonic stenosis.
- 5- Transposition of aorta & pulmonary artery.
- 6- Ventricular septal defect.
- 7- Persist foramen ovale.
- 8- Ectopia cordis.
- 9- Mutliple hearts.
- 10- Valvular hematomas.

All these defects results in the disturbances of the blood flow through the heart.

### **- Pericardial Diseases:-**

a- **Hydro pericardium:** is accumulation of clear to light yellow, watery, serous fluid(e.g. transudate) in the pericardial sac. Hydro pericardium occur in those



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diseases that have generalized oedema such as congestive heart failure pulmonary hypertension, renal failure, hypoproteinemia & anemia.

**b- Hemopericardium:** means accumulation of whole blood in the pericardial sac. Death occurs suddenly from cardiac tamponade. Bleeding in the pericardial sac can result from spontaneous arterial rupture in dogs, rupture of the interpericardial aorta in horses or complication of intercardiac injection.

### **Inflammation:-**

**Pericarditis:** Inflammation of pericardium. Pericardium is a serous membrane. It covers the heart externally & at the same time protects the heart. Inflammation of the pericardium is due to:-

1 - trauma ( foreign body ) penetrating from the reticulum.

2- Infection. The origin of infection is either hematogenous or by extension from epicardium, pleura, bronchial or mediastinal lymph nodes or stomach.

### **Types of the pericarditis**

**1- Fibrinous pericarditis:** It is an acute inflammatory reaction of pericardium which is characterized by extensive deposition of fibrin on the pericardial & epicardial surfaces, which become adherent to one another ( adhesive pericarditis ). It occurs as a result of hematogenous infection for e.g: Black leg, pasteurellosis, sporadic bovine encephalomyelitis & salmonellosis.

**Grossly:** Both visceral & parietal pericardial surfaces are covered by variable amounts of yellow fibrin deposits which can result in adherence between the parietal & visceral layers. When the pericardial sac is opened upon necropsy these attachments are torn away ( so called bread & butter heart).

**Microscopically:** an eosinophilic layer of fibrin with admixed neutrophils lies over a congested pericardium.

**2- Purulent pericarditis (suppurative):** Almost always results from pyogenic bacteria which are localized in the pericardium. Infection with certain fungi may also



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cause purulent pericarditis. It is associated with purulent pleuritis. Frequent causes include streptococcus, Klebsiella, Pasteurella, Staphylococcus, Mycoplasma & Nocardia spp. Purulent pericarditis rarely resolves. Healing occurs by organization resulting in adhesive & constrictive fibrosing pericarditis.

**3- Traumatic pericarditis (hard ware diseases):** It is a disease of cattle resulting from penetration of the reticular wall and diaphragm by metal object. Sharp metal object (nails & wire) penetrate the wall of reticulum & slowly removed encompassed in reactive granulation tissues usually eliciting only localized peritonitis. The direction that Foreign object travel is usually anteroventral