

# Arterial Diseases

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# 1- Arteritis:

- Inflammation of arteries and arterioles.
- This is a common condition in most animals.

# Etiology

## A- Bacterial arteritis :

- \* Septicemic salmonellosis
- \* *Haemophilus sumnus*
- \* *Haemophilus pleuropneumonia*
- \* Pasturellosis

## **B- Viral arteritis :**

- \* MCF
- \* Equine viral arteritis
- \* African swine fever
- \* Blue tongue
- \* African horses sickness

## C- parasitic arteritis

\* *Strongylus vulgaris*

# Clinical sings

- 1- Increased vascular permeability
- 2- Fever
- 3- Subcutaneous haemorrhage
- 4- Cutaneous haemorrhage
- 5- Coagulation disorders
  - Thrombocytopenia
  - DIC
- \*6- Thrombosis and ischemia

# Treatment

- Treatment of primary cause.

## 2- Arterial thrombosis and embolism

- **Thrombosis** : Presence of clot in blood vessels that may be obstruct blood flow.
- **Embolism**: Sudden occlusion of an artery that occur with a thrombus



# Etiology

- Arteritis
- Physical ( trauma) or chemical ( chemotherapy) injury to the vessel.
- Bacterial endocarditis
- Degenerative arterial disease.
- Coagulopathies.
- Arterial calcification.
- Vasoconstrictive agent
- Myoangiopathy

# Pathogenesis

- Inflammation lead to thickening of arterial wall result in formation of **thrombi** which lead to partially or complete **occlude the artery**.
- The common site in the anterior **mesenteric artery**.
- Obstruction of vessel result in **recurrent colic** or **fatal ischemic necrosis** of segment of intestine.
- Less common site include the origin of the iliac artery at the abdominal aorta causing iliac thrombosis.

## Clinical Finding

- The clinical findings in the mesenteric verminous arteritis in horses include renal and myocardial infarction, gangrene associated with *C. purpurea* or endophyte infestation of grasses and other disease that cause thrombosis or embolism.
- The clinical signs vary according to the stage of progression of the disease and associated with ischemia of hind limbs.

- In early cases there is lameness only in exercise,
- the animal returning to normal after a short rest.
- If the horse is forced to work when lameness develops the signs may increase to resemble those of acute form.

- The lameness takes the form of weakness usually of one hind limb which tends to give way especially when the animal turns on it .
- In more severe cases lameness or refusal to work may be evident after minimal exercise.

- The disease is chronic and progressive but occasionally the onset may be acute.
- In the acute form, there is a great pain, increase of pulse & respiratory rate, profuse sweating may be evident but the affected limb is usually dry and may be cooler than the rest of the body.
- The pain is often sufficiently severe to cause the animal to go down and refused to get up.

# Differential diagnosis

- Paralytic myoglobinuria
- Hyperkalemic periodic paralysis
- Vertebral osteomyelitis
- White muscle disease
- Bone fractures
- Clostridial myositis
- Pulmonary embolism
- Pneumonia

# Treatment

- Parenteral anticoagulants or enzymes is carried out only rarely.
- Sodium gluconate or fibrinolytic enzyme i/v.
- Phenylbutazon to reduce the pain.
- Gonadotropin releasing hormones.
- Ivermectin in combination with phenylbutazon.
- Surgical treatment.



## 3- Venous thrombosis

- The development of thrombi in veins may result in local obstruction of venous drainage.

# Etiology

1- Phlebitis

2- Thrombophlebitis of the Jugular vein is a complication of injection or catheterization.

3- Phlebitis develop and can be detected clinically 24 - 72 hours after catheter insertion.

4- Intravenous injection of irritating materials such as tetracycline or phenylebutazon.

## Clinical sings

- Engorgement of the vein.
- Pain on palpation and local edema.
- Internal or external haemorrhage.
- Enlargement of L.N.

# Treatment

- Antibacterial drugs.
- Hot fomentation to external veins.
- Topical anti inflammatory drugs such as 50% dimethylsulfoxide to remove obstruction or allay the swelling.
- Heparin & Warferen treatment in horse is not recommended.

## 4- Haemangioma & Haemengiosarcoma

- Haemangioma in the skin occur most commonly in young animals and may be congenital.
- The tumors grow with age, those on the skin may ulcerate and bleed.
- Similar tumors may occur in the mouth as pendunculated pink granular mass that ulcerate and bleed.

- Local haemangiomas on the skin and in the mouth may respond to surgical excision.
- Widespread disseminated Haemangioma is also recorded in young cattle presenting with multiple skin lesions and multi organ involvement.

## 5- Haemangiosarcoma

- Haemangiosarcoma occur in horses but is not common tumor it is most prevalent in middle – aged and older animals.
- Affected horse is may be present with bleeding subcutaneous mass or with signs of disseminated haemangiosarcoma.

- Disseminated Haemangiosarcoma in horse cause anaemia due to haemorrhage into tumor or into body cavities.
- There is weight loss but good appetite and weakness. Metastasis is extensive to lung, myocardium , brain and skeletal muscle, lesions in skeletal muscle cause difficulties in movement and tumors in the nervous system present with signs of ataxia.
- A common clinical manifestation is pleural effusion and haemorrhage.



# Differential diagnosis

- **Mediastinal abscess.**
- **Lymphosarcoma .**
- **Squamous cell carcinoma .**
- **Pleurisy .**

## 6- Arteriosclerosis

- A chronic arterial metamorphosis characterized by loss of elasticity , luminal narrowing and proliferative and degenerative lesion of the intima and media.
- **Atherosclerosis** : Arteriosclerotic state that include fatty degenerative changes in the arterial wall.

- Coronary arteriosclerosis prominent in older dogs with endocardiosis has been related to small and microscopic areas of myocardial fibrosis due to ischemic necrosis and infarction of myocytes secondary to reduced perfusion.

- Similar lesions have been observed in dogs with **congenital sub aortic stenosis**, in dogs with **diabetes mellitus** and in cats with **cardiomyopathy**.
- Naturally occurring atherosclerosis occur in severe canine **hypothyroidism** when serum **cholesterol concentration high** ( > 750 mg/dl ) .

# Treatment

- Treatment of underlining diseases.
- Treatment of complications.
- In case of myocardial infraction, oxygen and nitroglycerin oint.
- Beta blockers ( propanolol 0.4-1.0 mg/k.g each 8 hours )
- Calcium channel blocker ( diltiazem 0.5-2.0 mg/kg each 8 hours P.O) act as coronary vasodilator and prevent coronary vascular spasm.