

## **DOWNER COW SYNDROME**

- Downer - unable to rise after 24 hrs and after 2 Calcium treatments.
- Usually occurs as a complication following hypocalcaemic parturient paresis.

### **Characterised clinically by,**

1. Prolonged recumbency even after 2 successive Ca therapy
2. Down at least for 24 hrs without any apparent reason
3. Traumatic injury to limb muscles and nerves
4. Ischemic necrosis of limb muscles
5. Myocarditis
6. Fatty infiltration and degeneration of liver
7. Alert & can support on fore quarters but unable to use hind quarters after therapy for Milk fever.
8. May occur due to hypokalemia.

## **ETIOLOGY OF DOWNER COW SYNDROME**

1. As a complication of hypocalcemic parturient paresis
2. Traumatic injuries of muscles especially medial thigh muscle. Rupture of gastrocnemius tissues around hip joint muscle, Obturator muscles & tendon spread eagling of hind legs, dystocia.
3. Traumatic injuries to nerves of the limbs viz., sciatic, obturator, radial and peroneus.
4. Prolonged recumbency after an over long delay (> 4 hrs) in the treatment of milk fever may result in ischemic necrosis.
5. Serum electrolyte imbalance or deficit
6. Persistent hypophosphatemia.
7. Insufficient amount of Ca (ischemic necrosis) as treatment for milk fever
8. Hypokalemia with hypophosphatemia is a typical manifestation in creeper cow (alert, bright, crawl about but couldn't raise).
9. Toxemia in per acute or acute mastitis, acute diffuse peritonitis, uterine rupture, aspiration pneumonia, traumatic reticulitis / pericarditis.
10. Managemental causes: malnutrition, over fat, slippery floors, epidural anaesthesia.

## **EPIDEMIOLOGY OF DOWNER COW SYNDROME**

1. Occurs as a sequela of milk fever 2 or 3 days after calving in heavy milk producers
2. Concurrently with milk fever in many cases

3. Common during peak lactation years of high producers
4. It is a complication arising due to delayed or incomplete treatment of various diseases after
5. parturition
6. Poor housing conditions, excess body fat, septic conditions and malnutrition may act as
7. predisposing factors.

### **CLINICAL SIGNS OF DOWNER COW SYNDROME**

1. Bright and alert
2. Eats and drinks moderately well
3. Normal temperature
4. Heart rate is usually normal or elevated to 80-100/minute, tachycardia and arrhythmia immediately following i/v Calcium administration.
5. Respiration not affected
6. Normal defecation and urination
7. Proteinuria indicate extensive muscle damage
8. Some animals make no effort to rise
9. Many make frequent effort to rise but unable to get up ( creeper) - frog like attitude on non slippery surface (bare ground or damp bedding)
10. Some cases are able to stand with assistance (lifting on tail head or hip slings)
11. In some cases, hind legs are extended on each side and reach up to elbow joint (due to dislocation of hip joint or traumatic injuries surrounding hip with or without rupture of ligaments)

### **CLINICO-PATHOLOGICAL CHANGES IN DOWNER COW SYNDROME**

1. Serum Ca, P, Mg, Glucose - normal
2. Hematological examination - normal as in recently calved. Neutropenia with left shift
3. Serum CPK increased
4. SGOT increased
5. Moderate ketonuria
6. Proteinuria and brown colour turbid urine in severe cases due to myoglobinuria
7. Low arterial B.P.
8. Abnormal E.C.G.

### **NECROPSY FINDINGS IN DOWNER COW SYNDROME**

1. Haemorrhage and edema of skin and damage to nerves of limbs

2. Haemorrhage and degeneration of thigh muscles, haemorrhage around hip joint, ischemic
3. necrosis of musculature
4. Eosinophilic infiltration of ruptured necrotic muscles
5. Heart dilated and flabby. Histopathology shows focal myocarditis
6. Fatty degeneration of liver
7. Adrenal glands enlarged
8. Histopathology of kidney reveals degenerative changes of glomerular and tubular epithelium

### **Diagnosis**

- A thorough clinical and laboratory examination is required
- Arrived at after eliminating all known causes of recumbency in a cow which had milk fever and failed to rise with in 24 hrs following 2 successive course of treatment.

### **Differential diagnosis**

#### **Medical cases**

- Diseases of bones – osteoporosis, Osteomalacia
- Carpal extensor myositis - fore limb stretched internally
- Diseases of joints - acute arthritis especially hip joint
- Foot diseases – laminitis, fissured feet
- Diseases of brain and CNS - sporadic bovine encephalitis.
- Peripheral nerve paralysis - Obturator, femoral
- **Metabolic** - milk fever, hypomagnesaemia, transit fever, ketosis, fatty liver, P deficiency and paralytic myoglobinuria.
- Nutritional –rickets, mineral deficiency & vitamin A deficiency
- Poisonings – ergot poisoning
- Toxemic conditions
- Infectious diseases - black quarter, tetanus, botulism, rabies
- Parasitic diseases - tick paralysis, babesiosis
- Others- weakness, ephemeral fever, acidosis, foreign body, pneumonia, Pyelonephritis and heat stroke

#### **Surgical cases**

- Trauma, dislocation, ruptures of ligaments and muscles

#### **O & G cases**

- Calving injury, metritis, damage to spinal cord, rupture of uterus

### **TREATMENT FOR DOWNER COW SYNDROME**

- Treatment is not specific but symptomatic
- Inj. Magnesium salts,  $\text{Po}_4$ , corticosteroids.
- Stimulant tonics - triphenylamine Hcl
- Vitamin E and Se - vetienzyme 0.5 mg/ kg slow i/v
- Solutions containing K, P, Ca, Mg
- Fluid therapy- oral and parental
- Comfortable bedding
- Turn the cow from side to side
- Physiotherapy to avoid muscle damage
- Non slippery ground surface
- Antibiotic for septic conditions
- Anti inflammatory
- Lifting devices- Danish aqua lift and power cow cradle

### **Control**

- Measures to prevent milk fever
- Early detection and treatment of milk fever
- Good bedding like straw bedding and soft ground surface
- Well bedded box stall for calving and then upto 48 hrs
- Rolled from one side to other on hourly basis if possible
- Avoid lateral recumbency by placing bales of straw, to prevent hydro static congestion and Ruminant tympany
- Avoid exposure to hot sun to prevent heat stroke
- Be sympathetic to the animal; provide non - slippery surface, keep out door and tie a rope between 2 pasterns to avoid the hind feet slipping apart