

# **SPECIFIC DISEASES OF SHEEP AND GOATS**

## **Caused by Protozoa**

### **Babesiosis (Piroplasmosis, Texas fever, Red water, Tick fever)**

Babesiosis is a protozoan parasitic febrile disease of cattle, horses, sheep and swine caused by *Babesia* spp..

In sheep and goats, babesiosis is caused by *Babesia motasi* and *Babesia ovis*. Acute signs of the disease are characterized with fever, anaemia, parasitemia and haemoglobinuria. *B. ovis* usually causes a milder form of the disease than does *B. motasi*. The parasite grows and multiplies in the blood corpuscles (erythrocytes) of sheep and goats and causes haemoglobin (constituent of erythrocytes) elimination in urine (haemoglobinuria).

**Transmission** : Different species of ticks in the family Ixodidae serve as vectors of infection. *Babesia ovis* infection transmitted experimentally in sheep has caused acute signs of disease, parasitemia and lasting immunity similar with babesiosis in cattle.

#### **Antemortem findings :**

1. Incubation 7 – 10 days
2. High fever (41.5°C)
3. Difficult breathing
4. Anaemia
5. Loss of appetite
6. Dark reddish brown urine
7. Recovered animals may be emaciated, have reduced milk production, and some may also abort.

There are no characteristic signs in the chronic disease.

#### **Postmortem findings :**

1. Enlarged, yellow liver and distended gall bladder containing thick dark bile. The bladder mucosa is edematous and yellow.
2. Subcutaneous tissue and connective tissue in the muscles are edematous and jaundiced.
3. Thin watery blood and red urine in the bladder
4. Enlarged spleen
5. Edematous and haemorrhagic lymph nodes

**Judgement** : Carcass of an animal in the subclinical form of the disease or in the chronic stage may have a *favourable judgement* providing the carcass is adequately set and icterus is not present. An animal carcass showing acute form of the disease accompanied with fever, marked anaemia and haemoglobinuria and/or emaciation is *condemned*.

**Differential diagnosis** : Trypanosomiasis, theileriosis, haemobartenellosis, leptospirosis, bacillary haemoglobinuria and anaplasmosis

## Toxoplasmosis

Toxoplasmosis is a contagious disease of animals and man caused by protozoon *Toxoplasma gondii*. It is found most frequently in pigs and sheep. Toxoplasma in sheep is manifested with abortion and stillbirths in ewes.

**Life cycle** : see Fig. 147

### Antemortem findings:

1. Abortion and stillbirths in ewes
2. Fever
3. Generalized tremor
4. Difficult breathing

The systemic disease is seldom found in sheep.

### Postmortem findings:

1. Multiple granulomatous lesion in the lungs
2. Hydrothorax
3. Ascites
4. Intestinal ulceration
5. Necrosis in the liver, spleen and kidneys
6. Necrosis of placenta
7. Brain haemorrhage, edema and ventricular dilatation (Fig. 176)
8. Inflammation of the brain (Fig. 177)

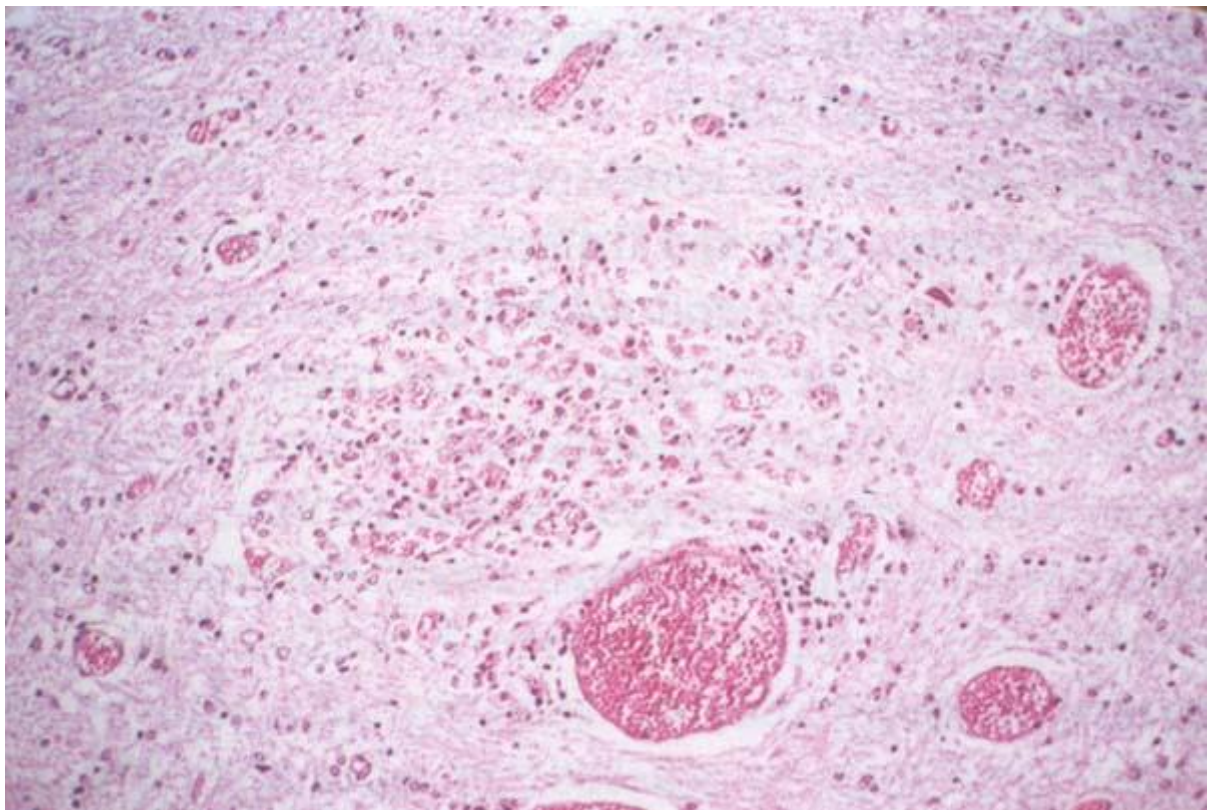
**Judgement:** Carcass of an animal showing clinical signs of acute disease is *condemned*. Recovered and reactor animals are *approved*.

### Differential diagnosis:

Abortion in ewes: brucellosis, campylobacteriosis, listeriosis, salmonellosis and Rift Valley fever Brain lesions: salt poisoning, chlorinated hydrocarbons, lead, mercury, Vitamin A deficiency, hypoglycaemia, encephalomalacia, meningitis, rabies and scrapie



**Fig. 176:** Toxoplasmosis. Brain haemorrhage, edema and ventricular dilatation. The specimen was fixed in 10% formalin solution.



**Fig. 177:** Toxoplasmosis. Inflammation of the brain (encephalitis). Tachyzoites are distributed throughout the brain where they encyst and produce bradyzoites.

### **Theileriosis (Malignant ovine or caprine)**

Theileriosis is a tick-borne disease of sheep and goats, cattle, buffalo and wild ruminants caused by species of protozoa in the genus *Theileria*. In sheep and goats, the infections are caused by *T. hirci* and *T. ovis*. *Theileria hirci* is the cause of an acute and highly fatal disease of sheep and goats in Eastern Europe, the Middle East, Asia and North Africa. The subacute and chronic forms have also been reported. Mild infection is noted in young lambs and kids. *Theileria ovis* causes a milk disease in sheep and goats; a disease from which they rapidly recover.

**Transmission :** The tick vector is unknown in *Theileria hirci* infection, although *Hyalomma* spp. are suspected.

### **Antemortem findings :**

In acute form

1. Morbidity rate of 100 % and mortality of 46 – 100 %
2. Fever (40°C - 41°C)
3. Loss of appetite and listlessness
4. Increased heart rate and di