**Theileriosis**

Tick-borne haemo-parasites of the genus *Theileria* which develops in erythrocytes in peripheral blood and in lymphoid cells within the reticuloendothelial system; infect the wild and domestic animals throughoutthe world.

**Etiology:**

Cattle : (Bovine theileriosis)

*Theileria parva,* causes East coast fever

*Theileria annulata* causes tropical theileriosis

While *,T. sergenil, T.* *buffili* and *T. orientalis* caused mild or asymptomatic disease benign theileriosis

**Sheep and goat (Ovine theileriosis)**

*Theileria hirci (Lestoquardi) T. china 1 and china2* causes a malignant ovine theileriosis

*Theileria ovis, T. recondite and T. separata* causes benign theileriosis

**Epidemiology and transmission**

* Effected small and adult age group of animals
* Tick infestation
* seasonal variation (spring and summer)
* Effect of climate ( temperature and humidity )

genus of ticks play very important role in distribution and the transmission of the disease .The main genus of ticks are *Rhipicephalus* specially *Rhipicephalus appendiculalis* which responsible for transmission of the E.C.F. and genus *Haylomma anatolicum anatolicum*, is responsible for transmission of tropical theileriosis and malignant ovine theileriosis . One tick can transmit sufficient sporozoites to cause a fatal infection in a susceptible animal.

**Pathogenesis**

The course of *Theileria* spp. infection may be divided into three stages: preparation, lymphoid proliferation and lymphoid depletion. The preparation stage covers period between inoculation of sporozoites by the tick and the appearance of schizonts in the drainage lymph node.

The appearance of schizonts marks the onset of fever and at this time active lymphoid proliferation is detect. Infected and non infected lymphoblast’s are release in the efferent lymph and a few days later they reach the peripheral circulation and establish themselves in lymph nodes, lymphoid tissue, as well as, in many organs including liver, kidney and lungs, lymphocyte distraction fallows, the infected tissue shows the evidence of necrosis and depletion of lymphocytes, lymphocyte proliferation and distraction are responsible for lesions associated with bovine Theileriosis.

**Pathogenesis** Tick inoculation of sporozoites lymphocytes in local lymph node schizogony lymphoid proliferation

Parasitemia more lymphoid proliferation

merozoites erythrocytes piroplasms ticks.

Damage mainly by schizonts.

**Clinical Sings**

Severity of disease and appearance of clinical signs depending on virulence of strains ,degree of hosts susceptibility, speed which used proliferation *Theileria* inside lymphatic tissue and breed of animal . The incubation period is 1-3 weeks.

The disease appears in acute ,sub acute ,and chronic form ,the main symptoms which recognized the disease in acute form The first clinical sings are enlargement of lymph node in area of draining the site of tick attachment but this properly is not noted in the field situation, One to two day later started the fever, about (40-42°C) , depression , anemia , dropping milk in the dairy animal , later observed nasal discharge and ocular lacremation , dyspania generalized lymph node enlargement specially the prescapualer lymph node, the ill animal becomes anemic and icteric.

In cattle sometimes neurological signs are noticed just before death, this case is called turning sickness or cerebral theileriosis Occasional these cases occur due to brain involvement and are characterized by circling, hence, convulsions, tremor, profuse salivation, and head pressing, because of ischemia in C.N.S.

In several cases the animal emaciation, weakness, recompensy and the paralysis in for limbs, animal suffer from diarrhea and sometimes with dysentery; but usually only late in the course of the disease. At the same time hemoglbinuria moreover, notes a general edema and accumulation to subcutaneous fluids especially in submandabulor region formation battle jaw. Benign Theileriosis is characterized by moderate to severe anemia in heavily parasitized cattle and moderate enlargement of lymph nodes.

**DIAGNOSIS**

1-case history

2-clinical signs

3-Hematology:

* Based on the detection of the parasite in Giemsa-stained blood smears.
* Lymph smear detection of Macro and micro-shizont inside lymphocyte

4-Serology: Techniques such as

-indirect fluorescent antibody test (IFAT)

* Polymerase chain reaction ( PCR)
* Enzyme-linked Immunosorbent Assay (ELISA)

**DIFFERENTIAL DIAGNOSIS**

* Babesosis
* Anaplasmosis

**TREATMENT:**

Sick animal may be treated with a number of theileriocidals including

* Halofuginone lactate is an effective oral treatment for the acute syndrome at two doses, 1.2 mg/kg BW.
* Parvaquone(10 mg/kg BW, two doses 48 h apart) given 1M
* buparvaquone (2.5 mg/kg BW, two doses 48 h apart) given 1M is effective in most cases.
* Long-acting oxytetracycline (20 mg/kg BW 1M)

**CONTROL**

The main method of control of Theileriosis is to break the transmission cycle between cattle and ticks.

1-Vector control by application of acaricides,

2- Preventing transmission of disease;

3-Treatment of clinical disease using specific chemotherapeutics;

4-Immunization with live vaccines, of these the most important and effective control method is considered to be the use of a live cell culture vaccine attenuated by prolonged culture *vitro* of mononuclear cells persistently infected with macroshizonts of *Theileria.*