

# CONTROL OF INFECTIOUS AND PARASITIC DISEASES IN CAMEL IN EGYPT

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The Name of God

Our God say : *do not looked to camel how they are created*

## 1. INTRODUCTION

Camels have exhibited a vital place in tropical and sub tropical countries. Camels are used as a source of meat, milk production, wool and transportation. The world population of camel is around 19.2 millions with approximately 80% of them in Africa and 20% in Asia.

On other hand there are about (1.7) millions of bactrian camel in their natural habitate in Asia, in Egypt there are about 133,000 dromedary camel (FAO/OIE/WHO Year book 1995).

Camel meat represent 13-15% of the total amount of meat obtained from slaughter animals.

Although the importance of camels, information on camel diseases are still few and scanty in spit of some individual papers which have been published.

## 2. PARASITIC DISEASES OF CAMEL

Parasitic infestation in animals is still one of the important problems on animals health specially those camels who does not take the same attention as the other farm animals. Camels could be affected with exoparasites and endoparasites.

### 2.1. Exoparasitic diseases

The exoparasitic diseases include sarcoptic mange, tick infestations and nasal botfly (*Cephalopina titillator*) infestation.

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### 2.1.1. *Sarcoptic mange*

Sarcoptic mange is recognized as one of the most serious diseases of camel ; Camel mange is sudden onset and start on medial aspect of thigh, neck, flanks. Occurance associated with poor management or malnutrition. It is diagnosed by taking a skin scraping from camel with scaple blade until blood oozes because mite found deeply in tunnel. Control of mange mites in camels can be achieved by application of chemicals as Necocidol, Avermectin.

### 2.1.2. *Camel botfly (Cephalopina titillator) infestation*

Larvae (*Cephalopina titillator*) attached to the nasal pharyngeal mucosa or embed between turbinate bone (meningitis) associated with oedema and inflammation of pharynx this infected camel refused to eat and drink and dead due to meningitis.

## 2.2. Endoparasitic diseases

### 2.2.1. *Protozoal diseases*

The protozoal parasitic diseases of camel in Egypt are : trypanomosis, anaplasmosis, coccidiosis and theileriosis.

However, trypanosomosis is the major protozoal disease affecting 10% of camels and caused by *Trypanasoma evansi*. Trypanosomosis can be manifested in both acute and chronic forms. In acute form the disease is almost always fatal (Rutter, 1961).

The disease generally takes a chronic form which is characterised by anaemia, emaciation, recurrent fever disappearance of hump. The disease transmitted from camel to camel by haematophagous biting flies as tabanus.

The major problem in the control of trypanosomosis is still that drug resistance which may be caused by under dosing. The only method for control of trypanosomosis in camel is chemotherapy as naphthalene compound (naganol), but production of vaccine is still remote due to the problem of antigenic variation.

### 2.2.2. *Helminth infestations*

The helminthic fauna of camel is one of the richest in farm animals. In Egypt, the helminth infestations include :

- **Trematode infestations** : they are caused by *Fasciola hepatica* and *F. gigantica*

- **Cestodes infestations :** they are caused by :
  - \* Adult worms : *Stilesia hepatica*, *Avitellina woolandi*, *Moniezia expansa*
  - \* Larval cestodes : Hydatid cyst (*Echinococcus granulosus*), *Cysticercus cameli*
- **Nematode infestations**

A variety of nematodes infest different organs of camel. However the gastrointestinal tract is the most affected one.

  - \* Gastrointestinal nematodes : *Haemonchus*, *Nematodirus dromedary*, *Trichostrongylus*
  - \* Lung worms : *Dictyocolus viviparus*, *Dictyocalus filaria*
  - \* Filariasis in camels is enzootic and common in most tropical countries (Karram *etal* 1991). The most commonly causative agent is *Dipetalonema evansi*. Adult worm was usually found in spermatic blood vessels while the filaria embryos in peripheral circulation. Adult worm causing thickening of artery and orchitis. Filarial orchitis was most common testicular abnormality in the camel. In accordance a high incidence of filarial orchitis was found in slaughtered camels in Egypt. Filarial lesion were frequently seen in testes of aged camel (older age more affected than young age) during spring and winter.

The present study was carried out on genital organs “ testes, epididymis and spermatic cord ” these organs were subjected to pathological examination.

The gross appearance showed that the testes were thickening of both *Tunicae vaginalis*, albugenia, and thickening of spermatic cord, epididymis . Testes hard , arteries thickened and dilated with filaria. On cut section showed white strand of fibrous tissue .

Histopathological examinations were carried out on samples collected from the testes, epididymis and spermatic cord, fixed immediately in 10% neutral formalin solution and prepared for histopathological examination

Firstly, it is of interest to notice that the normal testes in camel are different from other animals in the seminiferous tubules in the camels were lined by 5-6 layers of germinal epithelium from january to march and by single layer from may to July.

The interstitial tissue increase in volume from may to july and the interstitial cells of leyding are more abundant and observed in groups. Granuloma represented by macrophages, fibroblast and pieces from parasites. The vas deference showed thickening in its wall with narrowing of its lumen in addition to haemorrhage inside its lumen. Spermatic blood vessels showed filaria inside the lumina of blood vessels and led to dilatation and supuration represented by polymorphonuclear cells around the parasite. The epididymis showed cystic dilatation of epididymal tubules.

### **2.2.3. Control of parasitic infestations**

From our opinion, the presence of some parasites of camels may be due to the direct contact between the different ruminants under field condition, such condition probably has played an important role in the epizootology of these parasites as well as in prophylactic and therapeutic measure applied to their control against a variety of ecto- and endo- parasites. In spite of periodical treatment of ruminants in Egypt against helminths parasites every 3-4 months, camel receive little attention. Good hygienic measures and balanced nutrition with vitamine supplement showed be applied to avoid infectious and parasitic disease in camels.

## **2.3. Infectious diseases of camel**

Annually Egypt imports a large numbers of camels from republic of Sudan which may be represent a critical sources of some viral disease such as.

### **2.3.1. Viral diseases**

Camel pox, rabies, Rift Valley fever, foot and mouth disease, parainfluenza and rinder pest are the most important viral deseases of camel in Egypt.

Camel pox is probably the most commonly diagnose viral diseases and can control by using camel pox vaccine although recent serological evidence suggest a high incidence of other viral infection such as mentioned before.

### **2.3.2. Bacterial diseases**

The commonly bacterial deseases in Egypt are : tuberculosis, brucellosis, salmonellosis, pasteurellosis, anthra and contagious skin necrosis.

In Egypt tuberculosis has long been known a disease of camel as early as 3% camels slaughter at Cairo abattoir were reported to be tuberculous, although imported arabian camels were said to be never infected. Investigations into the nature of tuberculosis in Egyptian camels were carried out and demonstrated the presence of typical tubercle bacilli in lesions.

## **2.4. Fungal diseases**

The only mycotic agent belived to be of importance in the camel is ring worm which is widely diagnosed in young camel 1-2 years. This diseases can be controlled by vaccination at 30 days of age.