

Studis on Coccidiosis of camel in Assiut Goveronate

A.M.Elbadr M.Essa M.Tolba Asmma Metwally G.Amin Taher

Faculty of medicine. Asuit university

Abstract

Camels were investigated for their with *Eimeria* species, 33.3% of the examined camels were positive. Three species were detected: *Eimeria cameli* (18.39%), *E. dromedarii* (16.1%) and *E. najasthani* (6.9) Infection with single spp. (5.74%) and last 3 spp. (1.14%) . Young camels are more susceptible to *Eimeria* infection (52%) than old aged ones (25.8%) The morphology of the unsporulated and sporulated oocysts as well as the sporulation of each species was recorded

Introduction

Gill, (1976) mentioned that out of a total of 321 camels from Punjab and Rajasthan examined for gastrointestinal protozoal infections 87 (27%) animal (24%). The species of *Eimeria* infection was recorded in 77 animal (24%) The species of *Eimeria* recorded were *E. cameli* (11.*%) *E. dromedarii* (9.3%), *E.noller* (5.9%) *E. pellerdyi* (9.3%) and *E. rajasthani* (4.0%).

Kawasmeh and El bihari, (1983) reported for the first time *Eimeria cameli* from Saudi Arabian camel.

Hussein et al, (1987) stated that three species of *Eimeria* oocysts were deted in the faecal samples of camels examined at the abattoirs of were detected in the faecal samples of camels examined the abattoirs of Saudi Arabia kingdom, *E. dromedarii*. *E. rajasthani* and *E. cameli* with an infection rate of 40% *E. dromedarii* was the most prevalent and *E.cameli* the least common Most infections were with a single *Eimeria* species but some camels had two or three species. Sakr (1988) in a study on the enteric protozoa of camels in Egypt found that the incidence of *Eimeria* spp in camels was 8.23% He also recorded two species of *Eimeria* namely *Eimeria bactrani* (6.09%) and *Eimeria rajasthani* (1.9%). El.Manyawe and Iskander (1994) detected *Eimeria* spp in 80 cases (19.7%) out of 800 faecal samples which were collected from camels of different aggs and sexes from Embaba market in Egypt Two species of *Eimeria* were identified *Eimeria dromedarii* 50 (9.2%) and *Eimeria noller* 30 (5.5%) .

Morsy (1997) found that forty percent of investigated camels (Camels dromedaries) in Egypt were infected with *Eimeria* spp ., four *Eimeria* spp were reported: *E. bactriani* 35.1%, *E.rajasthani* 36.7% *E.dromedarii* 2.9% and *E.cameli* 2.4 % Mixed infection, with two *Eimeria* species is the most common 32.2% then single spp 5.4% then three spp 1.5% and last fuor sp. 0.98% The morphology of the undporulated and sporulated oocysts of *Eimeria* spp was described. Monib and Arafa (2000) reported that out of 90 infected camels in Assiut Governirate with gastrointestinal pararitic stages in the faecal matter, coccidian oocysts were encountered in 15 animals (13.3%) as single infection and 16 camels as mixed infection was (27.4%) Two Species of *Eimeria* oocysts were recovered *E.cameli* oocysts and *E.dromedarii* oocysts which were recovered in 22 camels (71%) and 12 camels (38.7%) out of 31 infected camels respectively.

Materials and Methods

The oocysts were collected from the faecal samples by sedimentation and they were poured into clean Petri-dishes (5cm in diameter) containing 2.5% solution of potassium dichromate for the depth of 5mm.

They were incubated at 27 °C and were daily exposed to air for oxygenation oocysts.

Examined daily to follow up the process of sporulation.

The supernatant fluid was decanted and the remaining sediment was resuspended in distilled water and the centrifugation was repeated for several times until the supernatant fluid becomes clear. Then examined microscopically for studying the morphological characters of sporulated oocysts of different species of *Eimeria* according to (Levine 1985)

Out of 174 examined camels, *Eimeria* oocysts were encountered in the faecal samples of 10 camels (5.74%) as a single infection and total incidence rate of infection was 33.3%. The oocysts detected in the faecal samples of the examined camels belonged to three species *Eimeria cameli*, *E. dromedarii* and *E. rajasthani*. *Eimeria cameli* was the most prevalent and predominant species 32 camels (18.30%) followed by *Eimeria dromedarii* 28 (16.1%) and *E. rajasthani* 12 (6.9%) (Table 2).

Table (1): The No. of *Eimeria* species in individual faecal samples infected camels.

No of <i>Eimeria</i> species which infected camels	No of positive cases from 174 examined camels	Percentage %
Infection with single spp.	46	26.43
Infection with two spp.	10	5.74
Infection with three spp.	2	1.14
Total infection	58	33.3

Young aged camels of 1-3 years old are more susceptible to *Eimeria* infection (Total 50 infected 26 camels (52%) than those over 3 years (Total 124 infected 32 camels (25.8%).

Table (2): prevalence and size of *Eimeria* spp. (Coccidian oocysts) found in the faeces of 174 examined camels.

Sporulation time	Size of oocysts	%	No	<i>Eimeria</i> species
29-32 days At 27°C	Average 80.5-92.8.86x65-70 um mean (83.3x68.3 um)	18.39	32	<i>Eimeria cameli</i>
7-8 days At 27°C	Average 25-32x20-26um Mean (28.33 x24 um)	16.1	28	<i>E. dromedarii</i>
4:6 days At 27 °C	Average 26.8-38x22.8-32.2um mean (31.5 x 24-4um)	6.9	12	<i>E.rajasthani</i>

Morphological characters of *Eimeria* species detected in the faeces of examined camels :

The oocysts detected in the faecal samples of the examined camels belonged to three species : *Eimeria cameli*, *E. dromedarii* and *E. rajasthani*. *Eimeria cameli* was the most prevalent and predominant species 38 camels (21.8%) followed by *E. dromedarii* 30 camels (17.24%) and *E. rajasthani* 12 camels (6.9%) out of 174 examined camels respectively (plate 1).

Discussion

The present study revealed that the total incidence of *Eimeria* species in camels in Assiut Governorate was 33.3%. *Eimerian* oocysts were encountered in 10 camels (5.74%) as a mixed infection with helminth eggs, near similar results were observed by (Monib & Arafa 2000) in the same locality of Assiut Governorate (27.4%) who reported that single infection of *Eimerian* oocysts were detected in (13.3%) and mixed infection with helminth eggs in (14.2%) High rates of infection were reported by Hussien et al. (1987) in Saudi Arabia 40%, Morsy (1997) in Egypt 40% Low rates of infection were mentioned by Gill (1976) in India 24%, Kawasmeh and El-Bihari (1983) in Saudi Arabia 14%, Sakr (1988) in Egypt 8-23% and El-Manyawe & Iskandar (1994) in Egypt 19.7%

The present work revealed that 26.43% of camels were infected with single species of *Eimerian* oocysts, 5.74% with two species and 1.14% with three species in India Gill (1997) recorded *Eimeria* species infection at the rate of 13.4% 7.2%, 2.5% and 0.9% single, two spp, three and four spp. Respectively . in Egypt Morsy (1997) reported camels infected with four species at the rate of . 4%, 32.3%, 1.5% and 0.98% single, two spp., three and four spp., respectively In the same locality of Assiut Governorate Monib & Arafa (2000) mentioned that 13.3% of camels were encountered with single species and 14.2% with two species. The high prevalence rate of infection in the present work may be attributed to some factors which encourage parasitic infestation as increased humidity, bad hygienic conditions and over crowding. The species of *Eimeria* recorded in this study were *Eimeria cameli* (18.39%), *E. dromedarii* (16.1%) and *E. cameli* 11.8% *E. dromedarii* 9.3% and *E. rajasthani* 4.0% (Gill 1976). In Saudi Arabia Kawasmeh & El-Bihari (1983) 14% of examined camels. Hussein et al., (1987 in Saudi Arabia found oocysts of *Eimeria* spp. In a decreasing order of prevalence rate *E. dromedari*, *E. rajasthani* and *E. cameli* respectively . In Egypt Sakr (1988) found *E. dromedarii* (9.2%) were and *E. noller* (5.5%) (El-Manyawe and Iskander 1994).

Eimeria rajasthani, *E. bactriani*, *E. dromedarii* and *E. cameli* occurred in Egypt at the rate of 36.7%, 35.1%, 2.9% and 2.4% respectively (Morsy 1997) Two species of *Eimeria* were reported from camels in the same locality of Assiut Governorate *E. cameli* (19.46%) and *E. dromedarii* (10.6%) Monib & Arafa 2000).

The present work revealed that young camels (1-3 years) 52% are more susceptible to infection than older camels (over 3 years) 25.8% Hussein et al (1987) in Saudi Arabia mentioned that camel calves (98%) were more susceptible than older camels (18%) In Egypt Morsy (1997) reported that camels under one year (61.9%) were more susceptible to infection than older camels more than one year (17%) The higher prevalence rate of infection of the young aged camels in the present work may be attributed to that camels are oocyst shedding carrier without clinical signs, some factors as over crowding, stress factors, bad hygienic

Condition might encourage the spreading of infection In addition to the fact that infection in *Eimeria* takes place from host to another one without intermediate host thus infection easily spread .

In the present work the oocysts of *E. cameli*, *E. dromedarii* and *E. rajasthani* infecting camels in Assiut Governorate were described *Eimeria cameli* may be

the only species in the genus with agiant oocysts (80-5-92.86 x 65-70um) and thus can easily be differentiated from other camel oocysts not only in size but also by its colour and prominent micropyle as well. The synonymy of *E.noell* with *E.cameli* (Levine and Ivans 1970) has removed some of the confusion attending identification, leaving *E.cameli* as the only known species with a large oocyst. On the other hand in *E.rajasthanii* the oocysts have nearly ellipsoidal shape, are without a visible micropyle but have a well defined cap. *Eimeria dromedarii* have oval or subspherical oocysts which are truncate at one end and have a polar cap; their size being smaller than in *E.rajasthanii*. The sporocysts of *E.dromedarii* also differ from those of *E.rajasthanii* in the absence of a stipe body and sporocystic residuum. In the present study the detected oocysts of *Eimeria* species in camels showed slight variation in size and other morphological characteristics from the previous studies (Dubey & Pande 1963, Kawaseh and Bihari 1983, Levine 1985, Morsy 1997 and Monib & Arafa (2000).

In the present work the sporulation time of *E.cameli* (29-32 days at 27°C) was comparatively similar to that reported by Kawasmeh & El-Bihari (1983) 23-days at 27°C and Morsy (1997) (28-30 days at 27°C. However shorter period was reported by Tsygankov (1950) 10-15 days at 16-20°C. Sporulation time of *E.dromedarii* in the present study was 7-8 days at 27°C. The sporulation time of *E.rajasthanii* in the present work.

4-6 days at 27°C was similar to that reported by Rangarao & Sharma (1997) 4-6 days at 27°C and also agreed with that reported by Morsy (1997) 7-8 days at 27°C. The difference in sporulation time may be due to the difference in environmental conditions and other ecological factors prevailing in different countries.

Reference

- El-Manyawe, and Iskander, A.R. (1994): A study of the gastro intestinal parasites of camels in Assiut. Egypt. J. Egypt Vet. Med. Ass. 54.(1) 225-230 (1994)
- Gill H.S. (1976): Incidence of *Eimeria* and *Infundibulium* in camels. Indian Vet.J.53,897-898.
- Hussein H.S; Kasim, A.A. and Shawa, Y.R. (1987): The prevalence and pathology of *Eimeria* infections in camels in Saudi Arabia. Journal of Comp. path 1987 Vol 97 293-297.
- Kawasmeh, Z.A. and El-Bihari, S. (1983): *Eimeria cameli* (Henry and Masson 1932) Reichenow, 1952. Redescription and Prevalence in the eastern province of Saudi Arabia. Corri Vet. 1983 73: 58-66.
- Levine, N. D. (1977): Nomenclature of sarcocystis in the ox and sheep and of faecal coccidian of dog and cat. J. Parasitol 63:36-
- Levine, N.D. (1985): Veterinary protozoology Iowa state University press Ames.
- Levine, N.D. and V.Ivens (1970): The coccidian parasites (protozoa, Sporozoa) of ruminants, Biod. Monogr No. 44 Univer Ill Press Urbana.
- Monib , M.M. and Arafa, M.I. (2000): parasitological studies of some Gastrointestinal parasites of camels in Assiut Governorate With special reference to zoonotic nematode nematodes. Assiut Vet. Med. J. 43(87) 280-294
- Morsy, N.G. (1997): A study on *Eimeria* species infecting camels (*Camelus dromedaries*) in Egypt. Vet.Med.J.Giza 45 No.4 499-507.
- Rangarao, G.S.C and Sharma, R.L. (1997): Intestinal coccidiosis due to *Eimeria rajasthanii* in camels (*Camelus dromedaries*). Indian. Vet. Journal 74,427-428.
- Sakr, H.R.M. (1988): Studies on the enteric protozoa of camel in Egypt. Thesis, M.V.Sc. Fac. Of Vet. Med. Cairo Univ.
- Tsygankov, A.A. (1950): Data on a study of *Coccidia* of the camel (*Camelus Russiam*) Lzv. Ankažssr ser parazitol 8 174-180.