THE CLINICAL RESPONSE TO EXPERIMENTAL INFECTION OF EIMERIA ARLOINGI IN GOATS — PART II

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Introduction

Eimera arloingi is predominant coccidia species found in Sudanese goats, Annual Report (1977). Little is known about the minimum infective dose and the response of susceptible animal to infection. Since the mere finding of coccidial oocysts in the faecal content of the intestines does not necessarily designate a disease condition, other parameters should be considered. This paper records observations on clinical signs, pathological lesions and oocysts production in goats experimentally infected with *E. arloingi.*

Material and Methods

Oocysts were obtained from faeces of naturally infected goats. To the faecal material tap water was added, stirred and drawn through 100, 200 and 300 mesh screens to remove debris. The filterate was transfered into a one litre cylinder and allowed to sediment overnight. The supernatant fluid removed, the sediment was centrifuged and finally suspended in a shallow layer of 2 % potassium dichromate in Petri dishes, and incubated at 27 °C for 24—72 hours. Sporulation time was recorded. Messurement and identification were made according to Pout, (1974).

Six kids, one-month-old, were used in the experiment. They were all examined and found free from coccidial infection. Two of these were kept as non-i nfected controls. The average number of oocysts per ml of the oocysts-culture was determined by direct counting. The oocysts were administered to the kids using drenching bottle. Kids number 1 and 2 received 35,000 and 70,000 oocysts respectively at one dose level kid number 3 recieved a total dose of 140,000 oocysts administered over a period of four successive days at the rate of 7000, 28000, 35000 and 70000 oocysts. Kid number 4 received a total dose of 1,680,000 oocysts administered over a weak at daily dose of 240,000 oocysts.

Faecal samples were collected every day for microscopical examination for the presence of oocysts using the flotation method. Body temperature of the animals and clinical signs were recorded. Post mortem examination was performed on animals that died and observations were recorded.

Results

Oocysts appeared in the faecal samples 7 to 9 days after dosing. The significant egg count of over 3000/gm was recorded on day 16. Microscopical examination of 100 oocysts showed that they were pale, yellowish-brown in colour and elipsoidal with polar caps. They measured 22—33 microns in length and 16—25 microns in width. These measurements coincided with Levine (1962) as *Eimeria arloingi.*

The most characteristic clinical signs was diarrhoea which appeared 16 days after oocysts administration to kid number 1 and 2 which recieved 35000 and 70000 oocysts respectively at one dose level. Diarrhoea appeared in number 4 which received 1,680,000 oocysts after 15 days. The faeces were watery and contained a large number of oocysts. Towards the end of the course of the disease the diarrhoea became profuse, offensive in odour and was blood-tinged. From day five after the appearance of symptoms the animals lost appetite and weight and moved in Staggering gait. The mucous membrances of the gums and eyes were pale and dry. All infected animals died within a period of 18—21 days following oocysts administration. The most prominant lesions encountered at autopsy were whitish focal spots which involved the duodenum, jejunum and to some extend the ileum. These hyperplastic foci were small whitish in colour. They projected into lumen of the intestines and were also visible through the serosa. The caecum and the remaining parts of the large intestines showed catarrhal inflammation and paste-like mucus content. When this content was examined a large number of *E. arloingi* oocysts were observed.

Discussion

E. arloingi obtained from naturally infected goats produced acute intestinal inflamation similar to that caused by the same organism in sheep as described by Pout, (1974 a). From results obtained it seems that there is no correlation between the number of oocysts administered and the manifestation of clinical signs. Oocysts as low as 35,000 in number produced the same clinical signs and lesions in more or less the same period of time as the higher oocysts doses. Pout, (1974 b) found no obvious relationship between the infective dose, oocysts production, growth performance and food intake in experimentally infected lambs, but he thought that in the field the nutritional status of sheep might be a significant factor in determining a clinical diagnosis of coccidiosis. Levine, (1961) suggested that a differentiation must be made between the coccidial parasitism coccidiasis and parasitic disease *cocidiosis*. The mere finging of coccidial oocysts in faeces does not necessarily indicate a disease condition. The diarrhoea and emaciation with the Presence of coccidial oocysts in faeces are generally accepted as signs of coccidiosis in sheep. In goats the condition is more or less the same. Infection with *E. arloingi* though involved the entire length of small and large intestines, yet its characteristic lesions appeared to be restricted to small intestines particularly its anterior part.

Summary

Six kids one month old were infected with coccidial oocysts taken from naturally infected one, which identified as *E. arloingi*, these occysts were given to kids at different dose levels. Oocysts appeared in faecal samples 7—9 days. There is no correlation between the number of oocysts administration and mainfestation of clinical signs. These clinical signs were profuse blood-tinged diarrhoea, loss of appetite and weight. The mucous membranes became pale and animals moved in staggering gait. The prominant lesions were small whitish hyperplastic foci which involved duodenum, jejenum and may extend to ileum. The remaining part of the intestined show caterrhal inflammation.

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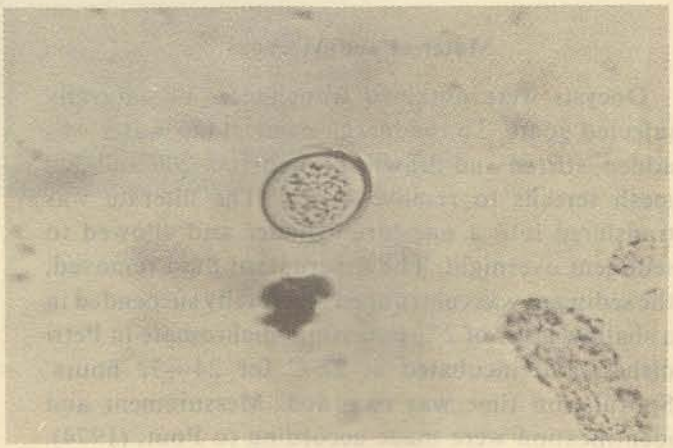

The attached photo show the Coccidial oocyst. ***E. arloingi*** *Figure (1).*