

**EOSINOPHILIA IN EXPERIMENTAL FASCIOLIASIS
IN GOATS INFECTED WITH SHEEP AND BUFFALO
ISOLATES OF FASCIOLA GIGANTICA**

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SUMMARY

Twenty one male goats 3-4 months of age were exposed to five metacercariae per kg. of body weight of two isolates of *Fasciola gigantica* obtained from sheep and buffalo. Eosinophilia was mostly marked after prepatency in goats infected with sheep isolate.

INTRODUCTION

Eosinophilia is known to occur in allergic disorders (Honsinger, Silverstein and Arsdel, 1972), parasitic infestation (Zaiman, Scardino, Berson and Stern, 1963; Archer, Robson and Thompson, 1977) and certain skin diseases.

In parasitic infestation, the highest eosinophil counts have been reported when the parasite invades the tissue of the host.

Hypoalbuminaemia accompanied by hyperglobulinaemia and eosinophilia seem to be common findings in schistosomal infection (Hussein and Tartour, 1973; preston, Dargie and Maclean, 1973) and in fascioliasis (Sinclair 1962; El-Harith, 1977; Al-Naamy, 1978).

The present investigation aimed at the elucidation of the role of infestation of goats with sheep and buffalo isolates of *Fasciola gigantica* on the changes of blood eosinophils.

MATERIALS AND METHODS

Twenty-one worm free male goats, 3-4 months of age, were obtained immediately after weaning and reared under parasite free conditions. The animal kept under observation for a period of 3 weeks prior to commencement of the experiment. Then were divided into 3 equal groups. First group was infected with 5 metacercariae per kg. body weight (mean 71 ± 2.9 metacercariae per animal) from sheep origin, from area in which buffaloes are not reared. The second group was infected with the same does of metacercariae (mean 76 ± 10.3 metacercariae per animal) obtained from buffaloes origin. The third group was maintained as a control group. The metacercariae were obtained by the modified technique described by Al-Kubaisee, (1986) which were used in the experiment after storage at 4 C° for 80 days. Eosinophils numbers were calculated by differential leucocyte counts.

RESULTS

Differential leucocyte counts have shown that, with the exception of eosinophils (fig. 1), changes in the leucocytic counts were little (fig. 2). A decrease in lymphocytes and slight increase in neutrophil counts were noticed.

Animals infected with sheep isolate developed a marked eosinophil response at 13th week post infection with the peak at the 17 week of the experiment. However, animals infected with buffalo isolate showed an increase in the eosinophil counts at 4th week post infection

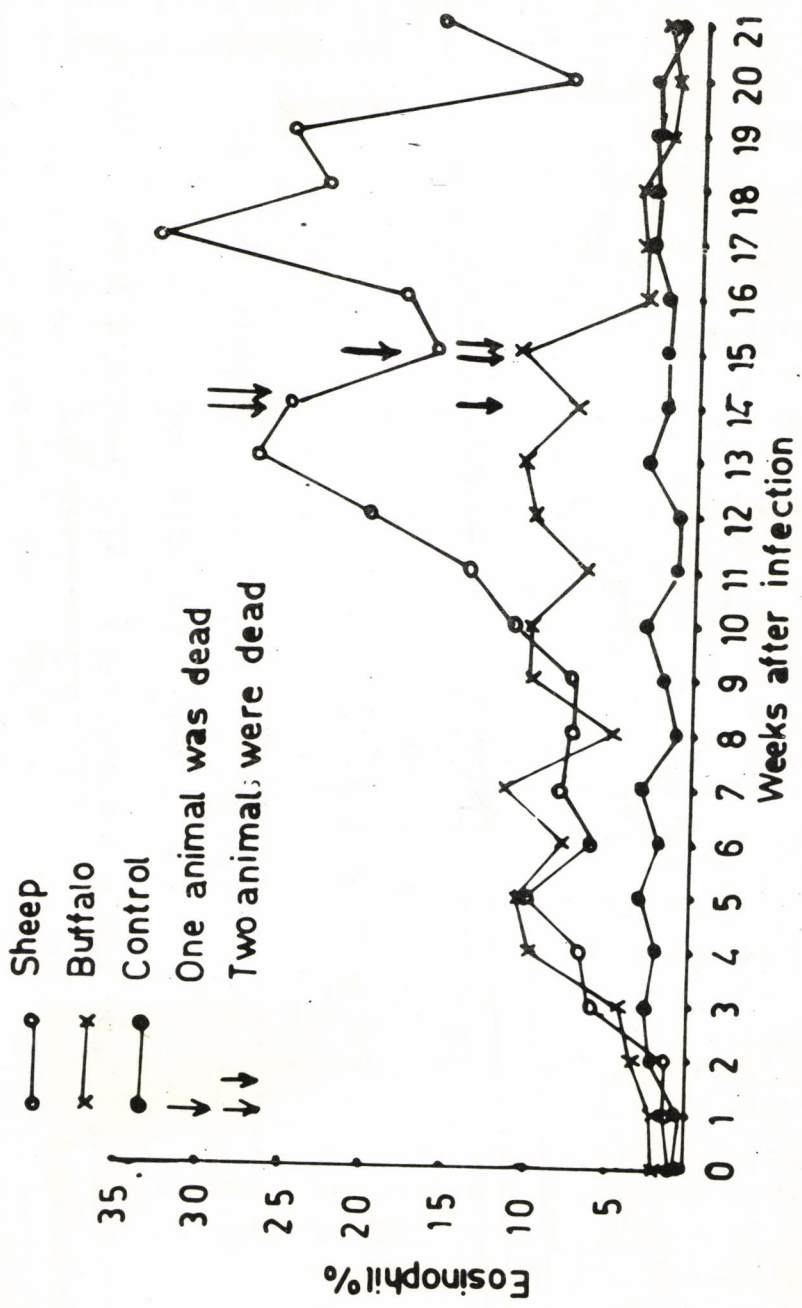


Fig (1) Eosinophil% in goats infected with sheep and buffalo isolates of Fasciola gigantica

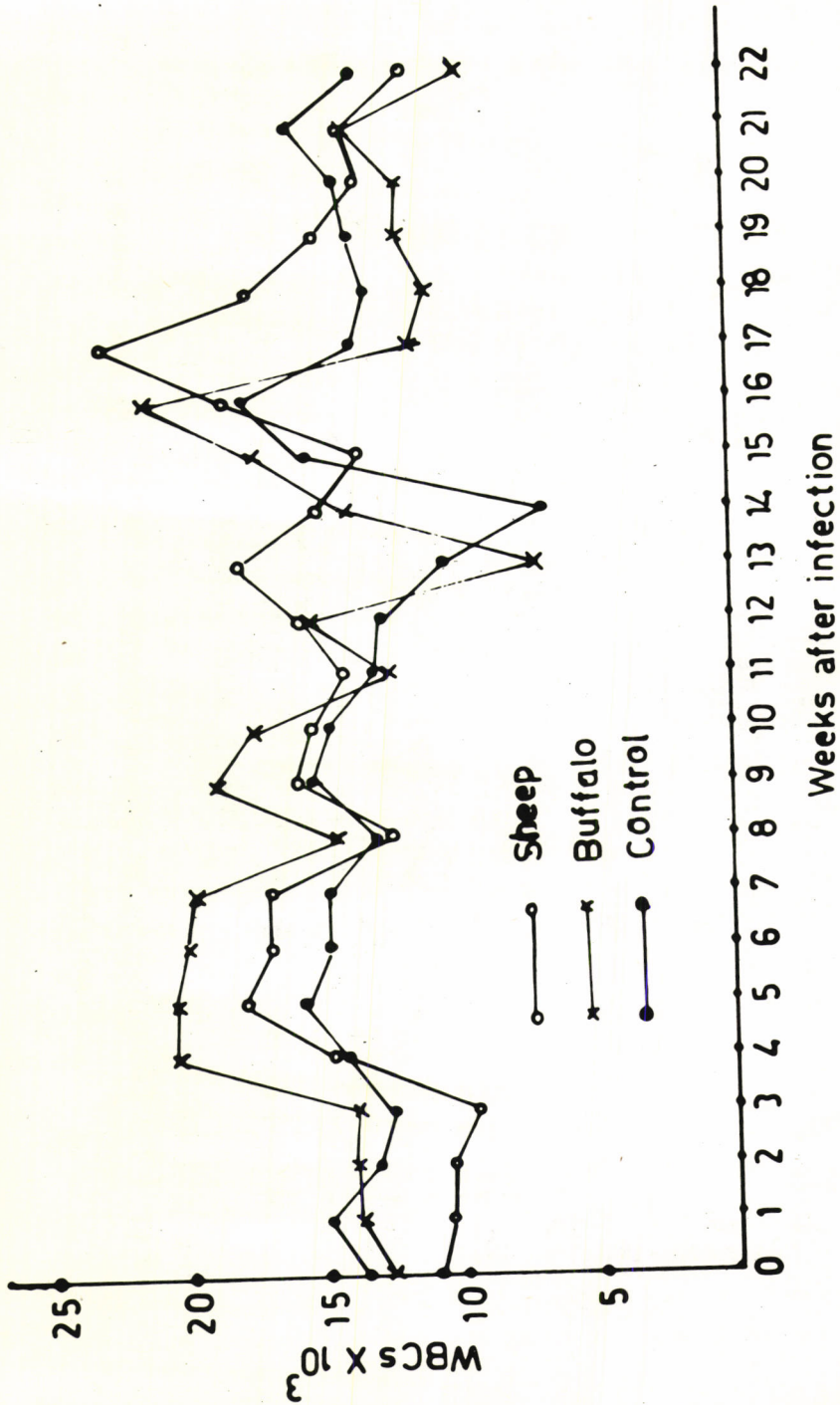


Fig. (2) Total WBCs in goats infected with sheep and buffalo isolates of Fasciola gigantica

reaching a maximum level at the 15th week p.i. followed by a decline there after to be close to the value of control group till the end of the experiment.

DISCUSSION

Al-Kubaisee (1986) reported that sheep and buffalo isolates of *Fasciola gigantica* have different intermolluscan relationship and goats were more susceptible to sheep isolate of *F. gigantica* when compared with buffalo isolate. He explained this difference on the basis that goats were mostly reared with sheep at the same habitats. On the other hand buffaloes are reared in aquatic habitats, hence there is low degree of susceptibility between the buffalo isolate of the parasite and goats, consequently the worm establishment and recovery was low.

The above results might explain the high leucocytic response especially in the eosinophils in goats infected with buffalo isolate at the first 10 week p.i. when compared with that of sheep isolate.

The second rise in eosinophils at 17th week p.i. in goats infected with sheep isolate might be explained as an eosinophilic reaction to foreign proteins released by the dead parasites and/or by the cellular response which is expected after ovideposition, a finding which is in agreement with that of Hussein (1971) in schistosomal infection and with that of Cornwell (1962) in *Dictyocaulus viviparus* infection.

Hussein and Tartour (1973) showed that calves infected with *Schistosoma matthei* developed higher eosinophilic reaction compared with calves infected with *S. bovis*. Our results coincided with the results of the above author who noticed that eosinophilia in both groups, was particularly high between 12-13 week p.i.

The decrease in lymphocyte and slight increase in neutrophils in the present study was in agreement with that of Noguchi, Kirisaw, Sugiura and Komine, (1958); Sinclair (1962); (1967) and Al-Naamy (1978).

The decrease in the eosinophil in goats infected with buffalo isolate at 17th week p.i. reaching a level comparable to the control values and remaining so till the end of the study could be explained by the fact that three of this group had chronic phase of the disease, two of them were found to be free of infection and one had only one parasite in its liver after slaughtering.

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ارتفاع نسبة الخلايا الحمضية في الماعز المخمخ بعزل

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الخلاصة

اشتملت حيوانات الدراسة على (٢١) ماعز ذكر بعمر ٣-٤ اشهر، قسمت الى ثلاثة مجاميع متساوية. خمجت المجموعة الاولى بمكيسات عزل الإغنام والمجموعة الثانية بمكيسات عزل الجاموس لدافيلي الفاشيولا جايكنتكا بجرعة خمس مكيسات لكل كغم من وزن الجسم وتركت المجموعة الثالثة كحيوانات سيطرة. اظهرت الدراسة ارتفاعا في نسبة الخلايا الحمضية في الاسبوع العشرة الاولى من التجربة في الحيوانات المخمجة بعزل الجاموس. كما واطهرت الدراسة ارتفاعين للخلايا الحمضية في الاسبوعين ١٣ و ١٧ بعد الخمج في المجموعة المخمجة بعزل الإغنام.