

قسم : الأمراض الباطنة - كلية الطب البيطرى - جامعة أسيوط.
رئيس القسم : أ. د / ابراهيم محمد حسن سكر.

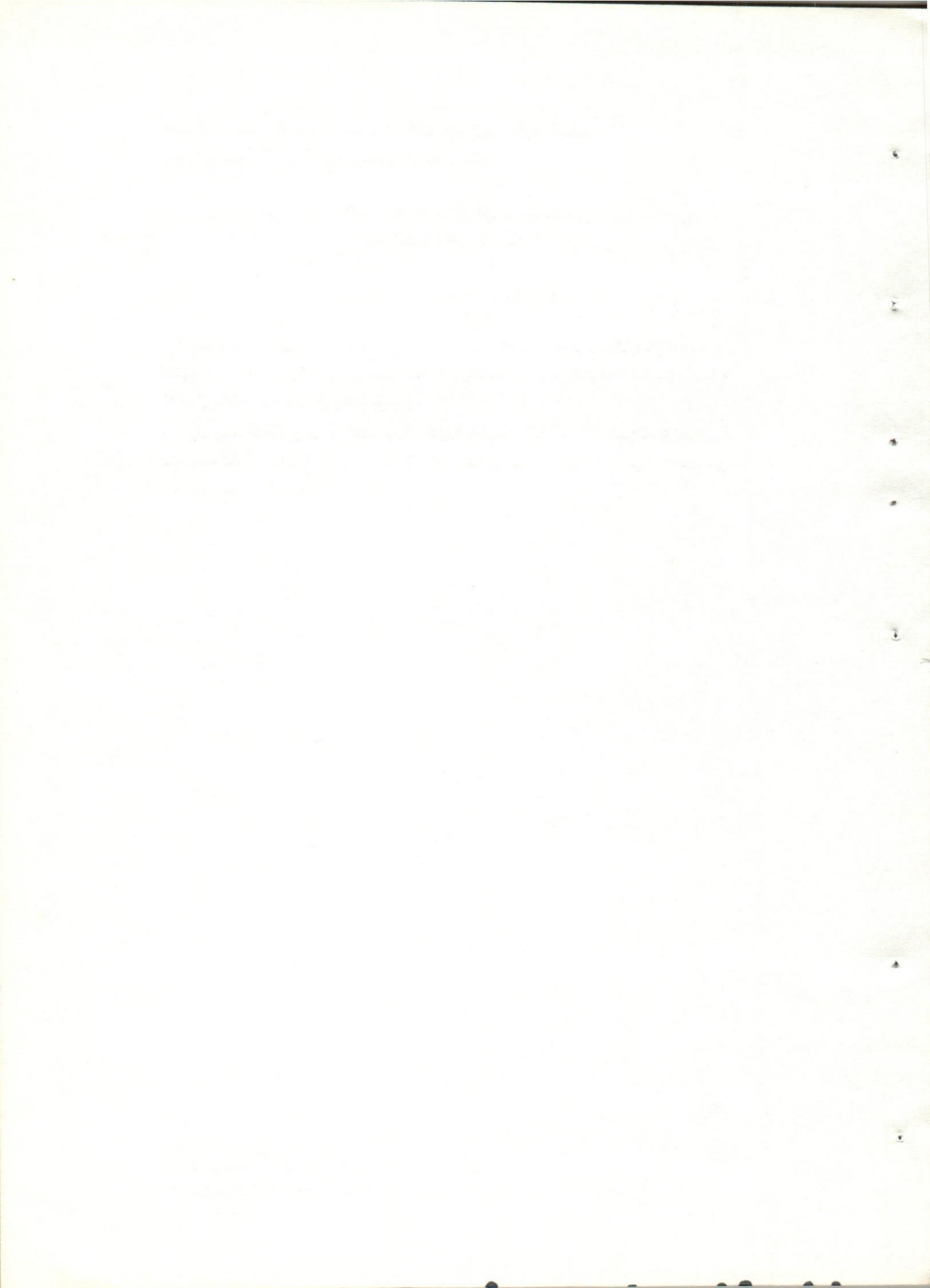
تقييم طريقة المسحة المخية لتشخيص طفيل الباهيزيا بيجمينيا فى الحيوانات التى
تبد و سليمة اكلينيكيا

طه العلالوى ، عاطف سـكـلا *

فحص الباحثان مسحات مخية لثلاثون من امخاخ ماشية تبد و سليمة اكلينيكيا امكن الحصول
عليها من سلخانة أسيوط، وحضرت بعد ذبحها فترة قصيرة وتبين من الفحص اصابة بعض هذه
الامخاخ باطوار من طفيل الباهيزيا بيجمينيا .

وقد وصف الباحثان هذه الاطوار وصفا تفصيليا واقترحا استخدام المسحات المخية كطريقة
تشخيصية لطفيل الباهيزيا خاصة فى الحالات التى يصعب فيها تشخيص المرض فى المناطق التى
يستوطن فيها هذا الطفيل .

* قسم : الطفيليات - كلية الطب - جامعة أسيوط.
رئيس القسم : أ. د / عماد كامل نافع



EVALUATION OF BRAIN SMEAR TECHNIQUE AS A METHOD FOR DIAGNOSIS OF BABESIA BIGEMINA
(SMITH AND KILBRONE, 1893) IN CLINICALLY NORMAL CATTLE
(With Two Figures)

By
T. EL-ALLAWY and A.A. SAKLA*
(Received at 3/1/1982)

SUMMARY

Babesia bigemina parasites were encountered in the brain smears of clinically normal cattle in Assiut Governorate. Two different forms were described and photomicrographed. This was the first report on this finding in Egypt, which might throw the light on the validity of using brain smear technique as diagnostic method for concealed infection in clinically normal cattle.

INTRODUCTION

Diagnosis of Babesia spp. in tissue smears has drawn the attention of few authors. ZLOTNIK (1953) claimed that Babesia bigemina was the causative parasite for cerebral piroplasmiasis, and he described the brain smear forms. On the other hand, CALLOW (1963) based his investigations on brain smear technique for detection of B. argentina in experimentally infected cattle as well as cattle from enzootic area. The present study was carried out in order to throw further light on the importance of brain smear technique in diagnosis of babesiosis in clinically normal cattle in Assiut Governorate, upper Egypt.

MATERIAL and METHODS

Thirty brains of clinically normal cattle were obtained from Assiut abattoir shortly after slaughtering. A series of brain tissue smears were prepared from the grey matter of each case according to the technique adopted by CALLOW (1963). Smears were dried, fixed in methyle alcohol and stained with Giemsa's stain. Carefull examination of the stained smears were done under the oil immersion lens. Photomicrographs as well as measurements for the detected parasites were taken.

RESULTS

Examination of the stained brain smears revealed the presence of two different forms of B. bigemina infecting the red blood cells. These were small contracted anaplasma-like forms, up to one micron in diameter (Fig. 1). They usually occur as paired and occasionally as single parasite occupying the centre of the host erythrocytes. Vacuolated signet ring form up to 1.5 micron were also detected (Fig. 2). They tend to lie singly in the centre of the host erythrocytes of the brain capillaries. Small number of the parasites in the smears were observed. Typical forms of B. bigemina could not be demonstrated.

DISCUSSION

In areas, for instance Assiut Governorate, where B. bigemina (tick fever) is known to be endemic, EL-ALLAWY (1973) and SAKLA (1975), it must be stressed that the demonstration of the parasites in the peripheral blood for a spot diagnosis may require prolonged search. As a matter of fact, LEVINE (1973) reported that cattle which have recovered from an attack of B. bigemina remain infected for life, and are premunized to reinfection. Premunition is due to continuing low grade of infection, and premunized animals may show signs of disease under stress of one sort or another. The forementioned statement most probably representing an explanation for the evidence of

* Dept. of Parasitology, Faculty of Medicine, Assiut University.

finding small number of the parasites in the brain smears of clinically normal cattle in the course of the present study. However, if we were asked whether these forms can reproduce the disease in another healthy cattle, it is difficult to state here a sharp answer as it needs another experimental study.

Few authors has drawn the attention of the confinement of the piroplasms in brain capillaries. ZLOTNIK (1953) described a cerebral form of prioplasmosis in cattle caused by B.bigemina. He stated that the parasitized red corpuscles blocked the brain capillaries which constitute an important cause of death. The finding of ZLOTNIK (1953) was not in agreement with the present authors as well as CALLOW et al. (1963). Zlotnik animals acquired acute severe course, while those of the present work are clinically normal carriers. In addition, CALLOW et al. (1963) believed that Zlotnik parasite was not B.bigemina. However, detection of the contracted forms of the organism in the red blood corpuscles of the brain capillaries in the present material accords with the finding of ZLOTNIK (1953). Furthermore, the present authors failed to find the typical forms of B.bigemina in their brain material, while Zlotnik (1953) reported the presence of these forms in one calf.

On the other hand, CALLOW (1963) reported the presence of B.argentina in the brain smears of 299 out of 458 cattle from enzootic areas, while he failed to detect B.bigemina in the same animals. However, he put in consideration the statement that brain smears were superior to other organs smear for the detection of babesiosis.

The forementioned data in the present study agreed with the finding of CALLOW et al. (1963) that B.bigemina was not incriminated as a cause of cerebral babesiosis in cattle, particularly by detection of small numbers of B.bigemina parasites in the brain smears of the clinically normal animals.

So far, the present work was the first to report the diagnosis of concealed infection in clinically normal carriers by using brain smear technique in Egypt. However, in cases of sudden death of cattle, babesiosis must be put in consideration and brain smears taken shortly after death is highly recommended.

REFERENCES

- Callow, L.L. (1963): Babesia spp. in the brain of clinically normal cattle. Aust. Vet. J., 39, 25.
- Callow, L.L. & McGavin, M.D. (1963): Cerebral babesiosis due to Babesia argentina. Aust. Vet. J., 39, 15.
- El-Allawy, T. (1973): Some studies on bovine piroplasmosis in Assiut. M.D.Vet. Thesis, Fac. Vet. Med., Assiut University, Egypt.
- Levine, N.D. (1973): Protozoan parasites of domestic animals and man. 2nd Ed., Burgess Publishing Company, Minneapolis, Minnesota.
- Sakla, A.A. (1975): Studies on ticks in Assiut Governorate, with special references to their role in transmission of parasitic diseases. M.D.Vet. Thesis, Fac. Vet. Med., Assiut University, Egypt.
- Zlotnik, I. (1953): Cerebral babesiosis in cattle. Vet. Rec., 65, 642.

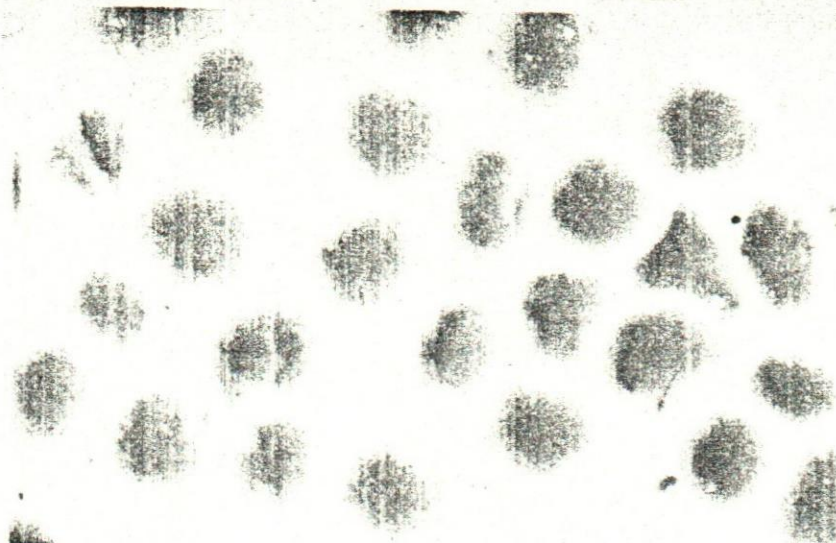


Fig. 1 Photomicrograph showing single contracted form of B. bigemina in brain smears.

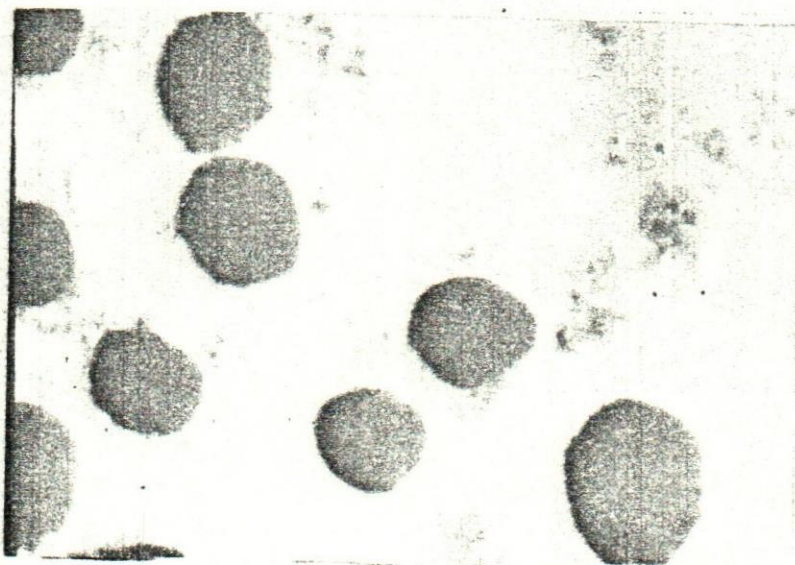


Fig. 2 Photomicrograph showing vacuolated ring form of B. bigemina in brain smear(Notice also a paired contracted form in the same cell).

