SINGLE AND MIXED BLOOD PROTOZOA INFECTION
WITH ANAPLASMA AND THEILERIA IN BUFFALOES
(_BUBALUS BUBALIS_) IN BAGHDAD - IRAQ

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SUMMARY

One hundred & six blood smears from buffaloes, slaughtered at Al-Futhaliya slaughterhouse in Baghdad, were examined. Ages of buffaloes ranged from 6 months to 10 years. Numbers of positive blood smears were 48 (45.28%), of them only one showed clinical signs. Single, double, and triple protozoal infections with Anaplasma centrali, Anaplasma marginale, and Theileria annulata, were found. The most common type of infection was the Anaplasma marginale (22.64%), while Anaplasma centrali and Anaplasma centrali + Theileria annulata (0.94%) each. This investigation confirmed the presence of Anaplasma centrali infection in buffaloes for the first time.

الإصابة المفردة والمختلطة للدم بأوالي الأنابلازما والثائليريا في الجاموس في بغداد

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الخلاصة

شملت الدراسة فحص 106 مسحة دموية من الجاموس المحلي المذبوب في مجزرة الفضيلية في مدينة بغداد.

٤٤.٢٨% منها وأحد أظهرت العلامات السريرية. من خلال الفحص لوحظت الإصابة المفردة والمزدوجة الثلاثية بطفيليات الدم wondering. Anaplasma marginale و Anaplasma centrali و Theileria annulata. ب Anaplasma centrali و Anaplasma marginale. أُلَي نسبة إذ بلغت (22.64%) وأوأنا نسبة إصابة مفردة ب . Anaplasma centrali والإصابة المزدوجة ب Anaplasma marginale إذ بلغت (0.94%) لكل منها . اسجت هذه الدراسة الإصابة Anaplasma centrali في الجاموس لأول مرة.
INTRODUCTION

Blood protozoa are important diseases found in different species of animals in Iraq (1,2). The recorded genera and species of blood protozoa in buffaloes, in Iraq, are Anaplasma marginale (3) and Theileria annulata (4,5).

Clinical signs depend on the genus of the protozoa and its numbers. Because of the importance of blood protozoa and the scanty research on such protozoa in buffaloes, this investigation was designed to record single and mixed blood protozoa infection with Anaplasma, Babesia, and Theileria in buffaloes using blood smears.

MATERIALS AND METHODS

The study included 106 blood samples collected from buffaloes from AL Futhaliya slaughterhouse from 1/2/1999 till 1/9/1999. Ages of buffaloes ranged from 6 months to 10 years, and most of them were about 8 months to 2.5 years old. Percentage of males was 85% while percentage of females was 15%. Thin and thick blood smears were made and stained with Giemsa stain after fixation with absolute methanol and examined under the oil immersion lens (6).

RESULTS

Examination of the blood smears revealed single double and triple protozoal infection. The total percentage of infection was 45.28%.

The highest percentage of infection was with Anaplasma marginale (22.64%), followed by mixed infection with Anaplasma. Centrali+ Theileria annulata (10.38%), then mixed infection with Anaplasma centrali+ Anaplasma marginale (5.66%), followed by single infection with Theileria annulata (2.83%) then triple infection with Anaplasma. Centrali+ Anaplasma marginale + Theileria annulata (1.89%), and finally with Anaplasma centrali and Anaplasma centrali + Theileria annulata (0.94%) each (Fig. 1&2). The distribution and number of cases as shown in Table 1.

All smears were negative for Babesia protozoa.
Table 1: Distribution of parasitic blood protozoa in the buffaloes in Baghdad area.

<table>
<thead>
<tr>
<th>Type of infection</th>
<th>Species of protozoa</th>
<th>Positive Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td><em>Anaplasma centrale</em></td>
<td>1</td>
<td>0.94</td>
</tr>
<tr>
<td>Single</td>
<td><em>Anaplasma marginale</em></td>
<td>24</td>
<td>22.64</td>
</tr>
<tr>
<td>Single</td>
<td><em>Theileria annulata</em></td>
<td>3</td>
<td>2.83</td>
</tr>
<tr>
<td>Double</td>
<td><em>A. centrale + A. marginale</em></td>
<td>6</td>
<td>5.66</td>
</tr>
<tr>
<td>Double</td>
<td><em>A. centrale + T. annulata</em></td>
<td>1</td>
<td>0.94</td>
</tr>
<tr>
<td>Double</td>
<td><em>A. marginale + T. annulata</em></td>
<td>11</td>
<td>10.38</td>
</tr>
<tr>
<td>Triple</td>
<td><em>A. centrale + A. marginale + T. annulata</em></td>
<td>2</td>
<td>1.89</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>48</td>
<td>45.28</td>
</tr>
</tbody>
</table>

Figure 1: *Anaplasma, centrale* in the center of a buffalo RBC.

Figure 2: *Anaplasma marginale* and *Theileria annulata* both inside buffalo RBCs.

**DISCUSSION**

This investigation revealed the presence of *A. centrale, A. marginale,* and *T. annulata* in local buffaloes. Inspite of the confirmation of *A. marginale* by AL-Saad(3), *T. annulata* by Haddow and Latif(4), and Latif and Jasim(5). In this study *A. centrale* is being recorded for the first time. Only one case positive for *A. marginale* showed obvious clinical signs while the remaining of the positive cases with single, double, or triple infections did not show clinical signs and they were either carrier or sub-clinically infected and these results are in agreement with others (7,8,2). The absence of *Babesia* in buffaloes does not confirm it’s absolute absence in Iraqi buffaloes, but could be attributed to the limited number of
samples examined or the absence of the vector (tick) in this specific area of Iraq. This is in agreement with (8) where experimental infection of buffalo (yearlings) with B. bigemina elicited, no clinical response and parasites were not present in the erythrocytes. Further studies are recommended with large number of animals, other techniques, and different areas could highlight the presence or absence of Babesia in buffaloes because Babesia bigemina in cows has been confirmed in Iraq by laboratory method since 1957 (11).

REFERENCES


9- Sharma SP. (1988) Experimental A. marginale infection in Indian water buffaloes (Bubalus bubalis). In J Anim Hlth. VXIII. 105-110.
