PREVALENCE OF FASCIOLA SP. INFECTION IN DONKEYS IN BAGHDAD, IRAQ.

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Abstract:
This study is concerned with the study of Fasciola sp. infection of equine. A 268 donkeys slaughtered at Al-Zawra abattoir has been examined from July 2000 till August 2001, aged 6 months - 22 years. It was found that 4.10% of donkeys were infected with Fasciola sp. Neither calcified bile ducts nor cirrhosis of liver were observed.

Introduction:
Economically, liver flukes cause an important parasitic diseases [1]. Though Fasciola sp. is quite common in many species of mammals [2&3], information on its occurrence in equines is scanty [4]. On the basis of fecal examination it was found in nine of 20 donkeys examined in Britain [5], 63-91% of donkeys and horses in Ireland [6] and 48% of ponies in Australia [7]. It has also been reported from equines in Japan [8], France [9]. In Morocco, Pandy [4 &10] reported the prevalence of Fasciola hepatica in two different periods, at the year 1978, was 5.4% & 5.9% in 1983. Several methods have been carried out to detect the presence of parasitic ova or worms such as, corpological, clinical and postmortem examination. The importance of these animals as a carrier and a source of infection to horses, so it is useful to study the prevalence of Fasciola among donkeys.

Materials and Methods:
During July 2000- June 2001, 268 donkeys were slaughtered, to feed the carnivores, in Al-Zawraa zoo, Baghdad, Iraq. A monthly average of twenty two donkeys were inspected. The exact origin of animals could not be ascertained, but most came from Nassryia, Wasseet, Hilla and Baghdad provinces of Iraq.

Details of the age, sex of each donkey were recorded. Age of the donkeys was estimated by dentition [11]. All animals were of common local non descriptive type and of varying ages (6 months to 22 years old) and of both sexes.

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Visual examination of the abdominal cavity and digestive tract as well as lung, liver, spleen, heart, diaphragm and kidneys, followed this by cutting, many of incisions in these organs, were performed. In addition the livers were thoroughly examined. All the flukes were collected first by incising the bile ducts and the livers parenchyma, were thinly sliced and each slice was palpated and then squeezed.

**Results:**

Of the 268 donkeys examined, 11 (4.10%) were infected. All 42 worms collected were Fasciola hepatica, measuring 4.8 – 3.2 by 1.3-0.7 cm. It is flattened and leaf-like along the margin, fleshy throughout the middle. At the anterior end there is a distinct, conical projection, while the posterior end is broadly rounded. Extensive branching of the intestinal ceca, of the two testes and the vitelline follicles, and the relatively short, convoluted uterus. The mean number of worms was 3.8 per donkey with a range of 5-10, mature and immature parasites (Fig. 1). Neither calcified bile ducts nor cirrhosis of liver parenchyma were observed. Table 1 demonstrates the prevalence rate of parasitic infection among females in our study was 6.4% and &2.5% in males. The study showed that the prevalence was highest in the age group 1-7 years (4.6%), whereas have not been found at the age under one year and in the age group of 13-19 years old table 2.

We have found the microscopic type of Sarcocystis, was the leading parasite, with a prevalence rate of 74.54% revealed by pepsin digestion and by trichinoscopy in 60% of examined animals, whereas the macroscopic type of the parasite was not found, followed by Echinococcus granulosus larvae 9.32%.

Strongylus sp, Parascaris equorum, was also found with a prevalence rate 2.9% and 2.1% respectively, which were mentioned in other reports[12,13 &14].

**Figure 1**: Mature Fasciola hepatica isolated from infected donkeys

**Table 1** Sex distribution of Fasciola hepatica in 268 donkeys.

<table>
<thead>
<tr>
<th>Sex</th>
<th>No. examined</th>
<th>No. infected</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>160</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>Females</td>
<td>108</td>
<td>7</td>
<td>6.4</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>11</td>
<td>4.10</td>
</tr>
</tbody>
</table>
### Table 2  Age distribution of *Fasciola hepatica* in 268 donkeys.

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>No. examined</th>
<th>No. infected</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-7</td>
<td>130</td>
<td>6</td>
<td>4.6</td>
</tr>
<tr>
<td>7-13</td>
<td>116</td>
<td>2</td>
<td>1.7</td>
</tr>
<tr>
<td>13-19</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt;19</td>
<td>12</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>11</td>
<td>4.10</td>
</tr>
</tbody>
</table>

**Discussion:**

Horses are as suitable as cattle for liver fluke hosts [15]. [3&7] classified the cattle, horse, donkey, etc. as delayed resistance group, this might be due to the disease is self-limiting, but may cause sever pathogenic lesions. Pandey [10] states that the low incidence of infection in donkeys can be explained only on the basis of their management grazing behavior. It is important to pay attention to concurrent infections with other pathogenic parasites, this as indicated that liver flukes may survive for many years, possibly long as 20 years or more without causing clinical problem [16].

Many species of endoparasites were recorded in horses, mules and donkeys by Iraqi workers [17-25], but to our knowledge no detailed studies on donkeys liver flukes are available for comparison.

Al- Ani et al. [26] have showed to presence of *Fasciola* sp. in the mules in Mosul. Examination of fecal samples from 50 horses from Mosul region revealed that the infection rate with *Fasciola* sp. was 10% [27].

In the present study, the examination of livers did not reveal infected animals calcification of bile ducts, commonly seen in cattle. Thus it appears to fall into the category of hosts in which, according to [28 &29], the life span of *F. hepatica* is very long because of the absence of calcification of the bile ducts. However, [7] considered that the life span of *F. hepatica* in equines is short. In the absence of experimental infections these two contradictory views cannot be reconciled.

The intensity of infection was low, probably grazing behavior or type of food they feed on, natural resistance and the life span of the worms all act to limit fluke existence in donkeys [10&24].

Liver fluke were found in donkeys 1 to 7 years. Age resistance might also play a role in the rate of infection [24]. On the other hand, [30] found the adult animals suffer from higher rates of infection with these parasites.

It is generally accepted that clinical Fascioliasis in equines is rare, but in heavily contaminated areas equines which graze with ruminants can suffer sub-acute or chronic disease, and may contribute to the maintenance of the infection in the vector snails by eliminating large numbers of eggs in their feces [1,9&31]. Thus, when a prophylactic program in ruminants is involved, equines should also be taken.
in consideration. To adopt the recommendation of previous workers [4&24] suggested that the important role of donkeys in harboring parasites to other animals, since maturation of the parasites commonly takes place in donkeys without noticeable clinical manifestation.

References:


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