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**Some Observations on Sarcocystis Infection in Sheep**

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**Abstract**

A study was conducted to determine the intensity of *Sarcocystis* infection in different age groups of sheep. A total of 36 heart samples were collected from sheep received for post mortem from organized farms and individual farmers. Out of 36 samples, 26 showed positive for Sarcocyst. Sheep less than 6 months of age did not show the infection and the intensity of infection was progressively increasing according to their age based on the microscopic observation. These results indicated that sheep with the age of 3 years and above were severely affected with the *Sarcocystis* infection.

**Key words**: Sheep, Heart, *Sarcocystis* infection

*Sarcocystis* species are intracellular protozoan parasites with a two-host life cycle. Carnivorous animals are the definitive host and herbivores or omnivores animals are intermediate host (Fayer, 2004). The intermediate host become infective by ingestion of sporocyst in the environment and form muscular cyst. The muscular cyst containing bradyzoites are ingested by definitive host. Several epidemiological studies on *Sarcocystis* in sheep have been carried out (Gokpinar et al., 2014 and Pazhanivel et al., 2006). The present study is undertaken to determine the intensity of *sarcocystis* infection in sheep in the southern district of Tamil Nadu.

**Materials and Methods**

A total of 36 heart tissue samples were collected over a period (July 2013 to December 2014) from sheep received for post mortem examination at Department of Veterinary Pathology from different parts of Tirunelveli district and fixed in 10 per cent formalin. The formalin fixed samples were processed, embedded in paraffin and sections cut into 4 μ thickness and stained with Hematoxylin and Eosin. The number of Sarcocyst present in the section was counted in 5 different fields under 4 x magnifications. The severity of infection was calculated based on the number of Sarcocyst as follows 0 - no infection, 1-5 mild infection, 6-10 moderate and 11 and above – severe infection. Thirty six animals were divided in to five groups according to their age viz. Group 1 (upto 6 months), group 2 (6 months to 1 year), group 3 (1 year to 2 years), group 4 (2 years to 3 years) and group 5 (above 3 years), respectively.

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**Results and Discussion**

*Sarcocystis* spp. infection in the sheep is worldwide but it is very difficult to determine the pathogenicity in the naturally infected animals. In the present study, Hematoxylin and Eosin stained sections were used to identify and count the number of Sarcocyst present in the sheep heart muscles. Microscopic Sarcocyst were found in 26 out of 36 tissue samples. Microscopically, the Sarcocyst appeared as elliptical to round shaped blue coloured bodies in the cardiac muscle fibres without any inflammatory reaction. The percentage of incidence and the average number of cyst present in different groups were given in the Table I. The severity of *Sarcocystis* infection was recorded based on the number of cyst present in the section.

The incidence of *Sarcocystis* infection in the study indicated the extent as 72.2 (26 of 36) per cent. The result of the study is in agreement with Bahari et al. (2014) and Beyazit et al. (2007) who reported that the incidence rate ranges from 70 to 100 per cent in slaughtered sheep while Pazhanivel et al. (*loc cit.*) have reported 14.2 (23/162) per cent of incidence in carcasses received for post-mortem examination in Tamilnadu. The different rate of incidence could be due to the sample size and type of tissue used for the study. The incidence and severity of *Sarcocystis* infection was 0 in Group 1. It was observed that the young animals below 6 month of age did not show any infection is in concurrence with the earlier report of Beyazit *et al. (*loc cit.*) who reported that 54 per cent of sheep up to 6 months of age had no microcyst. This could be due to lambs under 6 month of age are not exposed to grazing.

The average number of cyst recorded in different groups are 6 (G2), 9 (G3), 9 (G4) and 30 (G5) (Table I). The cyst present in the different age groups increased constantly as compared with Group 1. The result indicated that the infection from young animals to adult animals was progressively increased. In the present study, intensity of infection in the adult animals could be due to the repeated grazing on the contaminated pasture land or the free movement of large number of stray dogs and access to their faecal contamination accounted for the higher prevalence of the infection. In the study, histological method was used to identify the microscopic *Sarcocystis* infection in the sheep heart muscle. This method is suitable to count the cysts in the stained sections and calculate the intensity of *Sarcocystis* infection.

**Summary**

Histological incidence of *Sarcocystis* infection was recorded as very low in young sheep and very high in adult sheep.

**References**


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**Table I. Number of Sarcocyst present in the tissue sections of sheep heart muscles**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Group</th>
<th>Age group</th>
<th>Number of samples</th>
<th>Number of samples positive for Sarcocyst</th>
<th>Average number of cyst</th>
<th>Severity of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>G1</td>
<td>up to 6 Months</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>No infection</td>
</tr>
<tr>
<td>2</td>
<td>G2</td>
<td>6 months to 1 year</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>Moderate</td>
</tr>
<tr>
<td>3</td>
<td>G3</td>
<td>1 to 2 year</td>
<td>4</td>
<td>2</td>
<td>9</td>
<td>Moderate</td>
</tr>
<tr>
<td>4</td>
<td>G4</td>
<td>2 to 3 year</td>
<td>4</td>
<td>4</td>
<td>9</td>
<td>Moderate</td>
</tr>
<tr>
<td>5</td>
<td>G5</td>
<td>3 years and above</td>
<td>16</td>
<td>15</td>
<td>30</td>
<td>Severe</td>
</tr>
</tbody>
</table>