Helminthic Fauna of Wild Pigs in South India

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Abstract

Study on endoparasites in wild pigs (Sus scrofa) interfering with agriculture was carried out in areas adjoining the Western Ghats (Ooty, Pollachi region) and Eastern Ghats (Sathyamangalam region) of Tamil Nadu state in India during November, 2013. Wild pigs tend to move from forest areas to regions close to human habitation, Sampling was done very close to human habitations to enumerate the endoparasitic load. Thirty faecal samples of wild pigs, ten from each of these regions were subjected to the parasitological examination using standard methods. Prevalence of endoparasitic infections revealed the evidences of Ascaris suum, Trichuris suis, Strongyles, Strongyloides sp. and mixed parasitic infections comprising of Ascaris sp. with Trichuris sp., in addition to Strongyles with Strongyloides sp. The overall prevalence of internal parasites in wild pigs was documented. The results indicate the free ranging populations of wild pigs are heavily affected by a high parasitic burden and some parasites are likely to limit population growth due to the high mortality of piglets and infections throughout the lifespan of adults. A record of the helminthic fauna of wild pigs was made.

Key words: Wild pigs, Endoparasites, Prevalence.

1. Introduction

Although the helminth parasites of domestic pigs are well documented, however there is paucity of information with regard to wild pigs. In wild populations there is usually a balanced host-parasite relationship, not compromising animal health. However, anthropogenic changes of the environment, the increase of human populations and the introduction of other animal species, may provoke unknown factors that can disrupt the natural balance and induce pathological conditions. This study is a contribution for the knowledge of wild pig helminthic fauna as these animals have been co-inhabiting with human beings sharing the same resources such as land, water and air. The epidemiology of parasitic diseases is very important as they have a zoonotic potential that can lead to various catastrophic effects. In this study a comparison of the prevalence rate of various parasitic infections in wild pigs have been recorded and their Egg Per Gram (EPG) was constituted to know the intensity of the infections.

2. Materials and Methods

2.1 The Study Area

Study on endoparasites in wild pigs (Sus scrofa) interfering with agriculture was carried out in areas adjoining the Western Ghats (Ooty, Pollachi region) and Eastern Ghats (Sathyamangalam region) of Tamil Nadu state in India during November, 2013.

2.2 Examination for Endoparasitic Prevalence

2.2.1 Collection and Preservation of Coprological Samples for Endoparasitic Examination

Throughout this study programme, 10 fresh faecal samples of wild pigs from each of the described sampling areas (totally 30) were collected in small containers with 10 per cent formalin for parasitic examination and were properly labelled and sealed with parafilm subsequently.

2.2.2 Examination of Samples

The faecal samples were processed by both centrifugal sedimentation technique and floatation technique as described by Soulsby (1982).

2.2.3 Centrifugal Sedimentation Technique

Approximately 2 gm of faeces was taken in a 100 ml beaker and were thoroughly mixed with about...
occurrence of internal parasites in domestic swine are and it was 90 per cent in case of wild pigs of 92.50 per cent in case of wild pigs of Pollachi region from Ooty was found to be 100 per cent and it was parasitism in percent with the samples of wild pigs programme with all these pigs (Fig 1). Prevalence of Strongyloides even more, there is paucity of information in helminthic regions were presented in Table 1. The overall helminthic fauna of wild pigs pertaining to adjoining areas of Bandipur, Pollachi, and Sathyamangalam wildlife regions were basically wild in nature with more or less similar type of feeding activities. Wild pigs of all these regions were found to have higher percentage of overall parasite prevalence with values of 90 per cent and above. Further, the encountering of increased overall parasite prevalence in wild pigs under study was in agreement with the reports furnished by Bhat and Manickam (1998) who opined about the encountering of high egg counts in the free living state than in captivity. Ascaris suum was the frequently encountered parasitic fauna, with wild pigs in general (Foata et al., 2005; Popiolek et al., 2010; Tomass et al., 2013). Urquhart et al. (1994) also quoted that the eggs pertaining to Ascaris suum were very resistant to extreme temperature and the eggs of Ascaris suum were found to be viable for more than four years. Encountering Trichuris suis in the wild pigs in this study was in agreement with the report furnished by Nansen and Roepstorff (1999). Sousa et al. (2004) encountered presence of gastrointestinal strongyles eggs in all the faecal samples of wild pigs. This was further in agreement with the report furnished by Magi et al. (2005). Coombs and Springer (1974) opined that since wild pigs were associated with feeding of earthworms, beetles, bugs and numerous larvae which functioned intermediate or paratenic hosts for various helminthic fauna, more helminth fauna were encountered including the Strongyloides ransomi. The reasons for encountering of higher percentage of overall positivity of parasitism in wild pigs might be assigned to the reasons like diversified feeding activities of the animals, straying into the peripheral-areas of the wild regions, consumption of different types of intermediate host, absolute lack of health care related measures, consumption of feed materials contaminated by excreta of the co-existing wild animals that co-exist in the wild environment etc. However, since wild pigs entering the agricultural fields adjoining those regions in the study are basically wild in nature with more or less similar type of feeding activities. Wild pigs of all these regions were found to have higher percentage of overall parasite prevalence with values of 90 per cent and above. Further, the encountering of increased overall parasite prevalence in wild pigs under study was in agreement with the report given by Jarvis et al. (2007) who opined that the natural peculiarities of the area, including the sufficient availability of intermediate hosts of helminths were the important factors that affected wild pigs with helminths. Further intense research is required to find 10 to 15 ml of tap water. The mixture was strained through a tea strainer into a cup and then, it was transferred into a centrifuge tube. The centrifuge tubes were placed in a balanced state and were subsequently centrifuged for 2-4 minutes, at 1500rpm. Then, the supernatant was discarded leaving 1-2ml of supernatant, without disturbing the sediment at the bottom and finally, small drop from thoroughly homogenized sediment was taken on clean glass slide and was observed under both low and high power objectives of microscope.

2.2.4 Floatation Technique

Faecal samples were taken in a 100ml beaker and were thoroughly emulsified with about 10 to 15 ml of saturated solution of sodium chloride. The mixture was strained into a cup and then, it was transferred into a floatation tube till the mixture reaches the brim of the tube and forms a positive meniscus and was left undisturbed for 15 to 20 minutes. The tip of the positive meniscus was gently touched with a clean cover slip and then the cover slip was placed on a slide and was examined microscopically under both low and high power objectives.

2.3 Statistical Analysis

The statistical analysis of the data was carried out as per the guidelines, using one way ANOVA, wherever applicable.

3. Results and Discussion

Faecal examination revealed Ascaris suum, Trichuris suis, Strongyles, Strongyloides sp. and mixed parasitic prevalence comprising of Ascaris sp. with Trichuris sp. in addition to Strongyles with Strongyloides sp. were documented during the study programme with all these pigs (Fig 1). Prevalence of endoparasites with regard to different internal helminthic fauna of wild pigs pertaining to adjoining areas of Bandipur, Pollachi, and Sathyamangalam wildlife regions were presented in Table 1. The overall parasitism in percent with the samples of wild pigs from Ooty was found to be 100 per cent and it was 92.50 per cent in case of wild pigs of Pollachi region and it was 90 per cent in case of wild pigs of Sathyamangalam region.

Even though literatures pertaining to the occurrence of internal parasites in domestic swine are more, there is paucity of information in helminthic fauna of wild pigs in general. The parasitic eggs in this study were identified based on the morphological keys furnished by Soulsby (1982). Encountering the increased percentage of parasitic prevalence in the samples from wild pigs under this study was supported by the report furnished by Jarvis et al. (2007) who quoted that none of the 25 examined carcasses of wild boars from Central Spain and those imported from France was free of helminths. Similarly, Eslami and Hamdi (1992) opined that the majority of wild pigs examined (74 per cent) had at least one species of helminth in the internal organs and parasitic infections with several species were common in the wild boars. Further, encountering the increased overall positivity of parasitic prevalence in the wild pigs under study was in agreement with the reports furnished by Bhat and Manickam (1998) who opined about the encountering of high egg counts in the free living state than in captivity.
Table 1: Prevalence of Endoparasitic Infections of Wild Pigs (N=30)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parasites</th>
<th>Ooty (Prevalence)</th>
<th>Pollachi (Prevalence)</th>
<th>Sathyamangalam (Prevalence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Ascaris suum</em></td>
<td>8 (80%)</td>
<td>8 (80%)</td>
<td>7 (70%)</td>
</tr>
<tr>
<td>2.</td>
<td><em>Trichuris suis</em></td>
<td>6 (60%)</td>
<td>7 (70%)</td>
<td>8 (80%)</td>
</tr>
<tr>
<td>3.</td>
<td>Strongyles</td>
<td>7 (70%)</td>
<td>6 (60%)</td>
<td>7 (70%)</td>
</tr>
<tr>
<td>4.</td>
<td><em>Strongyloides</em> sp</td>
<td>7 (70%)</td>
<td>6 (60%)</td>
<td>5 (50%)</td>
</tr>
<tr>
<td>5.</td>
<td>Mixed Infections</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Ascaris</em> + <em>Trichuris</em>.</td>
<td>8 (80%)</td>
<td>7 (70%)</td>
<td>7 (70%)</td>
</tr>
<tr>
<td></td>
<td><em>Strongyle</em> + <em>Strongyloides</em> sp</td>
<td>4 (40%)</td>
<td>3 (30%)</td>
<td>2 (20%)</td>
</tr>
<tr>
<td>Total</td>
<td>Number of faecal samples examined</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Fig 1: Endoparasite of wild pigs

out the seasonal association of helminthic loads and their distribution.

4. Conclusion

The endoparasites recorded during this study *Ascaris suum*, *Trichuris suis*, Strongyles, *Strongyloides* sp. This indirectly revealed that the parasitic burdens in any species of wild pigs, might ultimately lead to changes in normal behaviour of the concerned wild animals. The findings warranted the need for study in details about nature of faeces, in-depth study on parasitic presence etc.

Further, more intensive studies needed to be carried out in the adjoining forest regions and core regions frequently in a systematic and scientific manner, in relationship with environmental factors such as rainfall, temperature humidity and location of water bodies.

References


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