Epidemiological and identification study of sheep lice in Al-Mosul city

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Abstract

Four hundred and twenty sheep were examined for lice infestation from March 2005 to March 2006 with an age ranged from 1–5 years at different farms and areas and of different breeds in Al-Mosul city. 13% (55) of sheep were infested with different types of lice. The seasonal variation was noticed in this study, the highest infestation rate was in Winter 23.5%, and lowest in Summer 5.7%. The most observable clinical signs were obvious irritation, with pulled greasy wool, scratching, rubbing against walls and trees, loss of sleep, restless, fleece damage and pruritus. Heavy lice infestation with sucking type can cause anemia. Three degrees of lice infestation was observed (low, moderate, and heavy) depending on the number of lice or nymphs on the skin or wool. Microscopical classification of isolated lice revealed two types biting lice (Bovicola ovis and Bovicola pregratus) and three sucking lice of the following species (Linognathus stenopsis, L. ovillus, L. africanus).

Introduction

Lice are worldwide in sheep throughout the world (1). They are more active and reproduce most rapidly in cool condition (2). Sheep are parasitized by several species of sucking lice and biting (or chewing lice) which economically important. Lice have been known to be injurious itself to sheep on account of depresses wool production (3). Irritation due to rubbing, scratching, sucking of blood, epidermal scales, dermatitis and allergic responses (4). Leiper reported two species of lice in Iraq, the blue louse Linognathus africanus and biting lice Bovicola ovis (7). In Australia (6) reported that body lice of sheep are present on 1–30 % of animals. Heavy infestation is another possible cause of alopecia or anemia in sheep particularly in debilitated animals, malnutrition, and intestinal parasitism (5, 7). The purpose of this study is to investigate the prevalence of lice of sheep and identify the species, seasonal variation and severity of infestation. Lice infestation can be serious specially as some species are quite small and therefore easily overlooked, and as they can multiply enormously, by which time the animal may be so emaciated or anemic. When animals are poorly fed and kept in over crowded conditions and moderate temperature they often become severely infested with lice, and the number of adult parasites or nymphs are very large and enormous (8).

Materials and Methods

Samples were taken from 420 examined sheep of different areas and farms in Mosul city (Kokjalli, Rashediya and Hadbaa). This study extended from March 2005 to March 2006. Samples were collected from suspected wool and skin scales of infected animals using fine forceps, comb, brush and hand lens 10x, from neck, back, shoulder, hip or other parts of the body. Samples were kept in small Petri – dishes or test tubes with few drops of 70 % alcohol (8). Estimation of the degree of infestation according to the number of lice, nymph or eggs (nits) on wool or skin. Sheep that were given drugs or dipping and shearing are not included in this study. Microscopic classification of the identified lice according to (9, 10, 11, 13).

Result

The results in table (1) revealed that the prevalence of lice infestation in sheep was 13% (55 cases) of total 420 examined sheep. There was seasonal variation noticed among these animals and highest infestation was in Winter 23.5%, Autumn...
15%, Spring 8.1% and lowest in summer 5.7%. Light degree of lice infestation among examined animals were predominant and common (number of lice 1–5 per inch square), moderate degree (6–20 lice) and heavy degree (more than 20 lice) in the lesion. Two species of biting lice 8% and three species of sucking lice 5% which were identified (Table 1) in infested sheep. Biting lice were smaller than sucking lice, they were yellow and have larger rounded head, wider than the thorax. Biting lice have long legs. Sucking lice (Linognathus species) have first pair of tarsal claws is smaller than the second and third pairs, and have more than one row of setae per abdominal segment. Sucking lice were red to gray colour usually depends on the amount of blood, and the head is narrow and pointed. Figure (1) shows adult louse L. ovillus (Sucking Louse) and figure (2) shows adult (Biting Louse) B. ovis. Figure (3) Linognathus africanus, Figure (4) Linognathus stenopsis and Figure (5) B. pergratus. The percentage of infestation with biting lice was 8%, and the percentage of infestation with sucking lice was 5%, while the total percentage of infestation was 13%. Two species of biting lice have been identified B. ovis 6.4% and B. pregretus 1.6%. Three species of sucking lice have been detected, L. ovillus, 3.6% L. stenopsis 1.2% and L. africanus 0.2% as seen in figure (1, 2, and 3). Seasonal infestation with both types of lice as seen in table (1) revealed that in the Spring 8.1%, in the Summer 5.7%, in the Autumn 15% and in Winter 23.5%. Clinically, infected sheep with lice shows irritation, restless, rubbing, biting, and scratching. Sheep infested with sucking lice showed signs of emaciation, poor condition, damage to the wool and anemia particularly in Winter.

<table>
<thead>
<tr>
<th>Findings</th>
<th>No. of examined animals</th>
<th>No. of positive</th>
<th>% of infestation</th>
<th>Biting lice</th>
<th>Sucking lice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasons</td>
<td>No. of + ve</td>
<td></td>
<td></td>
<td>No. of + ve</td>
<td>No. of + ve</td>
</tr>
<tr>
<td>Spring</td>
<td>110</td>
<td>9</td>
<td>8.1</td>
<td>B. ovis 5</td>
<td>L. ovillus 4</td>
</tr>
<tr>
<td>Summer</td>
<td>104</td>
<td>6</td>
<td>5.7</td>
<td>B. ovis 4</td>
<td>L. ovillus 2</td>
</tr>
<tr>
<td>Autumn</td>
<td>100</td>
<td>15</td>
<td>15</td>
<td>B. ovis 8</td>
<td>L. ovillus 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B. pregretus 1</td>
<td>L. stenopsis 1</td>
</tr>
<tr>
<td>Winter</td>
<td>106</td>
<td>25</td>
<td>23.5*</td>
<td>B. ovis 10</td>
<td>L. ovillus 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B. pregretus 3</td>
<td>L. stenopsis 4</td>
</tr>
<tr>
<td>Total</td>
<td>420</td>
<td>55</td>
<td>13 %</td>
<td>8 %</td>
<td>5 %</td>
</tr>
</tbody>
</table>

*Significant differentiation at p < 0.05.

**Discussion**

The present results of this study has revealed that 13% of the total number of 420 sheep examined were infested by light, moderate and heavy degrees of both biting (chewing) and sucking lice, Mallophaga and Anoplura. The most common louse that infest sheep is the biting louse B. ovis (Body Louse). This louse is very small and more abundant on older sheep and animals in poor condition. It is very irritating parasite, this is in agreement with that of (11). In Mosul, several authors who recorded that sheep were infested by both sucking and biting lice (7). Significant difference of lice infestation in Winter months because direct contact, bad management and crowding are optimal for spread and proliferation of lice in crowded yards for a long period especially. This is similar to those reported by (7,9,10). B.ovis the brown body louse of sheep was predominant and usually infest the mid dorsal line and upper side of the body, while L.ovillus sucking blue face louse
occur on the head and on the hairy parts of the lower body this in agreement with that research reported by (7,13). Typically, lice demonstrated pronounced seasonal variations and the numbers of lice being greatest in winter and lowest in Summer. This is in agreement of that of (12, 13, 14). Lousiness, achronic dermatitis of sheep is characterized by constant irritation, itching, restless, even though the condition has high incidence it attracts little attention from producers, small numbers cause no clinical manifestations, but the large number during winter cause symptoms and some sheep may develop anemia from prolonged sucking lice infestation. The pathological effects are influenced by climate factors, and Summer solar radiation kills adults and nymphs in 30 minutes at 48 °C. The effect of lice is usually a function of their density, and a small number of lice may produce no problem and do not often have a serious effect from the pathologist's point of view. Since lice are superficial insects and do not invade the skin. Lice wth chewing mouth parts live on epithelial debris, sebaceous secretions and skin bacteria and may not do so like other ectoparasite and cause fewer systemic and pathological effects. Microscopic identification and classification of these ectoparasites (lice) and most predominant species were the Biting lice:

- B. ovis
- B. peregritus

Sucking lice:

- L. ovillus
- L. stenopsis
- L. africanus

As shown in Fig (1, 2, 3). Among all infested animals at all season, and sheep may carry light infestation of lice without showing noticeable symptoms. The incidence of louse infestation among sheep differs from locality to another and in Iraq the disease is still one of the important serious problems. This is in agreement with that of (7).

Fig.(1): Adult lice L. ovillus (sucking lice)

Fig.(2): Adult lice B. ovis (Biting lice)
Fig. (3): Linognathus africanus

Fig. (4): Linognathus stenopsis

Fig. (5): B. Pergratus

References


