

Some Biological Aspects Of Sheep Nasal Fly *Oestrus Ovis* L. (Diptera: Oestiridae)

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ABSTRACT

myiasis caused by nasal sheep fly *Oestrus ovis* L. is one of the most parasitic infestation of wide pre valence all over the world, it is considered as health problem in Ramadi city sheeps, this study aimed to know the life cycle of this insect inside and outside the host during the period (April 2019 to March 2020) by examining (180) sheeps heads that were slaughtered in Ramadi butchery using special questionnaire prepared to records morphological internal information's including (head color, age, gender ,sample collection date and presence of larval instars inside nasal pockets.

The results reveals that The total infestation rate in sheep was (57.7) %, and according to year seasons (winter (42.2) %, spring (51.1) %, summer (60) %, and autumn (80) %)respectively and the percentage of transformed larvae to adult stage were (31.1) % was recorded in the summer, autumn, and spring (35.7) % and (34.7) %, respectively. It reveals also that females was more infected with larvae than male (70.7, 41.9) % respectively, high infection appeared in sheeps of more than one year old compared with those of less than one year old (68.3 , 25) % respectively. The rate of infection in sheep. Heads according to the color was (67.3 , 56.7 , 48.9) % in black ,blond (red) and white color respectively .

Keywords: myiasis, sheep nasal fly , *Oestrus ovis* , Oestiridae

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INTRODUCTION

Oestrus ovis L. (Diptera: Oestridae) is a cosmopolitan parasite whose larvae grow in the head pockets and nasal passages of sheep and goats in all areas where sheep and goats are reared. fly Females lay their larvae within or around the nostrils of the host (1). The fly live in hot, dry and temperate areas. The growth period of the larvae varies greatly and ranges from a few weeks to several months depending on the season and climatic conditions, while the adult fly growth period is short as it does not exceed one month, it spends in reproduction where mating takes place mating on the ground (2). When the fly approaches a sheep or goat to lay its larvae, these animals panic and hit their feet on the ground and meet together and then press their nose into each other's fleeces towards the ground (3). The fly larvae enter and move towards the nasal sinuses of the host animal that suffers of panic and turmoil, trying to get rid of the larvae by forcefully pushing the exhaled air towards the outside as a way to get rid of them, then the larvae of the first stage begin to move towards the nasal sinuses and then various respiratory symptoms and nervous disorders will be appear on the host (4).

The full-fledged fly does not feed because its mouth parts are archaic and can live for (2-4) weeks. The first instar larvae remain in the respiratory passages and feed on the mucus that is secreted in response to its movement, while the second instar larvae move up and inside the sinuses. Then the third instar larvae, which are advanced in age, begin to descend into the respiratory passages and are excreted outside by the sneezing mechanism of the affected animal, as the larva moves and enters into the moist soil to turn into the pupa stage (5). The presence of larvae in the host's nasal cavities leads to an immune response, low congestion of the nasal septum, infections due to large hooks in the mouth of the larvae and bundles of thorns that cover most of the body parts of the larvae (6).

METHODOLOGY

Study area and sample collection

Samples were collected for (180) heads of newly slaughtered sheep through semi-daily visits with (12-16) visits per month, i.e. at a rate of (5) samples for every (10) day of the month to cover the beginning, middle, and end of the month for the period from the beginning of April (2019) until the end of March (2020), and samples were collected from the Ramadi civil massacre located in the city center market, in which sheep are brought and slaughtered according to the Anbar Health Department's controls. Fast and low-cost methods are used to clean and sell heads in it. The study included animals in the Ramadi city and its outskirts (Al-Tamim, July 17th Street, Al-Sufiyya, Al-Sijariyya, Al-Jazeera, Al-Haouz, Hay Al-Muallemeen, Al-Thilah Al-Sharqiyya, Al-Thaila Al-Gharbiyya, Al-Malaab, Street 20, 5-kilo area. The animals are native to the breed and most of them are Awassi, with the determination of sex, color, age, and method of breeding, according to the method of (7)

Examination of samples: -

The heads of the newly slaughtered sheep were transported by refrigerated containers to the college laboratory or the designated place as an alternative to the laboratory in the dormitory and after placing them on a table all the skin was removed with a sharp knife (without a scalding) and then the head was opened with a hand saw or sharp cleaver and a longitudinal incision was made that extends through the nose And the nasal cavities and the division of the animal's head symmetrically into two equal parts in order to detect infection in all parts of the sample head (the animal) in order to carefully examine the parts of the sample and carefully search for the larvae present in that animal and determine everything related to the paragraphs of the information collection form for the research.

RESULT AND DISCUSSION

Table (1) shows us the percentage of positive cases infected with sheep nostril larvae, depending on their location in the head and according to the autopsy regions of the head.

location of the larva inside the head	Positive cases (Visually Examined)	Percentage %
Nasal septum	19	18.2 %
Nasal meatus	45	43.2 %
Nasal concha	53	50.9 %
Para nasal sinuses	21	20.1 %
Pharynx	24	23 %
Larynx	3	2.8 %
Brain	9	8.6%

With regard to the relationship between the percentage of cases infected with sheep's nasal larvae and the places they are located in the head, Table (1) shows this in the head of sheep, where it reached (50.9) % in the nasal oysters, in the respiratory ducts (43.2) %, in the pharynx

(23) % and in the nasal septum (18.2) % and in the side sinuses (20.1) % and in the larynx (2.8) %. As for the brain, the injury was recorded in it by (8.6) %. They are (nasal septum, pleura, pharynx, brain and larynx) at a significant level ($P \leq 0.05$).

Table (2) shows us the percentage of the arrival of the third stage of the larva to a full fly during the seasons of the year.

Seasons	number of L3	number of L3 transformed into a adult fly	Transformation rate %
Spring	23	8	34.7%
Summer	11	4	36.3%
Autumn	14	5	35.7%
Winter	15	2	12.5%
Total	63	19	30.1%

The results of the study showed that the number of third-stage larvae collected from the head of sheep reached 63, and from which they transformed into a full-fledged fly, it reached 19 larvae with a transformation rate of (30.1) %. The full fly stage according to the seasons of the year, it was found that the rate of larval transformation in

summer, autumn and spring reached (36.3, 35.7 and 34.7) %, respectively, while there was a decrease in the rate of transformation in the winter season, reaching (12.5) %, and the results showed a difference. Significant at $P \leq 0.05$ level.

Table (3) shows us the relationship between the sex (Gender) of the animal and the rate of infection in sheep's nostril larvae.

Sex(gender)	Number of sheep tested	Number of sheep infected	Infection rate %
Males	83	34	40.9%
Females	97	70	72.1%
Total	180	104	57.7%

Table (3) show the relationship of infection of sheep's nose to the sex of sheep (rams and ewes), as the results showed a higher rate of infection in ewes by (70.7) %, while the rate of infection in rams showed (41.9) %,

where the statistical analysis showed the presence of significant differences. The infection rate between the two groups was at $P \leq 0.05$

Table (4) shows us the relationship between the age of sheep and the rate of infection in sheep's nostril larvae

age categories	Number of sheep tested	Number of sheep infected	Infection rate %
Less than one year	44	11	25%
More than a year	136	93	68.3%

Total	180	104	57.7%
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The results show that there is a relationship between the age of sheep and the rate of infection in sheep's nostril larvae, as it was found that the rate of infection increases in sheep at the age of more than one year and reached

(68.3)%, while the rate of infection decreased in sheep at the age of less than one year and reached (25)%, and results showed Statistical analysis, there was a significant difference at the level of ($P \leq 0.05$) (Table 4) .

Table (5) shows us the rate of infection in sheep and its relationship to the color of the animal's head

Head color	Number of sheep tested	Number of sheep infected	Infection rate %
Black	52	35	67.3%
White	47	23	48.9%
Blonde (Red)	81	46	56.7%
Total	180	104	57.7%

show the rate of infection with lamb larvae according to the color of the head. White reached (48.9) %, Black

reached (67.3) %,Blonde (Red) reached (56.7) %, with a significant difference at $P \leq 0.05$. (Table 5).

DISCUSSION

Among the (180) heads of sheep that were collected and examined in this study, it was found that (57.7) % of them were infected with the larvae of the nostrils of sheep. This result was high compared with previous studies conducted in Iraq and other countries where the rate of infection was (20.96) % in The Kurdistan Region (9) and the infection rate (33.4) %in Baghdad (10). Our results were also higher than those indicated by some researchers around the world, as the highest infection rate was recorded in Egypt (8.67) % (11) and it was (22.52) % in Turkey (12), while our results were less than those recorded in Spain, where the infection rate was (71.1) % (13) and also less than that recorded in Italy (91.0) % (14), while the results were close to those results, which recorded a rate of (40.38) % in Iraq (15) (42.33) %in Libya (16) and (43.2) % in Greece (Papadopoulos et al., 2010) .These differences in the rate of infection may be due to the environmental conditions of the areas in which the sheep nostril bugs live, especially the determining factors. Limiting factors, which are the temperature and relative humidity that directly affect the life of the insect as well as the sheep breeds according to regions, according to the seasonal distribution of infection in the study, the highest range of infection was in the fall season, reaching (80)% and the lowest extent was (42.2) % in winter These results are in agreement with Mohammed's study. And his group (2020) in Iraq, which recorded the highest percentage in the fall (76.92) % and the lowest percentage in the winter (30.76) %. Our results were also consistent with those of Ramadan. And his group ((2013) in Egypt, which concluded that heavy infection cases were recorded in the fall at a rate of (17.91) %, while the lowest seasonal peak was in the winter by (7.85) %. While our results do not agree with Arslan. And his group (2009) stated that the highest rate of infection is In Turkey, it was recorded in the summer and spring seasons, while the lowest infection rate was in the autumn season. The reason for this difference may be the variation in climatic and environmental conditions. In general, all insects in Iraq have their peak growth, one in the spring and the other in the fall. The results showed that the infection rate in female sheep was high by (70.7) %, while the rate of infection in males was (41.9) %, and this was in

agreement with Mohsen and his group (2015) as they indicated a significant difference in the rate of infection between rams and ewes and explained that the high infection rate In females, it may be the result of the hormonal factor or because of their chances of survival for purposes of reproduction and milk production, they are not slaughtered except when they are old, which increases the possibility of exposure to infection more than males, while our results did not agree with Gebremedhin Hidalgo and his group (2011). 2015), as they indicated that the larvae of sheep napping did not affect the sex of the animal, as no significant difference was observed in the rate of infection between rams and ewes. It may also be the reason that male sheep are more active than females, which helps them to eject the insect larvae when placed by the female fly in the nose to the outside. As for the effect of the age of the sheep, the study showed that the rate of infection increased with age, and this was consistent With many studies which stated that the increase in the rate of infection with the advancement of the animal's age is due to the slow movement of the old animals compared to the young, where they are more attractive to take the infection from adult female flies in the pasture, in addition to the weakening and suppression of the immune system of the old sheep that are More susceptible to infection compared to young animals (20). Also, young sheep, whether male or female, are more capable of throwing fly larvae to the outside in addition to the speed of their movement because they are more active than those old.

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