

Prevalence of bovine hypodermosis in Babylon province in Iraq

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Abstract

Prevalence of hypodermosis (warble fly infestation, WFI) in cattle was recorded in Babylon province in middle of Iraq. The cattle were clinically examined for the presence of warbles by manual palpation from December 2008 to June 2009. One hundred eighty seven 22.21% out of 842 animals were found to be clinically positive for hypodermosis. The infestation was highest in March and lowest in June, in females versus males and in old versus young animals.

دراسة انتشار داء نغف الجلد في الأبقار في محافظة بابل في العراق

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الخلاصة

تم دراسة نسبة انتشار داء نغف الجلد في الأبقار في محافظة بابل وسط العراق. حيث فحصت الأبقار الخاضعة للدراسة سريريا خلال الفترة من بداية كانون الأول 2008 حتى نهاية حزيران 2009. تم تحديد مائة وسبعة وثمانين 22.21% حيوانا مصابا من أصل 842 حيوانا مفحوصا، وقد سجلت اعلي نسبة إصابة بالداء خلال شهر آذار وأدناها في شهر حزيران كما سجلت نسب إصابة في الإناث أعلى مما عليه في الذكور وفي الحيوانات الكبيرة العمر مقارنة بالصغيرة.

Introduction

Cattle hypodermosis (warble fly infestation, WFI) is a myiasis caused by larvae of *Hypoderma bovis* and *Hypoderma lineatum* (Diptera, Oestridae), characterized by the presence of subcutaneous warbles in the dorsal and lumber region. For the fast 50 years, cattle hypodermosis has represented one of the most significant parasitic diseases in many countries. Hypodermosis greatly impairs livestock production not only by inducing mechanical damage to internal organs or skin but also by down regulation the host immune system (1, 2, 3). The larvae of *Hypoderma* are relatively host specific, and the primary hosts are cattle, buffaloes, sheep goat, deer and reindeer (4,5). Adults are generally active from April to June in case of *H. lineatum* and from mid- June to early September in the case of *H. bovis*, though precise periods of activity depend on seasonal and geographic differences in climate (4). The prevalence of hypodermosis that determined by clinical examination was in different percentages ranged from 0-86% relating to the different countries in the world (6). The present study was carried out to determine the presence of cattle hypodermosis in Babylon province in Iraq.

Materials and Methods

- **Study Area:** This study was conducted from December 2008 to June 2009 in Babylon province in Iraq. The topography of the land is with rivers and flattens. The mean of the maximum and minimum temperatures during the year's months were 29.5 C° and 14.79 C° respectively. The maximum average annual rainfall and maximum average wind velocity were 12.1 mm and 3.2 m/sec. respectively. The average relative humidity was 44.75% (7).

- **Prevalence:** A total of 842 cattle of different sexes (315 males and 527 females) and ages (young and adults) that which reared in open and mixing rearing system were clinically examined for the presence of hypodermosis in the study area. Surveillance study were carried out to record month-wise, sex-wise and age-wise prevalence of the disease, (5).
- **Statistical analysis:** The Statistical analysis was performed on the qi- squire test (8).

Results

- **General Prevalence:** Out of 842 clinically examined cows, 187 (22.21%) were give positive results (Table 1).

Table (1) General prevalence of hypodermosis in examined cattle

No. of examined cows	No.of positive	Percentage	No. of Negative	Percentage
842	187	22.21	655	77.79

- **Prevalence according to the year's months:** Regarding to the effect of months on the distribution of WFI, the results show that the highest rate 44.44% was recorded in March while the lowest 6.15% was in June (Table 2).

Table (2) Prevalence of hypodermosis according to the months

Month	No. of examined animals	Positive	Percentage	Negative	Percentage
December	140	47	33.57	93	66.43
January	50	15	30	35	70
February	89	29	32.58	60	67.42
March	108	48	44.44	60	55.56
April	110	24	21.8	86	78.2
May	215	16	7.44	199	92.56
June	130	8	6.15	122	93.85
Total	842	187	22.21	655	77.79
$X^2 = 95.2$		$df = 6$		$P = 0.001$	

- **Prevalence according to the animal sex:** The sex of the animals had not any affecting on prevalence of hypodermosis among males 21.27% and females 22.7% of cattle (Table 3).

Table (3) Prevalence of hypodermosis according to sex

Animal sex	No.of examined animals	Positive	Percentage	Negative	Percentage
Male	315	67	21.27	248	78.73
Female	527	120	22.7	407	77.3
Total	842	187	22.21	655	77.79
$X^2 = 257$		$df = 1$		$P = 0.612$	

- **Prevalence according to the animal age:** Related to the animal age the study's animals were divided into two groups young and adults, where they give rate of infection reach to 21% and 23.17 respectively (Table 4).

Table (4) Prevalence of hypodermosis according to age

Animal age	No.of examined animals	Positive	Percentage	Negative	Percentage
Young	376	79	21	297	79
Adults	466	108	23.17	358	76.83
Total	842	187	22.21	655	77.79
$X^2 = 0.56$		$df = 1$		$P = 0.45$	

Discussion

The Babylon province environmental conditions are as in the other middle and south districts of Iraq. Therefore this study may be giving an indication for the hypodermosis in all these districts. The current study was based on clinically parasitological examinations of infected cases, in which the prevalence rate 22.21% was reported in the study area, similar rate of infection in goat had been recorded in Iraq (9). This result was differs from other which depends also on clinical examination in Albania, Italy and Poland which were 31.1%, 85% and from 10-86 % (among herds) respectively (10, 11, 12). There is a wide variation in the prevalence of WFI among different parts of the world (5, 6, 13). These variations in the rates of prevalence in different areas might be due to the differences in the environmental conditions (topography of the land, season, humidity, temperature, rainfall, wind velocity) affecting the development of the warble flies (14). Other deterrents affecting the prevalence might include host specificity, breeds, husbandry and the use of insecticides (5). The month-wise prevalence results were revealed that infestation was concentrated in December to March and then began descended toward the June with significant differences ($P < 0.01$), where the highest rate of prevalence in March and the lowest in June. This may be attributed to the pattern of the life cycle *Hypoderma SPP.*, where the adult flies are active only in warm weather and there is no fly activity below 18C° (15). Regarding to the sex-wise prevalence, the results revealed that higher rate was among females versus males but with non significant differences ($P > 0.05$). This result was disagreement with the results of (5) who said that the prevalence of hypodermosis in males is higher than in females. The explanation of the current study result may be return to the immune depression during gestation and lactation of females. Relating to the age-wise prevalence the result showed that infection is more distributed among adult cows comparing to the young with non significant differences ($P > 0.05$), which may be attributed to the some management practices like that most young animals are still tied in pens where as adults are grazed, hence adults are more exposure to infestation in field than housing young animals. This result was not corresponding with (5) study that referred to opposite results.

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