

***Menopon gaillinae* lice in the golden eagle (*Aquila chrysaetos*) and Marsh harear (*Circus aeruginosus*) in Najaf province-Iraq.**

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(Received 4/5/2017, Accepted 12/6/2017)

Abstract

Our study considered as the first work on ectoparasites of the Golden eagle (*Aquila chrysaetos*) and Marsh harear (*Circus aeruginosus*) in Iraq. Overall, we examined 17 eagles for the period from 01\Nov\2016 till 25\Feb\2017, out of which 4 were found infected (23.5%). All infected birds were female. Aquila was hunted from Najaf sea area. Under the wing and between feathers of Aquila grossly examined for detect any parasites. Lice of genus *Menopon gaillinae* isolated from 4 eagles, from under the wing area. Infected eagles suffering from skin redness. 38 parasites isolated from infected eagle, we prepared a slide from these louse for spp. classification. This study on the first hand record of shaft louse (*M. gaillinae*) in Golden eagle and Marsh harear in Iraq.

Keywords: eagle, lice, Iraq, Najaf, *Menopon gaillinae*.

Introduction:

In Mediterranean landscapes, Aquila it's a typical large eagle in western Asia, Nests of Aquila usually at forest edge, and hunting in open area, In Cyprus, Aquilla its only species of eagles which breed in this island (1). Domestic birds infected with many species of chewing lice, and cause irritability and loss of weight, in many parts of world, chickens infected with *M. gaillinae*. Lice of chickens infect peafowl, pheasants (2). *Menopon gaillinae* feed on blood of hosts, and play role as reservoir and carry of fowl cholera and toxoplasmosis (3). (4) Noticed that the infected birds with *M. gaillinae* suffering from retard the growth lowered the vital activity and lose the body condition. *M. gaillinae* are dorsoventrally, small, flattened lice which infested most birds (5). They appear that this species of lice infect *Gallus gallus* in India. (6) noticed that the *M. gaillinae* spread in summer months more than others.(7) described the *M. gaillinae*, Male: Body small, pale yellow in colour, measuring mm 1.62-1.85 in diameter and mm 0.72-0.8 in span head, traingular, measuring mm 0.29-0.34 in diameter and mm 0.36-0.5 in span antenna four segmented, prothorax large and movable, mesothorax very narrow, completely fused with metathorax, bearing small setae, legs covered with golden brown hairs. The number of setae on I, II and III leg

are four, abdomen ten segmented, tergites all approximately of equal length 10-12. Last segment with distinct genital plate with short bristles, female : body measures mm 1.9-2 in diameter and mm 0.75-0.85 in maximum span head measures mm 0.34-0.38 in diameter and mm 0.45-0.52 in span. A pair of compound eyes present, four segmented antennae. Head with 4 pairs of long marginal setae, marginal abdominal tergal setae from II - X are 8 - 1 2. (8) have shown that mortality due to parasitic diseases is higher than those attributed to some poultry viral infectious diseases such Newcastle disease and fowl pox disease. Ectoparasites create a clinical signs and Tran's viruses, rickettsiae, skin fungi and bacteria, cestodes, nematodes and protozoa (9). In Bulgaria, (10) found of *M. gaillinae*, *Eomenacanthus stramineus*, *Menacanthus cornutus* and *Goniocotes gallinae* in local poultry. Same spp. was found in Turkey (11). In India, (6) found 34% of local poultry were infected with *M. gaillinae*. While (12) found that 51.3% of local poultry in Rampur, India were infected with *M. gaillinae*. In Bangladesh, (13) found that 63% of local poultry infected with *M. gaillinae*. Signs of emaciation of poultry also noticed. In South Africa, (14) found that the 90% of local poultry were infected with chewing lice (*Menopon gaillinae*). In

Nigeria, (15) found 90% of village chickens were infested with 4 types of ectoparasites, 27.3% of them were lice, and they founded that 50% of Gombe village were infested with *M. gallinae*, 85% of them were lice. In Brazil, (16) found 35% of isolated system of poultry was infected with *M. gaillinae*. The favorite sites of parasite were dorsum, venter and wings. They found the mean number of *M. gaillinae* in bird was 3.15 parasite / bird. The head of birds it is a little attack with lice. (17) Record of 11% of backyard chicken infected with *M. gallinae* in California. (18) Were isolate the *M. gaillinae* from chickens in Erbil governorate, while (19) don't founded that's species in Mosuls chickens. (20) Found that the male more infected than female with *M. gallinae*. While (6) noticed that the female has more infection rate with lice than male. (12) Found no significant differences between sexes of poultry which infect with these lice. Aim of this study was to find the chewing lice in eagles in Iraq; also we search for prevalence and intensity of infection.

Results:

Seventeen Golden eagle (*Aquila chrysaetos*) and Marsh harear (*Circus aeruginosus*) (Figure 1) examined (11 females and 6 males), 4 of them were infected with *M. gaillinae* (23.5%) (Figure 2,3 and 4), all of infected birds were female (Table, 1), and we also noticed the crowding factor, 19 lice were isolate. 8, 2, 5 and 4 lice isolated from under wing area of 4 infected Aquila females. From 19 lice (*M. gaillinae*) thirteen were females and six males. When focusing on health situation of infected Aquila them suffering from redness of skin, weakness and loss of appetite, which was very, clear in emaciation. Striking difference according to months of study was very clear; the infection was in its highest in November and was in minor in December, in January and February the parasite was not recorded (Table, 2).

Material and Methods:

In our work, we try to study wild birds, and we chose an eagle as example. 17 eagle which hunted by hunter in area Najaf Sea for period from Nov 2016 to Feb 2017. We pay them and study the ectoparasites of these birds. Lice identified in parasitology lab in veterinary college in Al-Qadisiyah University. *M. gallinae* from Aquila were collected after tying their legs and beaks, by fingers, individual feathers were deflected with fingers\ forceps to record the presence of lice, by forceps we collect parasites, each bird examined for 5 minute, a magnifying lens helps us to find parasite in our work. Lice identified according to (21) on the basis of morphology. Lice prepared for mounting after treating with lactophenol which prepared as following (22):-

Lactic acid (30%)	One part
Phenol	One part
Glycerin	two part
Distil water	One part

Lice leave 7 days in lactophenol for clearing and then fixed by using Canada balsam on slide with cover slip.

Infected eagles having damaged and ruffled feathers due to continuous preening by host to get rid of lice.

Table (1) infection of Golden eagle (*Aquila chrysaetos*) and Marsh harear (*Circus aeruginosus*) with *M. gallinae* according to sex.

Genus	No. examined	No. infected	Infection rate %
Female	11	4	36.36
Male	6	0	0

Table (2) infection rate of eagles with *M. gallinae* according to months of study.

Month of study	No. of examined eagles	No. of infected eagles	Rate of infection %
November	4	3	75
December	6	1	16.66
January	3	0	0
February	4	0	0
Total	17	4	23.5



Fig. (1) Golden eagle (*Aquila chrysaetos*) and Marsh harear (*Circus aeruginosus*).



Fig. (2) *Menopon gallinae* mites in the feathers of Aquila.



Fig. (3) *Menopon gallinae* (dorsal view of female) which isolated from Eagles (X4).



Fig. (4) *Menopon gallinae* (dorsal view of female) which isolated from Eagles (X10)

Discussion:

In Iraq, infection of Golden eagle (*Aquila chrysaetos*) and Marsh harear (*Circus aeruginosus*) with chewing lice (*M. gallinae*) was not documented. Our specific search conducted on distribution of eagle's ectoparasite. Chewing lice are common ectoparasites of wild and domestic birds (23), he found that the *M. gallinae* prevalence between pheasant was 0.8%, intensity was 1 in Czech Republic. The horizontal Trans were the way for the spreading of chewing lice with in one species, and they can survive for several hours or even days without their hosts. 19 lice were isolated from under wing area of 4 infected Aquila females with infection rate 23.5%. From 19 lice (*M. gallinae*) thirteen were females and six males. When focusing on health situation of infected Aquila they suffering from redness of skin, weakness and loss of appetite. *M.gallinae* causes irritation, blood loss,

tissue damage, discomfort, allergy, dermatitis (4). Infected birds scratch its body and picks at the feathers repeatedly (6). *M. gallinae* is a very harmful and dreadful to birds (6, 24), and they found that female of poultry more infected than male in India. (13) Noticed that the lice had a negative response on poultry. Emaciation was noticed of infested birds, which appear in atrophy of thigh muscle, rough plumages and skin palp had plenty of dandruffs were very clear in affected birds, sever parasitism with lice cause petechial haemorrhages. Restlessness, self-mutilation together with feather loss, thermal imbalance, sleeplessness, and affect feeding and loss body weight as (16) noticed that sings of infested poultry with *M. gallinae*. The decrease and disappear of infection in December to February may be due to low temperature. (24) Noticed the effect of low temperature on the *M. gallinae*. While (25)

showed that the intensity of lice increase in winter in Erbil. In Diwanayah city, (26) founded that the *Damalinea* spp. infection decrease in December. We don't found the infection in January and February, and that may be due to low temperature. (10) Found that the female of *Mallophaga* are dominant

over the male. (27) Appeared that the normal male to female ratio of *Mallophaga* is 1:10. Will in South Africa, (14) don't found significantly different in the distribution the females and males of chewing lice. In our search, we do not found lice on male, and that may be due to physiological reasons.

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