

Studies on Human Head Louse *Pediculus humanus capitis* (Anoplura) Infestation (Case Report)

Ryo HATSUSHIKA and Kaoru MIYOSHI*

Department of Parasitology, Kawasaki Medical School,
Kurashiki 701-01, Japan

*Department of Dermatology, Kawasaki Hospital Division,
Kawasaki Medical School, Okayama 700, Japan
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ABSTRACT. Thirteen cases of the human head louse infestation (*Pediculus humanus capitis* De Geer, 1778) in Okayama City were reported. All the patients were found in ages between 2 and 35, and the highest incidence ranged in the age group of 10 years old and younger. The sex ratio of the patients was higher in female than in male. The patients were recognized more often in the early winter months of November and December. Adults and/or eggs (nits) of *Pediculus* louse were localized on hair of all the patients. For the patients Eurax (Crotamiton) cream containing 3% benzyl benzoate was used and the results were remarkable.

Key words : head louse infestation — *Pediculus humanus capitis* — Pediculidae — Anoplura — Entomology

In Japan, the human infestation by head louse (*Pediculus humanus capitis* De Geer, 1778) has been increasing in recent years. The most cases of head louse infestation occurred mainly among schoolchildren, and the population of pediculosis capitis victims has been increasing yearly. This problem now becomes momentous from medical and public health points of view.

We have accumulated a total of 13 cases of *Pediculus* infestation in Okayama City in last two years. It is therefore assumed that the phenomenon will become more pandemic in near future. We report the increasing infestation of human head louse found in order to encourage physicians to pay more attention.

CASE NOTES

The detailed data on 13 patients infested were summarized in Table 1. The first 3 patients with pediculosis capitis admitted to Department of Dermatology, Kawasaki Hospital Division of our school on November 13th, 1981, and the number of patients bearing somewhat similar syndromes have increased since. In Table 1, patients nos. 1 to 3 were a sibling of brother and sister. The cases nos. 5 and 6, and 11 and 13 were in same family respectively. The most patients were found in early winter (November to December) and only 2 cases (nos. 8 and 9) were found in May and October. A majority of 13 patients

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limited in the age range of 2 to 12. Moreover, female patients predominated as shown in Table 1.

TABLE 1. *Pediculus humanus capitis* infestation in Okayama City

Cases No.	Patients		Dates of first examined	Grounds for diagnosis		
	age	sex		adults	eggs	
1*	11	female	Nov. 13th	1981	+	+
2*	10	"	"	"	-	+
3*	7	male	"	"	+	+
4	12	female	"	30th	-	+
5**	2	"	Dec. 1st	"	-	+
6**	30	"	"	"	-	+
7	6	"	"	28th	-	+
8	6	"	May 14th	1982	-	+
9	8	male	Oct. 12th	"	-	+
10	5	female	Nov. "	"	+	+
11***	12	male	"	22th	-	+
12	10	female	"	24th	+	+
13***	35	"	"	30th	-	+

The patients of cases nos. 1, 2 and 3 are sibling infestation to brother and sister, and cases nos. 5 and 6, and cases nos. 11 and 13 are the mother and child, respectively.

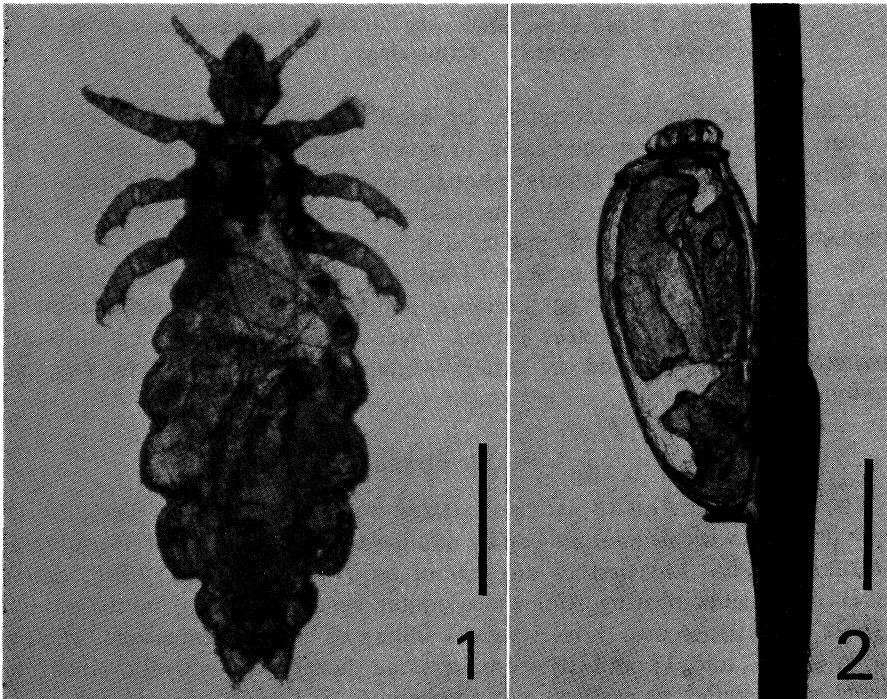


Fig. 1. A female adult of *Pediculus humanus capitis* removed from the patient, ventral view. (bar=0.5mm)

Fig. 2. An egg of *Pediculus humanus capitis* attached firmly to the hair of host. (bar=0.2mm)

The adult and egg (nit) specimens found on the hair of the patients were identified as human head louse, *Pediculus humanus capitis* De Geer, 1778 from morphological features and behavioral characteristics.

The patients mostly schoolchildren of 6 to 12 years old admitted to our hospital advised by nurses or teachers of their schools but none had peculiar subjective symptoms. A small number of the patients however had complained minor urtication.

The body of the head louse is elongated and dorsoventrally flattened in shape, grey in color, and has distinct 3 parts in an ovoid head, a fused thorax with 3 pairs of legs, and a segmented abdomen. A female adult studied measured about 2.0 mm in length (Fig. 1), and male is generally smaller than female. The *Pediculus* eggs are almost ellipsoidal in shape, whitish in color, and measured about 0.6 mm longitudinally (Fig. 2). The live eggs were firmly attached to hair of the host (Fig. 2). The eggs of *Pediculus* adhered to hair remained for a long period of time even after they have hatched out.

An infestation route in the present study is unknown, but it may be true that the younger patients were infested originally from their schoolmates, then the familial infestation gradually spread out. For the treatment of the patients Eurax (Crotamiton) cream containing 3% benzyl benzoate was used and remarkably good results were obtained.

DISCUSSION

The lice are parasites for avians and mammals having characteristic of host specificity. The parasitic lice to man belonging to Order Anoplura (sucking lice) and Family Pediculidae are known with 3 species, i. e., *Pediculus humanus capitis* De Geer, 1778 (head louse), *Pediculus humanus corporis* De Geer, 1778 (body louse) and *Phthirus pubis* Linnaeus, 1758 (crab louse). Two species head louse and body louse are difficult to distinguish each other by their external appearance although both substantially differ in habitates, namely the former lives on hair and scalp, and latter on clothings of hosts.

The human lice, once a great vogue in Japan around the Second World War, had almost vanished within several years by use of insecticides, DDT and γ -BHC. The head louse infestation however is again frequently occurring among schoolchildren in recent years, and it gives us serious social problem from medical and public health points of view.

Although full information on the head louse infestation in Japan has not been available, epidemiological surveys on pediculosis capitis have been reported elsewhere such as in the United States¹⁻³, England⁴⁻⁶, Iran⁷, Guyana⁸, Germany⁹, Malaysia^{10,11}, Chile¹², Italy¹³, Formosa¹⁴, Canada¹⁵, West Africa¹⁶ and others. The prevalence of *Pediculus humanus capitis* infestation in schoolchildren in some of those countries reported are ; 4.7% in Germany⁹, 25.9% in Chile¹², 2.4% in England⁶, 7.2% in the United States³, 2.7% in Canada¹⁵, 10.7% in Malaysia¹¹.

Among *Pediculus humanus capitis* infestation in schoolchildren in our country,

little has been known so far with some exception. Quite recently, Inoue¹⁷⁾ reported the recent trends of the infestation among the primary schools in Japan that the infestation rates of pediculosis capitis among children was 4.0 to 5.0% in limited numbers of public institutions and community. The females were predominant in all classes. According to the personal communication from a local school doctor, the children infested with head louse seem to be more than half of each class, and pediculosis capitis were found more often in 3rd and 4th-grades. The data on age and sex distribution in the present study corresponded to the reports mentioned above.

The relationship between the incidence of head louse infestation and hair length of the patients seemed significant, but from epidemiological study conducted by public schools in the United States, Slonka et al.³⁾ concluded that sex, age, race, socioeconomic status and family size were influential to the distribution of *Pediculus humanus capitis* infestation but the hair length was not a factor.

It is well known that the human louse not only a blood sucker but also a transmitter endemic diseases to man, such as typhus fever, trench fever, relapsing fever and infectious diseases by bacteria and viruses. It is assumed that the family members of trade firms located in developing countries caught the infestation through native children and then the lice were migrated into Japan through infested families when they returned home.

The head louse infestation is now much in vogue among schoolchildren in Japan. The cause underlying of increasing vogue appears to be the strong proof that school teachers and family members of patients have no accurate knowledge about the head louse, and this tendency will undoubtedly become stronger in near future. Fortunately, the endemic germs were not identified from the human lice in Japan as yet, the utmost care must be taken because once the parasites harboring new germs penetrate to us from abroad, it will definitely give the most dangerous risks spreading diseases.

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