Research Note

A study of ixodid tick bite sites on the human body in Hokkaido

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One hundred and thirty-six ixodid tick specimens were collected from human bodies in Hokkaido. This number includes previous reports by authors (Miyamoto, 1982; Miyamoto and Takahashi, 1990; Miyamoto and Nakao, 1991) since 1980. The tick specimens consisted of 4 species in two genera, *i.e.*, 119 individuals of *Ixodes persulcatus* Schulze, 15 *Ixodes ovatus* Neumann, and one each of *Ixodes nipponensis* Kitaoka and Saito and *Haemaphysalis flava* Neumann. All of the specimens collected were female except one male *I. persulcatus*.

It seems from the above result that *I. persulcatus* is a more human-attacking species (87.5%) than *I. ovatus* (11.0%) in this locality. Tick bite cases occurred between April and October, and the peak was in June (Table 1). More tick specimens were removed from men than from women (87 and 49, respectively). Attempts were made to compare the sites of tick bites (head, body and limbs) and establish an age-profile over a 10-year period.

On the whole, more ticks were detected from the body (47.1%) than from the head (38.2%) or limbs (14.7%). But in the youngest group (1-10 years old) the head was the more preferential infestation site (34 cases, 87.2%), including 7 cases (*I. persulcatus* in 6 and *I. ovatus* in 1) of the auditory canal, than the body (12.8%). The second

largest group infested on the head was the group of people over 60 years age with a percentage of 40.9. In other age groups, ticks were mainly removed from the body (Table 2). These results are similar to the findings on adults of *Ixodes dammini* and *Dermacentor variabilis* in an area north of New York State (Falco and Fish, 1988) and *D. variabilis* in North Carolina State (Slaff and Newton, 1993). Rare sites of tick infestation were on the eyeball (Miyamoto and Miyamoto, 1990), the scrotum in one and the glans in two cases.

No difference was observed between *I. persulcatus* and *I. ovatus* in their infestation sites.

People with tick infestation, especially *I. persulcatus*, are liable to get Lyme borreliosis, because *Borrelia burgdorferi* sensu lato has been isolated from this tick species at Hokkaido, Yamanashi and Nagano Prefectures in Japan (Miyamoto *et al.*, 1992a, b; Uchikawa *et al.*, 1991). Therefore, children must be inspected for ticks on the head by their parents after they come home from outdoor play; and if they are found to be infested, the tick must be removed immediately in order to avoid Lyme borreliosis infection.

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Table 1 Monthly occurrence of cases with an ixodid tick bite in Hokkaido (1980-1993).

Sex (age)	Monthly occurrence							Total (%)
	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	
Male (1-61)	4 (Ip)*	20 $\left\{\begin{smallmatrix} \text{Ip} & 17 \\ \text{Io} & 2 \\ \text{Hf} & 1 \end{smallmatrix}\right.$	41 $\left\{\begin{smallmatrix} \text{Ip} & 37 \\ \text{Io} & 3 \\ \text{In} & 1 \end{smallmatrix}\right.$	13 $\left\{\begin{smallmatrix} \text{Ip} & 12 \\ \text{Io} & 1 \end{smallmatrix}\right.$	7 (Ip)	2 (Ip)	0	87 $\left\{\begin{smallmatrix} \text{Ip} & 79 \\ \text{Io} & 6 \\ \text{In} & 1 \\ \text{Hf} & 1 \end{smallmatrix}\right.$
Female (1-78)	2 $\left\{\begin{smallmatrix} \text{Ip} & 1 \\ \text{Io} & 1 \end{smallmatrix}\right.$	15 $\left\{\begin{smallmatrix} \text{Ip} & 11 \\ \text{Io} & 4 \end{smallmatrix}\right.$	23 $\left\{\begin{smallmatrix} \text{Ip} & 21 \\ \text{Io} & 2 \end{smallmatrix}\right.$	3 (Ip)	1 (Ip)	4 $\left\{\begin{smallmatrix} \text{Ip} & 3^{**} \\ \text{Io} & 1 \end{smallmatrix}\right.$	1 (Io)	49 $\left\{\begin{smallmatrix} \text{Ip} & 40 \\ \text{Io} & 9 \end{smallmatrix}\right.$
Total	6 $\left\{\begin{smallmatrix} \text{Ip} & 5 \\ \text{Io} & 1 \end{smallmatrix}\right.$	35 $\left\{\begin{smallmatrix} \text{Ip} & 28 \\ \text{Io} & 6 \\ \text{Hf} & 1 \end{smallmatrix}\right.$	64 $\left\{\begin{smallmatrix} \text{Ip} & 58 \\ \text{Io} & 5 \\ \text{In} & 1 \end{smallmatrix}\right.$	16 $\left\{\begin{smallmatrix} \text{Ip} & 15 \\ \text{Io} & 1 \end{smallmatrix}\right.$	8 (Ip)	6 $\left\{\begin{smallmatrix} \text{Ip} & 5 \\ \text{Io} & 1 \end{smallmatrix}\right.$	1 (Io)	136 $\left\{\begin{smallmatrix} \text{Ip} & 119 & (87.5) \\ \text{Io} & 15 & (11.0) \\ \text{In} & 1 & (0.7) \\ \text{Hf} & 1 & (0.7) \end{smallmatrix}\right.$

* Ip, *Ixodes persulcatus*; Io, *I. ovatus*; In, *I. nipponensis*; Hf, *Haemaphysalis flava*. ** One case with male Ip.

Table 2 Comparison of tick infestation site on human body and an age-profile of the patients in Hokkaido, Japan.

Age	Site	Tick bite case			(%)	Total
		Male	Female	Subtotal		
1-10	Head	19(3)*	15(4)*	34(7)*	(87.2)	39
	Body	2	3	5	(12.8)	
	Limbs	0	0	0	0	
11-20	H.	1	0	1	(20.0)	5
	B.	3	1	4	(80.0)	
	L.	0	0	0	0	
21-30	H.	1	0	1	(8.3)	12
	B.	9	1	10	(83.3)	
	L.	1	0	1	(8.3)	
31-40	H.	2	0	2	(8.3)	24
	B.	17	3	20	(83.3)	
	L.	2	0	2	(8.3)	
41-50	H.	2	1	3	(16.7)	18
	B.	4	2	6	(33.3)	
	L.	7	2	9	(50.0)	
51-60	H.	1	1	2	(12.5)	16
	B.	5	6	11	(68.8)	
	L.	2	1	3	(18.8)	
>60	H.	2	7(1)*	9(1)*	(40.9)	22
	B.	4	4	8	(36.4)	
	L.	3	2	5	(22.7)	
Total	H.	28	24	52(8)*	(38.2)	136
	B.	44	20	64	(47.1)	
	L.	15	5	20	(14.7)	

* Case of auditory canal.

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摘 要

年齢別症例とマダニ寄生部位の検討

1980年から13年間に北海道の旭川を中心にした地域で人体寄生のマダニ類標本 136 個体を検査した。その種類はシュルツェマダニ (119個体), ヤマトマダニ (15), タネガタマダニ (1), キチマダニ (1) であった。人体への寄生は4月から10月間に見られ, その最多発生数は6月に見られる。これらマダニの寄生部位を頭部, 胴体部, 四肢に分けて年齢構成別に比較すると, 1~10 歳群では外耳道内寄生7例を含めて頭部に34例 (87.2%) と多く, 次いで60歳以上群の9例 (40.9%) であった。11歳から60歳までの被害者は主に胴体部や四肢より回収される。寄生したマダニはライム病感染防止のために, ただちに除去されるべきで, とくに子供は野外活動から帰宅後に両親が頭部を検査する必要がある。