

## A case of tick bite by a spontaneously retreated *Ixodes nipponensis*

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**Abstract:** A 58-year old housewife consulted us about 1 cm sized, dark-brownish, bean-like mass which was dropped spontaneously from indurated skin lesion on her abdomen. The mass was identified morphologically as an engorged female *Ixodes nipponensis*. Nine days earlier, she had an excursion collecting edible sprouts of wild grass. Spontaneous retreat has been unusual in clinical tick bites in Korea. Fourteen cases of tick bite described in the Korean literature were reviewed briefly in relation to Lyme borreliosis.

**Key words:** *Ixodes nipponensis*, tick bite

Since the first authentic human case description of tick bite in Korea (Kang *et al.*, 1982), thirteen cases have been reported up to the present. Of them, all the inflicted ticks were belonging to the genus *Ixodes* except a recent bite by *Haemaphysalis flava* (Park, 1995). Since a tick from the fourth Korean case was identified as *Ixodes nipponensis* (Paik *et al.*, 1989), ticks from nine of 13 cases have been identified as the same species. We experienced an additional case of tick bite, and record it briefly here.

**Case Report:** A 58-year old Korean woman/worker at a printing factory in Anyang, Kyonggi-do had felt discomfort and itching sensation on her right upper quadrant of abdominal wall for a few days. She noticed a small mass there. The mass had quickly grown in the last 3 days. The mass dropped out by itself when she inadvertently palpated it. She consulted the detached mass to Dr. K.H. Lee, who referred it to one of us (SYC) again. At center of the purplish-red induration of about 3 cm in diameter, a possible puncture wound

of 1 mm was clearly visible (Fig. 1A). The mass was an engorged tick, 7 X 6.5 mm in size (Fig. 1B). Retrospectively, the patient could not recall any contact with grass land, except an excursion party to Hoengsong-gun, Kangwon-do, 9 days earlier on the Memorial Day (June 6, 1995) to collect edible sprouts of wild grass.

The tick specimen was a female *Ixodes nipponensis* Kitaoka et Saito, by combination of morphologic characters (Yamaguti *et al.*, 1971) such as hypostome with large strong denticles laterally (Fig. 2), internal spur on coxa I much longer than external spur which does not cover 1/3 of coxa II (Fig. 3) and wide distance between the porous areas on the basis capituli (Fig. 4).

This species is quite similar to *I. persulcatus* but distinguishable. In *I. nipponensis*, the body is smaller and is covered a little more densely with thick setae; coxa I has a slightly shorter spur; in the female, the internal spur on coxa I is shorter and does not cover 1/3 of coxa II; distance between porous areas on basis capituli is wider than *I. persulcatus* (Yamaguti *et al.*, 1971).

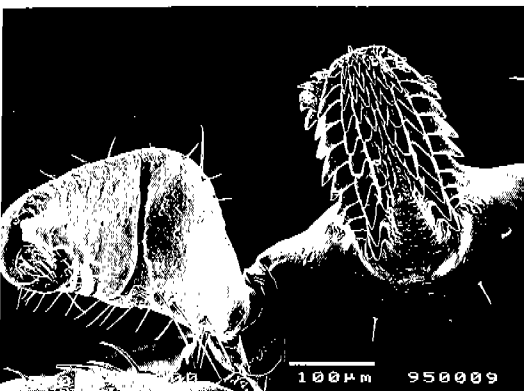
Faunal studies of Korean ticks were done by Yamaguti *et al.* (1971) and Noh (1972) who

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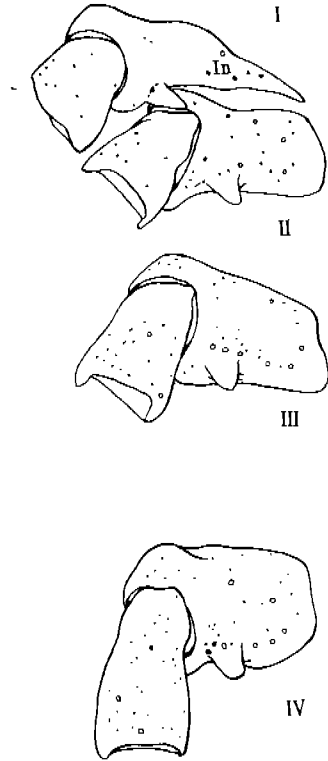


**Fig. 1.** Puncture wound at the center of an induration on abdomen (A) and dark brownish, engorged female tick (B) retreated spontaneously from the lesion.



**Fig. 2.** Ventral view of gnathosome showing hypostome with large strong denticles projected laterally which is one of the characteristic differential features of *Ixodes nipponensis*.

described 12 species of 3 genera belonging to the Family Ixodidae and a species of a genus



**Fig. 3.** Arrangement of coxae I-IV in the present specimen. The coxa I showed much longer internal spur (In) than external spur.



**Fig. 4.** Dorsal view of gnathosome showing wide distance between porous areas on basis capituli which is one of the characteristic features of *Ixodes nipponensis*.

belonging to the Family Argasidae. Noh and Cho (1983) added Korea as a new locality of *I. nipponensis*, which has been later found the

**Table 1.** Summary of the clinical findings of 14 cases of tick bites in Korea

Author	Year	Patient (age/sex)	Residence	No. of lesions	Location	Duration of feeding (days)	Tick species
Kang <i>et al.</i>	1982	55/M	Wonju	1	lower back	7	<i>Ixodes sp.</i>
Cho <i>et al.</i>	1985	23/M	Paju Gun	1	scrotum	10	<i>Ixodes sp.</i>
Pyun <i>et al.</i>	1987	58/F	Taegu	1	scalp	7	<i>Ixodes sp.</i>
Paik <i>et al.</i>	1989	53/F	Suwon	1	lower abdomen	5 hrs	<i>I. nipponensis</i>
Lee <i>et al.</i>	1989	63/F	Seoul	1	scalp	7	<i>I. nipponensis</i>
Houh <i>et al.</i>	1989	70/F	Kwangju	1	scalp	unknown	<i>I. ovatus</i>
Houh <i>et al.</i>	1990	22/M	Kwangju	1	scalp	unknown	<i>I. nipponensis</i>
Cho <i>et al.</i>	1991	10/F	Taejon	1	scalp	7	<i>I. nipponensis</i>
	1991	5/F	Seoul	1	scalp	unknown	<i>I. nipponensis</i>
	1991	68/F	Seoul	1	popliteal	9	<i>Ixodes sp.</i>
	1991	49/M	Chonju	1	inguinal	10	<i>Ixodes sp.</i>
	1992	62/F	Chonju	2	axilla	7	<i>I. nipponensis</i>
Park	1995	31/F	Taejon	1	upper back	unknown	<i>H. flava*</i>
Present case		58/F	Hoengsong	1	abdomen	9	<i>I. nipponensis</i>

\**Haemaphysalis flava*

most important species attacking human in this country (Table 1).

Most of infested cases had their lesions on scalp (six cases) or abdomen (two cases) probably because ticks attacked victims when lying down or sleeping on grass. Some of the lesions were reported to reveal prominent septal or lobular panniculitis widely around the puncture site where hypostome were inserted (Cho *et al.*, 1994). Ticks from the hitherto reported cases failed to be removed without tick damage. Only the present case could collect a naturally retreating, complete tick although the patient had no intention of its removal. It has been known that Ixodid ticks retreat from their natural hosts after 7-12 days of attachment.

Recently medical attention has been paid to Ixodid bites mainly because they transmit *Borrelia burgdorferi*, the etiologic spirochete of Lyme borreliosis. In Japan, *I. ovatus* and *I. persulcatus* have been proven as the vectors of this disease (Carberg and Naito, 1991). In Korea, *B. burgdorferi* was isolated from *I. persulcatus* (Park *et al.*, 1992). But a human case of Lyme borreliosis has not yet been reported in this country. In this regard, specific identification of the infested tick seems important. Usually the local biting lesions are treated symptomatically without difficulty. Follow-up of the patient seems, however,

important because the initial signs of Lyme borreliosis, erythema chronicum migrans (Steere *et al.*, 1977) may be observed around the biting site.

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=초록=

자연탈락한 일본참진드기 교상 1례

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일본참진드기(*Ixodes nipponensis*)에 의한 참진드기 교상 1례를 보고한다. 환자는 경기도 안양시 거주 58세 가정주부이며 우측 상복부에서 서서히 커지는 종괴를 발견하였다. 환자는 환부를 만지작거리다가 탈락한 총체를 가지고 내원하였으며 총체는 해부현미경 및 주사전자현미경 검사결과 7 X 6.5 mm 크기의 일본참진드기(*Ixodes nipponensis*) 자성충(雌成蟲, 암놈)으로 동정하였다. 환자는 이 일이 있기 9일 전에 강원도 횡성군 야산에 나뭇캐러 하루 다녀온 일이 있었다. 국내문헌에 보고된 14례의 참진드기 교상에 대하여 간략히 소개하였다.

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