

Carnus hemapterus Nitzsch (Diptera, Carnidae) found from
the external auditory meatus of human, new to Japan

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Abstract: A bird-parasitic fly, *Carnus hemapterus* Nitzsch was found from the external auditory meatus of a patient with a complaint of a ringing drumming in her ear in Hokkaido, Japan. There were ten odd red spots (0.5 mm dia.) on the left eardrum. This is the first human case caused by *C. hemapterus*. This species and the family Carnidae also are new to Japan.

INTRODUCTION

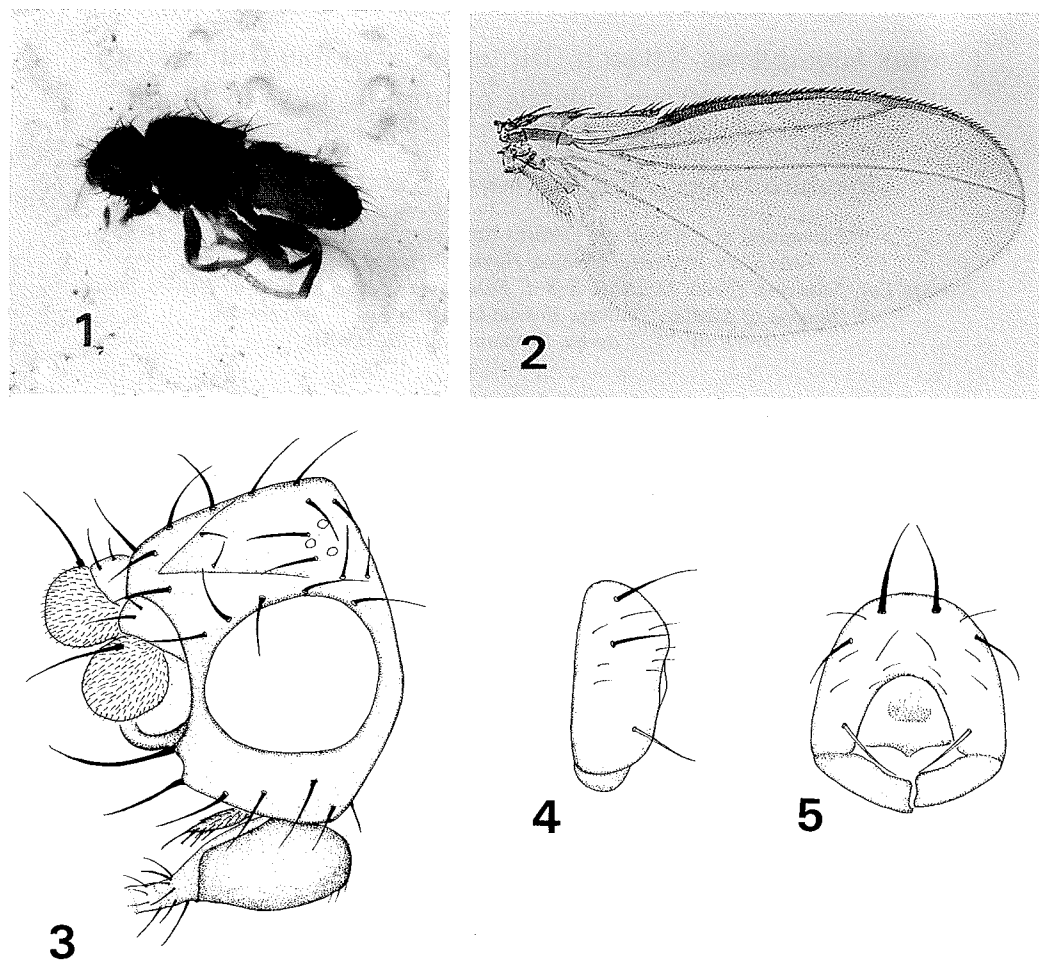
Biotic foreign bodies examined by otolaryngological clinics are not infrequent, and scattered reports have been published. In Japan, Ohkawa (1979) reviewed 372 cases of insects invading the external ear of human and identified 107 species belonging to 66 families in 12 orders. Almost all of these species were known species inhabiting the human environment and its vicinity.

In June 1999, a small dipterous fly was found in the external auditory meatus of a patient at a hospital in Hokkaido, Japan. On close examination, this species proved to be *Carnus hemapterus* Nitzsch, 1818 belonging to the family Carnidae. This species is known to be an ectoparasite of nestling birds mainly in the Palaearctic and Nearctic Regions (Grimaldi, 1997; Papp, 1998). A human case caused by *C. hemapterus* has not been reported previously. This species and even also the family Carnidae are new to Japan.

In the present paper, we report this human case attacked by *C. hemapterus* with a redescription of the Japanese specimen.

CASE REPORT

On 23 June 1999, a 49-year-old woman with a complaint of a ringing drumming in her left ear after an afternoon nap in the field consulted a hospital in Fukagawa City, Hokkaido. A black foreign matter (1.0 mm dia.) and ten odd red spots (0.5 mm dia.) were observed on the left eardrum. By cleaning the external ear with a wash, a living acalypterate adult fly (Fig. 1) appeared from the external auditory meatus with the wash solution. As a result of the examination, this species was identified to be *C. hemapterus* Nitzsch of the family Carnidae. After cleaning the external ear, the ringing drumming, the black foreign matter and red spots on the eardrum disappeared and her hearing ability was recovered.



Figs. 1-5. *C. hemapterus* Nitzsch—1, Adult male, lateral view (left); 2, wing, dorsal view (right); 3, head; 4, male genitalia, lateral view; 5, ditto, posterior view.

TAXONOMY

Family Carnidae

[Japanese name: Chibi-kobae-ka]

Genus *Carnus* Nitzsch

[Japanese name: Chisui-kobae-zoku]

Carnus Nitzsch, 1818: Germar's Mag. Ent., 3: 305.

Type-species: *Carnus hemapterus* Nitzsch, 1818.

Diagnosis. Head more or less round; frons with 2 medioclinate and 2 laterocline orbitals; postvertical setae absent; 2 pairs of vibrissae present; proboscis heavily sclerotized and bulbous; notum with 1 pair dorsocentrals; wings present only in

young specimens; crossvein dm-cu absent; in female, tergites reduced and sternites 1-5 absent; lateral membrane of abdomen with dense, setiferous spots; male epandrium and surstylus developed; cercus not protruded and without distinct setae.

Recently, the genus *Carnus* was revised by Grimaldi (1997). According to him, this genus comprises 1 Palaearctic, 1 Oriental, 1 Afrotropical and 3 Nearctic species.

Carnus hemapterus Nitzsch

[Japanese name: Tori-chisui-kobae]

Figs. 1-5

Carnus hemapterus Nitzsch, 1818; Germar's Mag. Ent., 3: 305.

Type-locality: Sachsen (Germany).

Male. Head (Fig. 3) blackish-brown: eye slightly ovoid; 3rd segment of antenna rounded; arista pubescent; frons with two lower pairs of medioclinate setae and two upper pairs of laterocline setae; 1 paravertic, 1 inner vertical and 1 outer vertical present; postvertical setae absent; vibrissal angle with 2 strong vibrissae; genal setae comparatively strong; palpus small; proboscis bulbous, heavily sclerotized and with inconspicuous labella.

Thorax: mesonotum blackish; pleuron and scutellum blackish brown; 1 strong postpronotal, 1 prestural, 2 notopleural, 1 poststural supra-alar, 1 dorsocentral and 2 pairs of scutellar setae present. Legs slender without distinct features; femora and tibiae brown, tarsi yellowish. Wing (Fig. 2) hyaline; costa with both humeral and subcostal break; M_1 vein weak and without crossvein dm-cu; anal cell absent; knob of halter light brown.

Abdomen: tergites 1 to 5 heavily sclerotized; sternites weakly pigmented; lateral membrane with numerous setiferous sclerotized spots (Fig. 1); epandrium developed (Figs. 4, 5) and surstylus broad, rectangular-shaped and without setae (Fig. 4).

Body length: 1.3 mm. Wing length: 1.2 mm.

Specimen examined: 1♂, Numata-cho, Sorachi, Hokkaido, Japan, 23 June 1999, M. Sanada leg.

Remarks. According to Grimaldi (1997), *C. hemapterus* is very similar to *C. occidentalis* Grimaldi, but is distinguished from it in having a longer surstylus that is almost rectangular (apical width/total length approximately 0.3 to 0.45). Surstylus and other features of a Japanese specimen agreed with those of *C. hemapterus*.

DISCUSSION

Carnus hemapterus Nitzsch is an ectoparasite of nestling birds of various species particularly in Europe and North America (Sabrosky, 1987; Grimaldi, 1997;

Papp, 1998). Adults and larvae have been frequently found in birds breeding in hollows of trees or in cavities; they are also common in nests built on trees or on bushes (Bequaert, 1942; Capelle and Whitworth, 1973; Cannings, 1986; Papp, 1998). Adults are bloodsucking and are adapted to live on young, downy nestlings (Kirkpatrick and Calvin, 1989). There has been no report on a human case caused by this species until now; this is the first human case by *C. hemapterus*.

Ohkawa (1979) noted that invasions into the external auditory meatus of human were mainly caused by phototropic and indoor living insects at nighttime. The present human case that occurred in the daytime is considered to be involved in habits of an adult of this species. Guiguen *et al.* (1983) reported that *C. hemapterus* overwinters usually as pupa in the bird nests and disperses after eclosion in spring. Little, however, is known of the behaviour of adults when nestling birds are unavailable. It is well known that the adults possess wings after their eclosures till they can find a new bird's nest, then break down their wings themselves. According to Kirkpatrick and Calvin (1989), winged adult *C. hemapterus* must seek actively a new bird's nest. It is probable that the present individual with wings accidentally invaded the external auditory meatus of human because of the unavailability of nestling birds during daytime in the field. *Carnus hemapterus* inhabiting the nests in hollows or cavities of trees is considered to be independent of anthropobiocoenoses. Our findings indicate that human interference with nature leads such asynanthropic fly into new contacts with human.

It is unclear whether this individual sucked the blood or not on the eardrum, but the red spots observed suggest that this adult tried to suck the blood on the eardrum of a human.

There have been some speculations on a vectorial role for *C. hemapterus* in transmitting avian hemotrophic protozoan

parasites (Lloyd and Philip, 1966; Fitzner and Woodley, 1983; Kirkpatrick and Colvin, 1989), but no evidence exists for this possibility.

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摘 要

人の外耳道から見い出された日本新記録の
Carnus hemapterus Nitzsch トリチスイ
コバエ (双翅目, チビコバエ科)

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1999年6月、北海道沼田町在住の主婦(49歳)が自家の山で草刈りの合間の昼寝の後、「ゴロゴロ」という雷のような耳鳴りを自覚し、深川市の耳鼻咽喉科医院に来院した。この患者の外耳道左鼓膜一面に径約0.5 mmの赤色小斑点が十数個と黒点1個を認め、耳洗浄を行ったところ、無弁類ハエ成虫一匹が生きたまま出現した。このハエを検討したところ、Family Carnidaeの*Carnus hemapterus* Nitzsch, 1818であることが判明した。本種は、ヨーロッパ、北アフリカ、ロシア、アメリカ、カナダに分布し、日本からは未記録であった。また、本種が属する科も日本で初めての記録となり、科の和名をチビコバエ科(新称)とし、種の和名をトリチスイコバエ(新称)とした。

本種は樹洞性をはじめとする様々な野鳥の巣のヒナに寄生・吸血することが知られているが、今まで人体寄生例はなく、今回が初めての症例報告となる。