

Human Biting Plant Bug *Campyloneura virgula* (Hemiptera: *Miridae*): First Case Report in Türkiye

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ABSTRACT

Campyloneura virgula is a plant bug found in many parts of the world. While information about the human biting of this insect is available in the literature, this is the first case report of such an incident in Türkiye. The patient was a 44-year-old man who was bitten by *Campyloneura virgula* in June of 2021. Clinical signs were recorded, and the bite's effects were reduced within a few days. Possible reasons and outcomes of the incident were discussed.

Keywords: *Campyloneura virgula*, plant bug, human bite

1. INTRODUCTION

Campyloneura virgula is a predatory insect that feeds on a variety of plants and small insects and is commonly found in Europe, Africa, and Asia. It belongs to the *Miridae* family, and adults can reach a length of 4-5 millimeters. The insect's pale-yellow body has a black head, long antennae with red bands, and bright yellow cuneus tips (1, 2). Adult *C. virgula* have yellow scutellum, pronotums with a red edge stripe, and light green transparent hemelytra, while nymphs have a red stripe along the pronotum edge and are yellow. The rarity of males suggests that the insect is possibly parthenogenetic (3).

Campyloneura virgula is truly omnivorous and can survive by hunting small insects, such as aphids and red mites, as well as plants, making it a destructive pest (2). Adults can be found on and around a variety of deciduous trees from July to October, while the nymphs emerge in May. Mirids which *C. virgula* was classified, are also known as small plant bugs that feed on plants. Although they can bite humans, it is relatively uncommon. The reasons for this behavior are unknown, and the transmission of pathogens from mirids to humans was not confirmed. The possibility of any diseases related to *C. virgula* is also unknown (2, 4, 5). While there have been a few reported cases of mirids biting humans, little information is available about the clinical effects and consequences of *C. virgula* human biting and it is the first case report of human biting *C. virgula* in Türkiye.



Figure 1. Stereo-microscopic appearances of *Campyloneura virgula*

2. CASE REPORT

We present the first case report of a human bitten by *C. virgula* in Türkiye, confirmed by stereo-microscopic examination (Fig.1). The patient was a 44-year-old man who reported being bitten below the elbow. Since he was a researcher in parasitology field, he had the chance to observe the whole course in detail. He was bitten in Tekirdağ Namık Kemal University Campus in June, humidity and the temperature in the location were 77% and 21.6°C respectively. The initial biting lasted approximately two minutes, followed by repeated biting for about one minute (Fig.2-A). The patient described the bite as very painful, worse than a mosquito bite, and the feeding behavior was similar to that of *Cimex* spp., occurring in a train-like pattern (Fig. 2 – B).

After the bite, the patient experienced itching, which lasted for about 30 minutes. Local swelling was observed for a day,

and redness persisted for five days (Fig.2-C). After three days, the redness began to spread beyond the initial bite site, but there were no clinical manifestations such as fever or malaise. No local treatment was administered (Fig.2-D).

It is worth noting that there is no report of *C. virgula* biting humans in Türkiye prior to this incident.

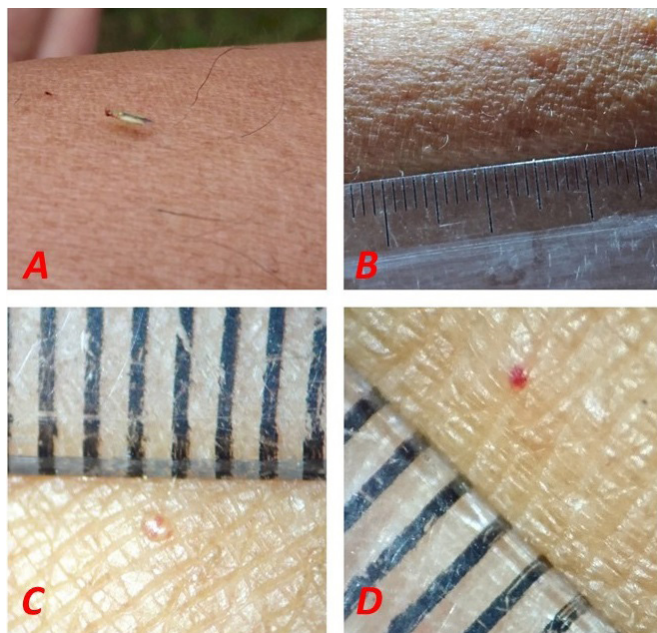


Figure 2. A-Campyloneura virgula on biting site, B – Train like pattern on biting site, C – Local swelling in biting site, D – Redness in biting site after 5 days

3. DISCUSSION

Miridae family is known as plant leaf bugs that feed on the many types of trees and plants. Some of the *Miridae* bugs, such as *C. virgula*, have zoophytophagy behavior in feeding, and they can feed on spider mites, aphids, psocids, and chrysomelid larvae (1, 5). Mirids have active flying behavior and can be seen nearby human populations. Several mirids are known to bite humans and their bites are described as more painful than other bloodsucking arthropods, for instance, mosquitos. However, the reason for the blood-sucking behavior is still unknown (5). Case reports on human biting mirids, namely *Blepharidopterus angulatus* and *Phytocoris buenoi*, and clinical manifestations were reported (6, 7). Most of the human-biting *Miridae* cases were seen in northern parts of America, but cases also have been reported from other regions such as the UK, Japan, South Africa, and Nigeria (5). There is no report about the transmission of pathogens or post-biting systematic allergy or any medication recommendations described specifically. The close proximity of the human residential areas to mirids' natural habitats and their zoophytophagic feeding behavior was suggested as the reason for human cases (2). On the other hand, due to the dominant feeding behavior of *C.virgula*, it is highly unlikely that this organism would be

able to act as a vector for pathogenic microorganisms that could be harmful to humans. It is unclear whether these bites can cause any serious health complications or if they are simply an annoyance. Further research is needed to better understand the potential risks associated with mirid bites and to develop effective strategies for preventing them. In the meantime, it is recommended that people avoid handling or coming into close contact with mirids in order to reduce the risk of being bitten.

4. CONCLUSION

To date, no research has been conducted to determine the ability of Mirids to transmit human diseases. However, the identification of *C. virgula* and its documented biting behavior in specific regions raises concerns about the possible public health risks associated with this insect. Further investigation is therefore suggested to evaluate the potential for disease transmission and to develop appropriate measures for mitigating any associated health threats. In the field of agricultural research in Türkiye, various studies have been conducted on the *Miridae* family. However, there is currently no research available on the ecology of *C.virgula* or its host and parasite interaction.

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