Suspected asymptomatic alimentary tract myiasis due to
*Lucilia sericata* (Diptera: Calliphoridae) occurred in
a general hospital by commercially delivered lunch

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Abstract: A nurse of a certain general hospital who had eaten a box lunch, it
found numerous wriggling maggots beneath a slice of baked salmon. She immediately
ceased ingestion of the salmon, but some of the food with maggots might have already
been swallowed. But she did not complain of any abdominal symptoms and signs
during the following several days. The collected larvae were identified as 2nd instar
larvae of *Lucilia sericata* from their morphological characteristics.

Key words: *Lucilia sericata*, intestinal myiasis, box lunch, nurse, Tochigi

INTRODUCTION

We have already reported 12 cases of
myiasis; they were due to *Lucilia sericata*
(Chigusa and Sugiyama, 1987; Chigusa et al.,
(Chigusa et al., 1996), *Sarcophaga peregrina*
(Chigusa et al., 1994), *S. similis* (Chigusa et al.,
1994), *S. melanura* (Chigusa et al.,
1997), *S. ruficornis* (Chigusa et al., 1998b)
and *Dryomyza formosa* (Chigusa et al.,
2000). Among them, we experienced cases of
"pre-condition" and "suspected" intestinal
myiasis (Chigusa et al., 1998b, 2000). Concerning alimentary tract myiasis, eggs
or larvae of many fly species are deposited
on the food and sometimes survive the
journey down the alimentary tract. They
may then develop in folds of the mucous
membrane of the gastrointestinal tract,
causing pain, vomiting, diarrhea or even
ulceration before being evacuated.

Kenney (1945), in an experimental
study of intestinal myiasis conducted
with 60 volunteers, found that although
nausea, vomiting, diarrhea and gastrointestinal disturbances occurred in 50 out of
60 cases, other volunteers (i.e., 10) de
veloped no clinical manifestations. Regarding the fly species and numbers ingested,
he employed 20 maggots each of Genera
*Musca*, *Calliphora* and *Sarcophaga*.

Here we report for the first time a potential case of suspected intestinal myiasis
due to *Lucilia sericata* (Calliphoridae) in a
healthy nurse in a general hospital by
eating a delivered box lunch.

CASE PRESENTATION

A nurse of a certain general hospital
asked for delivery of a box lunch from
HOKABEN shop. The lunch was delivered
to the nurse station located on the 6th floor of the hospital at 6:00 p.m., June 6 (day 0). The hospital is located in Tochigi Prefecture, around 100 km northeast Tokyo. She was on duty that night, so did not have this meal until 5:00 a.m., June 7 (day 1) with opening the lunch box till then while eating box lunch, she found numerous wriggling larvae beneath a slice of baked salmon, which she picked up with her chopsticks. She immediately ceased ingestion of the salmon, but some of the food with maggots might have already been swallowed. However, none of her three other colleagues who also ordered the same-type box lunch at the same time found such small creatures on their food. She consulted the gastroenterologist (T.K.) at 10:00 a.m., June 7 (day 1). She felt a slight discomfort sensation, but she thought that might be psychological effects due to having swallowed maggots and did not complain of any abdominal symptoms and signs for the following several days. The collected larvae from the baked salmon slice numbered 17; and their body length was 5 mm. Among the collected larvae, three were preserved in 70% alcohol solution with temperature of 70°C and two were used for tentative identification of the fly larvae. The residue were reared with pork at under 25°C and 60% RH, and they pupariated on June 12 (day 6) and 13 (day 7). All the pupae emerged between June 20 (day 14) and June 22 (day 16) and they were identified as *L. sericata* by one of the authors (S.S.) by morphological characteristics of the adults of both sexes. The morphological characteristics of the fly were as follows. Eyes widely separated; frons about one-third the width of one eye; frontal vitta reddish-brown to blackish-brown. Scutum metallic green to blue with golden reflection and covered with grayish pollen anteriorly; acrostichal bristles 2+3; dorsocentral bristles 3+3; intra-alar bristles 1+3; presutural bristle 1; humeral bristles 3 or 4; posthumeral bristles 3; notopleural bristles 2; supra-alar bristles 3; postalar bristles 2; apicocutellar and discoscutellar bristles 1 pair each; lateroscutellar bristles 3 pairs; sternopleural bristles 2+1; upper part of propleuron and prosternum hairy; suprasquamal ridge with numerous black hairs; anterior tuft of suprasquamal ridge present; postalar declivity with fine hairs; mesothoracic and metathoracic spiracles dark brown; metasternum hairy.

As it is known that *L. sericata* deposited eggs, the maggots found were 2nd instar larvae with body length of 5 mm. She ate the lunch 11 hours after its delivery; therefore, it was certain that the fly eggs were deposited before the delivery to the hospital (Nishida, 1984).

**DISCUSSION**

Entomological investigation of the present case revealed that maggots were found at 5:00 a.m., June 7, and their instar was second with body length of 5 mm. According to Nishida (1984), the duration from eggs to 2nd instar larvae of Genus *Phaenicia (= Lucilia)* needed 2 to 3 days at temperature between 25 and 30°C. Therefore, eggs might have been deposited on the baked salmon slice on June 4 or 5, not after the delivery to the hospital. Furthermore, the senior author held an interview with the manager of the shop, and she explained that all salmon was delivered already cooked from the head office. So they did not cook the salmon before preparing the box lunch.

Kano and Shinonaga (1968) mentioned that *L. sericata* is very common throughout Japan and is a typical domestic species. Environmental investigations of this box lunch shop revealed that the shop was located in a residential section and its windows were kept open during daytime. Therefore, these circumstances and the environment may make it easy for the common green bottle fly to deposit eggs on the foods.

Overviews of alimentary tract myiasis worldwide, including the Sarcophagidae (*Sarcophaga peregrina:* Matsuzaki and

Regarding predisposing factors for myiasis of various types, Chigusa et al. (1996) had indicated that not only elderly or debilitated persons, but also those with psychiatric disorders such as schizophrenia, should be protected from flies, because of their autism and/or diminished sensitivity, which may make it easy for flies to deposit eggs or larvae on the patient's body surface or orifices. Furthermore, Chigusa et al. (1998a) reported a myiasis patient who had been suffering from alcoholism, which made her indifferent to her personal appearance and resulted in her living under filthy conditions; furthermore, her intelligence was impaired. Fotedar and Banerjee (1991) reported human cutaneous myiasis in a heroin addict with mixed infestation of C. bezziana and Sarcophaga sp. in India. These cases illustrated that psychosis, alcoholism (alcohol addiction); drug addiction and mental deterioration are also predisposing factors for myiasis. With regard to psychiatric disorders, Chigusa et al. (1999) reported a case of aural myiasis in which the patient suffered from hypochondriasis and depression.

As Kenney (1945) demonstrated with 60 volunteers, who ingested 20 maggots each of Genera Musca, Calliphora and Sarcophaga revealed that nausea, vomiting, diarrhea and/or other gastrointestinal symptoms and signs occurred in 50 out of 60 volunteers. And he described small numbers of maggots recovered alive from their excrements. It means fly larvae could survive even in gastric and intestinal juice. However, although the present case did not show any symptoms and signs, there was a possibility of asymptomatic alimentary tract myiasis. Furthermore, it is possible even for healthy subjects also to ingest foods with dipterous eggs or larvae. The present case issues a warning to us that these common foods also contain living creatures such as dipterous larvae.

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REFERENCES


