Research Note

Nosocomial myiasis due to Sarcophaga peregrina in an intensive care unit (ICU) in Japan

Yuichi CHIGUSA, Masashi KIRINOKI and Hajime MATSUDA

Department of Tropical Medicine and Parasitology, Dokkyo University School of Medicine, Mibu, Shimotsuga, Tochigi, 321–0293 Japan

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Abstract: In September 2002, a 78-year-old woman who had received surgical operation of dissecting aneurysm was admitted to a general hospital. She was of comatose status and was admitted to an intensive care unit (ICU) of the hospital. An attending nurse of the patient found numerous wiggling maggots with body length of 5 mm from her nasal and oral cavities in early October. Maggots were identified as the second-instar larvae of Sarcophaga peregrina from the morphological characteristics of the larva and emerged male adult. The admission date to the ICU was more than 10 days prior to the discovery of 5 mm long S. peregrina larvae. Therefore, this myiasis happened definitively inside the ICU.

Key words: nasal and oral myiasis, intensive care unit, hospital, developed country, Sarcophaga peregrina

INTRODUCTION

We have already reported both nosocomial and non-nosocomial myiases; caused by Lucilia sericata (Chigusa and Sugiyama, 1987; Chigusa et al., 1996, 1998a, 1999, 2002, 2005), L. illiustris (Chigusa et al., 1996), Sarcophaga peregrina (Chigusa et al., 1994), S. similis (Chigusa et al., 1994), S. melinura (Chigusa et al., 1997), S. ruficornis (Chigusa et al., 1998b) and Dryomyza formosa (Chigusa et al., 2000). Those were cutaneous, auditory canal and alimentary tract myiases.

Here we present a nasal and oral myiasis due to Sarcophaga peregrina (Robineau-Desvoidy, 1830) that occurred in an intensive care unit (ICU) of a general hospital in Japan.

CASE PRESENTATION

A 78-year-old woman was admitted to an ICU of a general hospital located in the Kanto District in September 2002 after receiving surgical operation of dissecting aneurysm of the aorta. She was of comatose status in the ICU. In early October, more than 10 days after the admission to the ICU, an attending nurse found many wiggling milky-white maggots with body length of 5 mm from her nasal and oral cavities. There are two entrance barriers to the ICU, which were ordinary closed, but the possibility of invasion by dipterous flies which gathered on a white overall of ICU staff was undeniable. There was no obvious lesion where the maggots infested. Some of the maggots detected were reared with pork in an insectarium under the condition of 25°C and 60% RH in order to get the adult fly. The others were reared to the third-instar larvae for morphological identification of larva. The morphological characteristics of the larvae are shown below. Anterior spiracles: their opening arranged in two rows
and with 24 to 26 branches; posterior spiracles: large and heavily pigmented; peritreme with well-developed inner projections between slits; button absent; spiracular slits slender and long. Distance between both posterior spiracles about three-fourths width of a spiracle; cephalopharyngeal sclerite: medium-sized and heavily pigmented; basal piece of mouth hook four-cornered and relatively small, hook part short and stout and pointed downwards slightly; ventral cornua approximately a half-length of dorsal cornua; anterodorsal process long and stout; hypostomal sclerite long and stout; parastomal sclerite short (Ishijima, 1967).

A male adult fly emerged from puparium 16 to 17 days after the onset of the present myiasis. Therefore, the causative agent of this case was definitively identified as the second-instar larvae of S. peregrina.

DISCUSSION

Regarding nosocomial myiasis, Ng et al. (2003) (Chrysomya bezziana on 89-year-old woman), Yoshitomi et al. (1997) (L. sericata on 86-year-old woman), Minar et al. (1995) (L. sericata on patient, gender and age unknown) and Daniel et al. (1994) (L. sericata on patient, gender and age unknown) reported oral myiasis that occurred inside a hospital. In addition to these cases, myiasis occurred in ICU worldwide, and the following cases have been reported. The causative agents were L. sericata and Megaselia scalaris in Kuwait (Hira et al., 2004), L. sericata in the U.S.A. (Beckendorf et al., 2002), S. peregrina in Japan (Yoneda et al., 1998), Wohlfahrtia magnifica in Turkey (Ciftcioglu et al., 1997), larvae of the genus Lucilia in Korea (Chung et al., 1996), S. peregrina in Japan (Matsuzaki and Yamazaki, 1987) and Cochliomyia macellaria in the U.S.A. (Smith and Cleverger, 1986).

Concerning ICU regulations, the main purpose of the guideline for ICU is to prevent patients from infections of microbial pathogens (Garner, 1996) but not from infestation of arthropods especially dipterous flies, which could fly into the ICU. Therefore, we would like to bring forward the problem of myiasis in ICU through this case by all means.

The present patient was of comatose status because of serious condition after the surgical operation. As we have indicated, disturbances of consciousness due to cancer (Chigusa and Sugiyama, 1987; Chigusa et al., 2002), pontine infarction (Chigusa et al., 1997) and mental deterioration (Chigusa et al., 1998a) and newborn baby (Chigusa et al., 1994) have predisposing factors for myiasis. An overview of these cases showed patients with comatose or stupor mental status were at risk for myiasis since they could not perceive flies swarming or gathering to orifices or wound and drive them away.

Nishida (1984) and Nishida et al. (1986) demonstrated that the average body length of the instars of S. peregrina which were reared at the temperature at 25°C was 5 mm and that the larvae molted into the second-instar one or two days after the deposition of larvae. In the present report, the maggots found from the patient's nasal and oral cavities were the second-instar larvae with body length of 5 mm; usually it takes 1 to 2 days for the larva to grow into this body size (5 mm). The admission of the patient to the ICU was more than 10 days prior to the onset of this myiasis. Therefore, we could conclude that this case absolutely occurred in the ICU.

In conclusion, we would like to emphasize that future protection from myiasis in ICU should be considered, since the evidence-based clinical practice guideline of protection from infection in the ICU of the hospital, Japan (CPG Committee, 2003) mainly concerns bacterial infections.

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REFERENCES


