



CASE DESCRIPTION

Intensive care unit upper respiratory tract myiasis – a case report.

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Introduction

Myiasis is a pathogenic condition caused by dipteran larvae which may invade wounds or natural apertures like the mouth, nose, ear, anus or vagina. Nosocomial myiasis is considered to be a rare event in developed countries and actual health legislation ignores parasites as an important emergency factor of nosocomial infections in Poland [1]. Despite that, cases of nosocomial myiasis are known in many countries and they are probably widely underreported.

Patient description

A 66-year-old, obese (BMI 45) diabetic female patient was admitted to an intensive care unit due to exacerbation of chronic respiratory and circulatory insufficiency. She needed mechanical ventilation and support with catecholamine infusion. To facilitate nutrition a nasogastric tube was inserted. The patient was sedated with Propofol and Sufentanyl but awake and cooperative (3 points in Riker Sedation Agitation Scale).

On the 8th day of hospitalization the nasogastric tube was accidentally removed and

a new one was inserted with some technical difficulty. Blood and purulent exudate was visible during next days around the tube, but the patient was afebrile and did not report any pain. Four days later one maggot was seen in the right naris, where the tube was.

Treatment

The tube was removed and 10 additional maggots were removed from the naris. After close fiber optic examination of the naris, additional diagnostic imaging was considered unnecessary. Two of the removed maggots were killed in boiled water and preserved in 70% ethanol. Three additional larvae were put to a 100 ml container with a 5 cm layer of soil. Some days later two adult flies emerged. The specimens were identified as *Lucilia sericata* (Meigen, 1826). The infestation did not have any additional side effects on the patient. She was discharged from the ward two weeks after the event without pain or any symptoms of infection.

Images

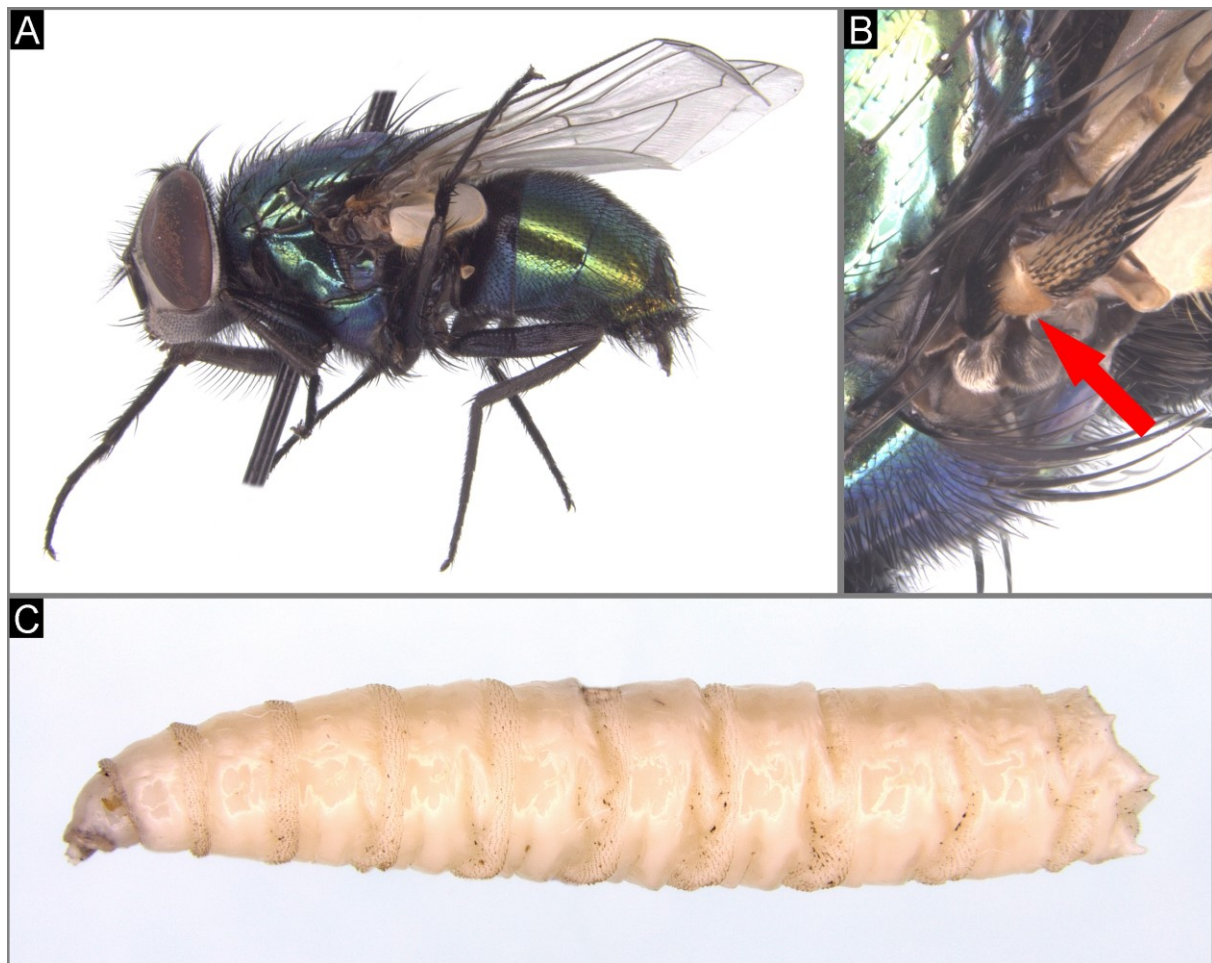


Figure 1. Specimens of *Lucilia sericata* collected in the described case. A – adult fly bred from collected larva, general view, B – base wing of the same specimen, characteristic yellow basicosta marked by arrow, C – preserved third instar larva.

Conclusions

Nosocomial infections represent an important problem, especially on intensive care units but most efforts are focused on reporting and preventing bacterial, fungal and viral infections. Parasites are considered as rare aetiological agent of hospital-acquired infection and are

responsible for 0.25% of nosocomial infections on ICUs in Western Europe [2]. In hospital environment insects are generally considered as a vector and a reservoir of pathogenic bacteria and viruses, but there is also a significant risk of hospital-acquired myiasis, especially among patients with open wounds or an altered mental status [3]. Nasal myiasis may be associated with



the use of nasogastric tube and presence of blood or purulent drainage [4]. Flies reported as aetiological agents of nosocomial myiasis belong mostly to the families of Calliphoridae and Sarcophagidae. In many cases they remain unidentified [5]. The identification based only on the maggot morphology is not always suitable, thus rearing of adult flies or making use of a molecular method is recommended [6]. *Lucilia sericata* is a common fly species in Poland. One female of this species can lay even 1800-2300 eggs during its whole life. In the temperature of 37.2°C the first instar larvae hatch after 8 hours and need only 5-7 days to complete their development [7]. It is the most common species of blowfly, causing myiasis in hospital conditions [8]. In our case there was no further implication of myiasis for the patient that is quite usual during infestation by facultative myiasis agent. However, there is one fatal case of myiasis caused by *Lucilia sericata* reported in the literature. In this case, maggots indirectly caused death by obstructing the airways of the patient leading to her death [9]. The use of sterile *Lucilia sericata* larvae can be an important part of treatment in cases of complicated wound infections. The larval treatment is highly cost-efficient and cost-effective [10,11]. The ability of maggots to produce antimicrobial peptides is an object of interest of biopharmacy with some promising results [12]. Many studies confirmed application of entomology in forensic medicine. Maturation of blow fly life stages can be used to estimate the time since death [13]. Larvae of obligatory traumatic myiasis agent (*Chrysomya bezziana* Villeneuve, *Cochliomyia hominivorax* Coquerel, *Wohlfahrtia magnifica* Schiner) very

effectively penetrate live and healthy tissue [6] and destroy the nasal pyramid or even penetrate the brain [4].

Nosocomial myiasis should be prevented by the use of window meshes or the use of air-conditioning in areas where sensitive patients are hospitalized (e.g. patients with open wounds, or sedated or with an altered mental status). But sometimes, as in our case, those routine prevention methods are not fully effective to prevent such complications. Education of medical staff is the key to prevent, recognize and properly manage hospital-acquired myiasis.

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Conflict of interest: none declared

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