

Parasitologie bij COVID-19

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Casus

- Vrouw 67 jaar
- Voorgeschiedenis: astma
- Opgenomen i.v.m. COVID-19 infectie
 - 8 dagen na eerste ziekte dag
 - 7 dagen na positieve test
- 5 dagen na opname geïntubeerd
 - Dexamethason + ; tocilizumab -



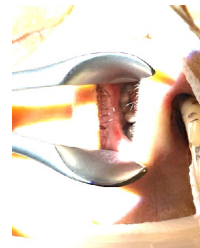
Beloop

- 20 dagen na opname:
 - veel ascites, dd bij portale hypertensie, dd maligniteit → punctaat
- 24 dagen na opname:
 - Uit isolatie i.v.m. 2^e SARS-CoV-2 PCR zwak negatief



Beloop

- 27 dagen na opname:
 - Wit sliertje op laken van patiënt
 - In rechterneusgat larven aangetroffen

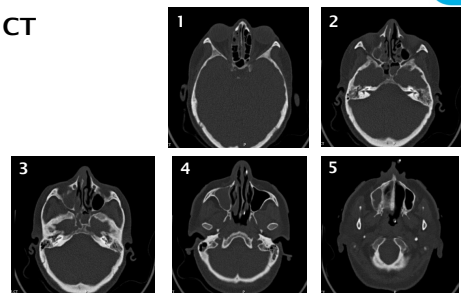


Beloop

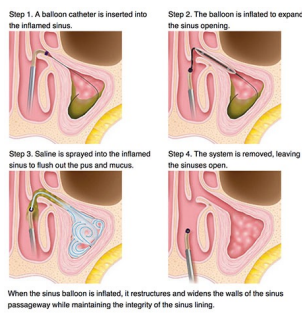
- KNO arts in consult:
 - "Rechterneusgat tjokvol larven"
 - Nasopharynx en achter in keel geen larven
- Werkdiagnose: larven in sinus maxillaris rechts
- Beleid: CT sinus & FESS



CT



FESS



Rijnstate

FESS

- Geen verdere larven gevonden
- Slijm en granulatiweefselbiopten neusbijholten genomen:
 - PA: neusslijmvlies met focaal actieve ontsteking en squameuze metaplasie, geen parasieten aanwezig, geen dysplasie of maligniteit.

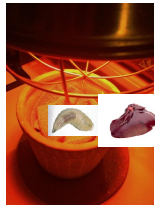
Rijnstate

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Vervolg

- Larve opgestuurd naar LUMC, doorgestuurd naar Naturalis
- Eén levende made van ca 9 mm
- Morfologie: made van het genus *Lucilia*
- Made in kweek gezet
- Als voedsel een klein stukje varkenslever

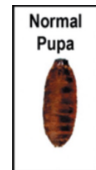


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Info uit onderzoeksverslag van Hans Huijbregts. Photograph by Richard Major, Australian Museum

Identificatie

- Geen sprake van voedselopname
- Als gevolg van meerdere dagen voedselgebrek → made overgeschakeld naar vroegtijdige verpopping
- Vervolgens wordt een puparium aangetroffen



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Info uit onderzoeksverslag van Hans Huijbregts, figuur uit Khater et al. Int J Dermatology 2009

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Vervolg

- *Lucilia sericata*, de groene vleesvlieg

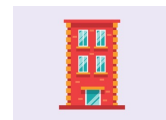


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Photograph by Joseph Berger, Bugwood.org

Achtergrond

- In Nederland 9 verschillende *Lucilia*'s
- *Lucilia sericata* = synantroop, soort die het meest in gebouwen voorkomt
- Kan ontwikkelen op levende zoogdieren
- Vooral een probleem in de schapenhouderij



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Info van Hans Huijbregts

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Achtergrond

- Sporadisch myiasis bij patiënten:
 - Chronische open wonden (doorligwonden, diabetische wonden, vaatproblematiek)
- In alle mij bekende gevallen werd dat door *Lucilia sericata* veroorzaakt.

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NVP meeting 2018



Wormpjes onder de nagel!
Werkgroep Klinische parasitologie
16 januari 2018 Utrecht



- Determinatie ectoparasieten uitgebreid uitgelegd

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Moment van infectie

- Ontwikkelingssnelheid van vliegeneieren en -maden sterk afhankelijk van temperatuur.
- Temperatuur neus: 22°-34°C.

Table 1
L. sericata: average minimum duration of developmental stages (n = 10 for each temperature regime)^a

Stage	15°C	17°C	19°C	20°C	21°C	22°C	25°C	28°C	30°C	34°C
Eggs	31	28	24	22	19	17	14	11	10	8.5
1st instar	56	39	27	24	23	19	16	14	10	9.5
2nd instar	70	54	42	35	29	26	19	16	15	12
3rd instar	115	79	60	53	47	46	36	30	27	22
Postfeeding	340	200	118	108	103	94	87	87	87	82
Pupa	—	442	293	209	158	137	125	120	119	120
Total	—	842	564	451	379	339	297	275	268	259

^a No emergence of adults.

Keck et al. The Laryngoscope 2000; Grassberger et al. Forensic Science International 2001

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Moment van infectie

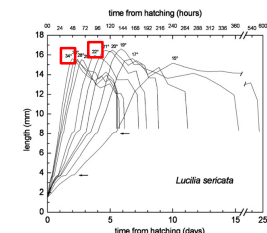


Fig. 1. Development of *L. sericata* from hatching to pupation at 10 different temperature regimes. Arrows indicate 1st and 2nd molting.

Totale ontwikkelingstijd van ei + made:

- 22°C: 71 uur
- 34°C: 33 uur

- Infectie op dag 27 na opname, dus nosocomiaal

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Nosocomiale infecties

Fatal nosocomial myiasis caused by *Lucilia sericata*

Madam,

We describe a fatal case of nosocomial myiasis caused by the maggots of the green bottle fly, *Lucilia sericata* (Diptera: Calliphoridae), in a patient in an Iranian intensive care unit. Myiasis, a term used for the first time by Hope in 1840, refers to the infestation of live vertebrate animals, including humans, by dipterous larvae.¹

Two days after admission to a major cardiovascular centre in Iran, a 54-year-old female underwent coronary artery bypass grafting. On the second postoperative day, the patient gradually became disoriented, and suffered respiratory distress with a reduction in oxygen saturation requiring intubation and mechanical ventilation. Twenty-four days after hospital admission (22 days after surgery), maggots were seen crawling out of her nose. In total, 75 third-instar larvae were removed by normal saline irrigation.

- Iran
- 24 dagen na opname
- Neus

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Nosocomiale infecties

Abstract

The aim of this case report was to present our clinical approach for a case wherein nasal packing was applied for epistaxis and nosocomial nasal myiasis caused by *Lucilia sericata* was developed during the follow-up in the intensive care unit because of subarachnoid hemorrhage. Nasal packing was used for epistaxis during the anticoagulant treatment of a 79-year-old man who was hospitalized, followed up, and treated at the coronary intensive care unit for the diagnosis of congestive heart failure. The larvae of *L. sericata* were observed in the nasal cavity after the nasal packings were removed on the third day. Hospital-acquired myiasis is rarely seen in clinical settings. The most critical point in the prevention of myiasis is undoubtedly hygiene as well as the use of an air conditioning system in the ventilation of the entire hospital, especially in the intensive care units. The present case report is the first for nosocomial myiasis caused by *Lucilia* in Turkey.

- Turkije
- ?? dagen na opname
- Neus

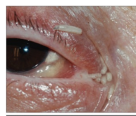


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Nosocomiale infecties

A 65-year-old woman presented to the emergency department with respiratory distress, congestive heart failure and atrial fibrillation thought to be secondary to pneumonia and myocardial infarction. Intubation was performed, and she was admitted to the intensive care unit. A nasogastric feeding tube was placed and appropriate therapy initiated. The patient had numerous comorbidities, including end-stage renal disease, diabetes mellitus, stroke, myocardial infarction, peripheral vascular disease, hypertension and emphysema, and she was receiving hemodialysis. An examination of her head performed on admission did not reveal any abnormalities.

Three days later, numerous maggots (6-7 mm long) were observed in the patient's nasal cavity (Figure 1) and at the left medial canthus (Figure 2). During this period, an adult fly (a green blow fly or a green bottle fly) was seen in the intensive care unit. The patient was in a windowless private room that had an open door. The intensive care unit had no windows to the outdoors; thus, it was assumed that the fly had entered the intensive care unit from another part of the hospital.



- Canada
- 3 dagen na opname
- Neus & oog

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Szalkacs CMAJ 2007

Nosocomiale infecties

CASE 1

A 10-year-old Kuwaiti boy was admitted to the Intensive Care Unit (ICU) of Mubarak Al-Kabeer Teaching Hospital in Kuwait City, Kuwait following a traffic accident. He had a head wound on the right side and his face was bloody when admitted. His face was cleaned during subsequent treatment. Further examination showed that he had fractures of both femurs. He had been comatose since being admitted.

On the fourth and fifth days after admission, while still comatose, larvae were seen coming out of both of his nostrils. These were collected into saline and sent to the laboratory for identification. It was reported that larvae were also seen emerging from the right ear, but these were discarded. The nursing staff also reported that they had seen a green fly on the nose of the patient on the fifth day after admission.

- Koeweit
- 4 dagen na opname
- Neus (& oor?)

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Hira et al. Am J Trop Med Hyg 2004

1Q

2Q

Casus

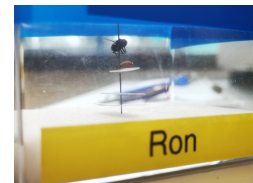
- Verdere beloop patiënt
 - Tijdens op IC detubatie en nogmaals intubatie
 - Multiproblematiek:
 - Refractaire ascites, dd bij hypoalbuminemie
 - Leverenzymstoornissen, dd toxisch medicamenteus
 - Rectumhematoom met fistel naar blaas
 - Op dag 58 na opname van IC af
 - Op dag 77 na opname naar revalidatieplek

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Casus

- Verdere beloop vlieg



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Casus

- Verdere beloop vlieg



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Conclusie

- Nosocomiale myiasis in de neus komt sporadisch voor
- Geen chronisch infectiepreventieprobleem op de intensive care
- Toeval & pech

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Dankwoord

- LUMC: Bas Mourik
- Naturalis: Hans Huijbregts

