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A case of oral myiasis due to *Chrysomya bezziana*

蛆症金蠅引起的蛆蠅病病例

Chrysomya bezziana **is a causative agent of obligatory myiasis. We report the first case of human infestation of *Chrysomya bezziana* in Hong Kong in an 89-year-old woman who had previously had a stroke. One day after hospital admission for fever, a small fissure at the labial gingiva of the upper incisors and several ulcerative lesions at the hard palate were noticed during routine mouth care. A live maggot was seen protruding from the small fissure. In the following few days, a total of seven maggots were removed by forceps. Urgent computed tomography and magnetic resonance imaging of the oral cavity showed an ulcerative soft-tissue lesion over the anterior palate, with a fistula communicating to the labial gingiva. The tissue loss was limited to the bony margin of the hard palate. The infestation was managed by manual removal of maggots and surgical debridement. Medical personnel taking care of old or debilitated patients need to bear in mind the possibility of *Chrysomya bezziana* infestation to be able to make a prompt diagnosis and implement relevant intervention to prevent extensive tissue destruction.**

蛆症金蠅是專性蛆蠅病的一種病原。本文報告香港首宗人體受蛆症金蠅感染的個案。患者是一名89歲曾經中風的女性，她因發燒而入院留醫。住院一日後的例行口腔護理發現，上切牙相連嘴唇的牙齦有一處輕微裂縫，硬顎有幾處潰瘍性損傷；並有一條蛆蟲從裂縫中鑽出。之後數天，醫護人員用鉗子清除了七條蛆蟲。我們為病者進行緊急的電腦斷層照相及磁力共振成像；口腔造像顯示前顎軟組織有一處潰瘍性損傷，並已形成瘻通向相連嘴唇的牙齦。軟組織損失限於硬顎骨表面。以手動方式清除蛆蟲，並以外科清創術為患者進行治理。負責照顧年老或衰弱病人的醫護人員，應留意蛆症金蠅造成感染可能性的存在，以及時診斷並進行治療，防止組織破壞擴大。

Key words:
Chrysomya bezziana;
Hong Kong;
Myiasis

關鍵詞：
蛆症金蠅；
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Case report

An 89-year-old institutionalised woman was hospitalised at the Department of Medicine and Geriatrics, Tuen Mun Hospital on 30 September 2002 for a 1-day history of fever. She had a history of ischaemic heart disease and pulmonary tuberculosis. Six months before admission, she had had a stroke, resulting in her being bed-ridden and dependent on nasogastric tube feeding.

On admission, the patient was afebrile. Physical examination revealed a feeding tube in situ with the mouth partially open because of loss of orofacial muscle control after the stroke. A small vesicle was present at the angle of the mouth on the left side. Examination of the chest revealed basal crepitations. Chest radiography revealed old changes of pulmonary tuberculosis and bilateral lower-zone infiltration. Laboratory investigation showed an elevated white blood cell count (18.5 x 10^9 /L; no differential counts were performed). She had normal liver and renal function test results. Blood culture did not detect any growth after 5 days of incubation. She was treated for tube feeding–related aspiration pneumonia with amoxycillin-clavulanate (co-amoxiclav).

One day after admission, a small fissure at the labial gingiva of the upper incisors and several ulcerative lesions at the hard palate were noticed during routine mouth care. A live maggot was seen protruding from the small fissure.

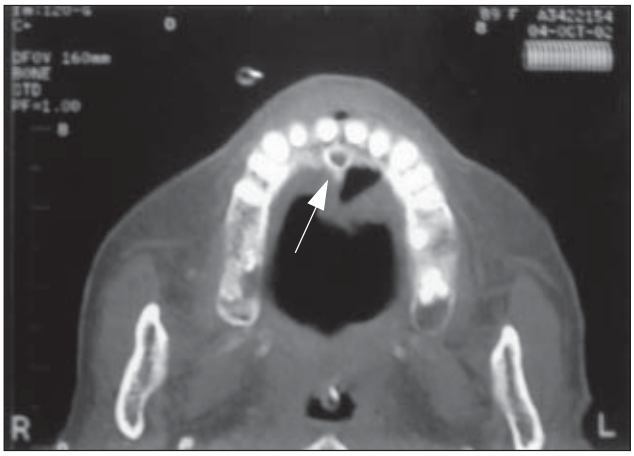

Fig 1. Computed tomogram of the oral cavity
Arrow indicates a cavitating lesion over the soft-tissue covering of the hard palate

In the following few days, a total of seven maggots were removed by forceps. Urgent computed tomography and magnetic resonance imaging of the oral cavity showed an ulcerative soft-tissue lesion over the anterior palate, with a fistula communicating to the labial gingiva. The tissue loss was limited to the bony margin of the hard palate (Fig 1).

On 7 October 2002, incisional biopsy of the palatal mucosa and local debridement of the palatal wound were performed under local anaesthesia (Fig 2). No more live maggots were found. The denuded palatal bone surface was protected with whitehead varnish in ribbon gauze, and an acrylic surgical plate was inserted. Whitehead varnish is a composite medicament containing ether, which will compel any maggots, if present, to come out of the lesion.[1] There was no evidence of secondary wound infection, and healthy granulation tissue appeared on the palatal wound on subsequent follow-up examination. However, on 22 October 2002, the patient died because of congestive heart failure and nosocomial chest infection despite supportive treatment and the administration of broad-spectrum antibiotics, which included pipercillin-tazobactam, levofloxacin, and meropenem. The maggot infestation probably did not contribute directly to the death of the patient.

Histological examination of hard palate tissue showed evidence of dense tissue inflammation, dystrophic calcification, and foreign bodies compatible with features of abscess. There was no evidence of malignancy. Histological examination of the palatal mucosa revealed densely inflamed granulation tissue and squamous cells with moulded ground-glass nuclei and occasional multi-nucleation. Immunohistochemistry showed positive staining for herpes simplex virus.

All maggots were sent to our laboratory for identification. The maggots were 12 to 15 mm long, whitish, and without obvious body processes. They also had open peritreme of

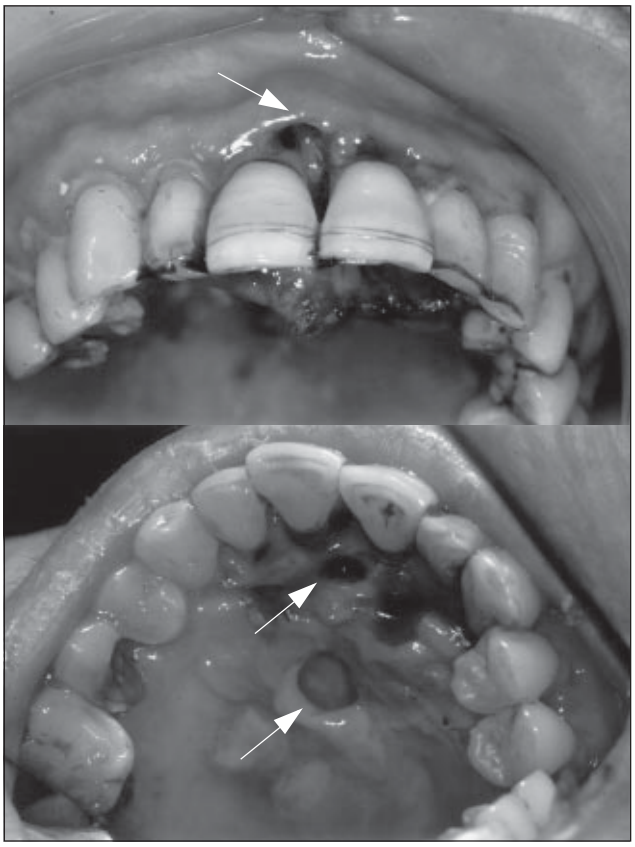

Fig 2. Intra-operative findings of the oral cavity
Arrows indicate the orifices of the fistula

the posterior spiracle and four to five lobes in the anterior spiracles. These features were all compatible with the identification of *Chrysomya bezziana*. We allowed some of the larvae to form pupae and hatch into mature adult flies, the anatomical features of which matched with those of *C bezziana*. The maggot was confirmed to be *C bezziana* by the Pest Control Advisory Section of the Hong Kong Food and Environmental Hygiene Department.

The Infection Control Unit strengthened general hygienic measures and searched for any larvae and pupae in the hospital ward. These measures were considered sufficient, as larvae are unable to reproduce without going through the pupal and adult stages.

Discussion

Chrysomya bezziana was one of the causative organisms for obligatory myiasis. The species was widely distributed throughout South-East Asia, China, the Indian Subcontinent, tropical Africa, and Papua New Guinea. The species was first found in Hong Kong in July 2000, when animal cases were identified.[2] The case described in this article is the first human case of *C bezziana* infestation in Hong Kong to be reported.

Infestations with *C bezziana* differ from usual maggot infestations because *C bezziana* can cause tissue invasion

without pre-existing necrotic tissue and can cause extensive damage to living tissue if the condition is left undiagnosed. Human cases of *C bezziana* infestations are uncommon. In a case series of cutaneous myiasis in Sri Lanka,[3] *C bezziana* were isolated from 14 of 16 patients. The immediate predisposing factor for dermatology patients was infected dermatitis. Other associated factors included diabetes mellitus, psychiatric illness, leprosy, and mental subnormality. In another case report, a total of 35 larvae of *C bezziana* were obtained from the ulcers near the external genitalia and urethral opening of an 76-year-old patient who had rectal carcinoma.[4] Destructive ocular myiasis by *C bezziana* in a non-immunocompromised host with rapid destruction of the globe has also been reported.[5]

There were two possible reasons that the patient in our case had this rare infestation. In the first scenario, the patient had developed herpes simplex stomatitis and was not capable of keeping her mouth closed and of protecting herself from flies; female *C bezziana* flies subsequently deposited eggs at the ulcers caused by the stomatitis. In the second scenario, the female flies deposited eggs in healthy palatal mucosa, and herpes simplex stomatitis developed as a secondary event because of the irritation caused by the maggot infestation. In both cases, poor oral hygiene might have played a role in attracting the female flies of *C bezziana*, and the lack of self-care ability and communication capacity might have led to late presentation.

To conclude, human cases of *C bezziana* infestation are rare. Medical personnel taking care of old or debilitated patients need to bear in mind the possibility of this condition to be able to make a prompt diagnosis and implement relevant intervention to prevent extensive tissue destruction.

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