The Journal of Laryngology and Otology
December 1994, Vol. **108**, pp. 1083–1085

Vile bodies: an endoscopic approach to nasal myiasis

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Abstract

Nasal myiasis is the infestation of the nasal cavities by larvae (maggots) of *Diptera* flies. Several species of flies deposit their ova in the nose and the larvae feed on the host's tissues. We present a case of nasal myiasis by larvae of *Oestrus ovis* – Sheep Nasal Bot Fly. The larvae of *Oestrus ovis* are well known parasites in the nasal cavities and paranasal sinuses of sheep and goat. In Britain very rarely larvae may be deposited in the eye, nostrils or outer ear of man, usually husbandry workers. Reputedly, the larvae never survive beyond the first stage with acute catarrhal symptoms lasting only a few days.

This is the first reported case in the UK of an urban-dwelling patient infected by mature, third instar larvae of *O. ovis*. His nasal infestation resolved after endoscopic removal of the live maggots.

Key words: Myiasis; Nose

Introduction

Myiasis refers to an invasion of the tissues of man or animals by the larval stage of non-biting flies. Ulcers, open wounds and all orifices (eyes, ears, nose, mouth, vagina and anus) may be infected with maggots and malignant or necrotic tissue is particularly susceptible to infestation (Josephson and Krajden, 1993). Pathological changes of myiasis depend on the feeding habits of the larvae. In the alimentary tract, they do little harm because food other than tissue is available; but they may damage the nose, ears and eyes by destroying tissue (Ward, 1976).

Nasal myiasis is prevalent in the tropics and it has been reported that *Chrysomyia bezziana* is the commonest fly implicated in this condition (Sood *et al.*, 1976).

Oestrus ovis Linnaeus (Sheep Nasal Bot Fly) is generally regarded as benign and responsible for comparatively few ill-effects. Large bee-like flies deposit their ova in the noses of sheep, their natural host. The larvae in their first stage attach themselves by their mouthhooks to the mucous membrane and feed. The growing larvae cause pathological reactions, especially when they are present in large numbers. In their natural host they continue to develop and migrate to the frontal sinuses. Third stage fully mature larvae are sneezed out by the sheep onto the ground where they pupate for two months (Smith, 1989). We present a patient affected by this condition.

Case report

A 35-year-old patient was referred from another ENT Department. He was an HIV positive homosexual presenting with a history of sneezing out several maggots during the preceding six weeks. He was aware of maggots crawling in his nose and suffered frontal headache. There was a brown rhinorrhoea for three weeks which had resolved by the time of presentation, and no other rhinological symptoms. The patient had not been in the countryside or travelled abroad. He was known to be HIV positive for four years and on examination he was generally debilitated. Though there were no concomitant opportunistic infections he had recently been treated for pneumomia, caused by *Pneumocystis carinii*, at another hospital. His previous medical history included suffering from tuberculosis and a duodenal ulcer.

Rigid nasal endoscopy revealed a large left middle turbinate suggestive of a concha bullosa. The nasal mucosa was grey and oedematous. There was no obvious necrotic material in the nasal cavity and the maggots were not visible, probably because they kept away from the light. Haematology results showed leucopenia with a left shift (white cells 1.8×10^9/l; neutrophils 78 per cent 1.4×10^9/l; lymphocytes 9 per cent 0.16×10^9/l). There was white cell degeneration confirming his immunocompromised state.

CT examination showed fluid levels in both maxillae and opacification of the ethmoid and sphenoid air cells. In addition there was segmented shadowing in the anterior ethmoidal system which could be due to the multi-segmented bodies of the larvae (Figure 1).

The patient underwent bilateral endoscopic sinus surgery under general anaesthesia. On opening the left concha bullosa there was a maggot embedded in thick secretions. More live maggots were found in the ethmoidal air cells and sphenoid sinuses. Five larvae were carefully removed during endoscopic clearance (Figure 2). The larvae measured 15–20 mm and were yellow in colour, two were of a light brown colour with transverse blackish bands dorsally. One was sent for identification and was reported as a mature third instar larvae of *O. ovis*.

Histopathological examination of the ethmoidal mucosa showed nonspecific inflammation. Microbiology of the nasal secretions demonstrated normal nasal flora.

To date there has been no recurrence of his symptoms and the paranasal sinuses remain clinically clear.

Discussion

Myiasis, a common problem in the tropics, occurs only rarely in the temperate zones (Popov, 1947). Of the order *Diptera*, the commonest families responsible for myiasis are the *Muscidae* (House fly) and the *Sarcophagidae* (Flesh flies). The important

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Accepted for publication: 16 October 1994.

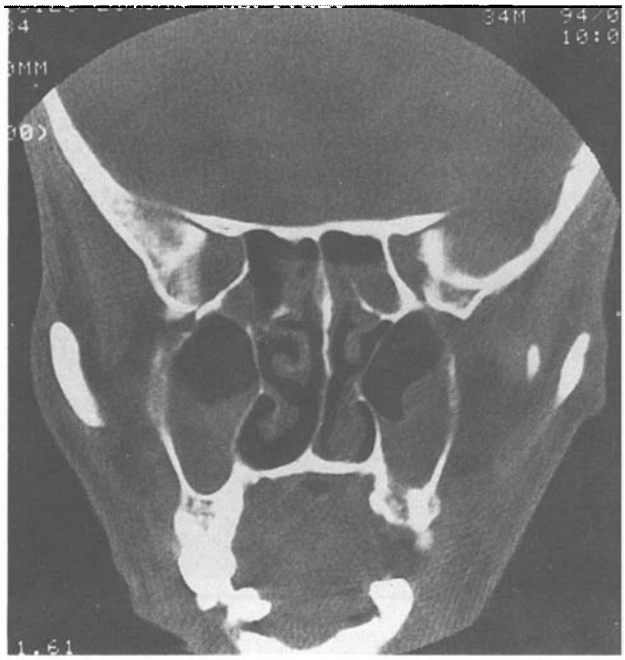

FIG. 1
Coronal CT scan showing fluid levels in both maxillary antra and opacification of the ethmoid and sphenoid air cells.

genera of these families are *Chrysomyia* and *Luicilia* (Sood *et al.*, 1976). Larvae of these flies usually feed on decomposing animal matter. Before the advent of aseptic wound management and antibiotics, clinicians used maggots to provide debridement of necrotic wounds. The hot and humid climate of India seems to favour myiasis, where it is known as 'Peenash', the peak season appears to be from September to November (Sood *et al.*, 1976). Singh *et al.* (1993) reported that most patients belonged to a rural background and lived in poor hygienic conditions with predisposition due to chronic infection and malignancy. In their series children formed 38 per cent of all cases of myiasis. In other parts of the world, myiasis appears to be much rarer. In the United States isolated cases have been reported. Smith and Clevenger (1986) presented a case of nosocomial nasal myiasis in an unconscious, debilitated patient. A similar case was reported in Canada (Josephson and Krajden, 1993).

Nasal myiasis in the New World is usually caused by *Cochliomyia Americana*, a fly which is attracted to the odours of sinusitis or ozoena (DeBord, 1959). In the tropics of Asia and Africa, the commonest causative fly for nasal myiasis is *Chrysomyia bezziana*. Sharma *et al.* (1989) in their retrospective review of two hundred and fifty two cases, quote that most of their patients were suffering from primary atrophic rhinitis. They packed the noses with a chloroform and turpentine mixture prior to manual removal of dead maggots.

A particular type of nasal myiasis is caused by *Oestrus ovis*, the Sheep Nasal Bot Fly. It is of special interest in North Africa where the infection is known as 'La Thimni'. In 1952, Sergent published an illustrated paper on 'Myiase oculo-nasale de l'homme causée par l'oestre du mouton'. He describes the oculo-nasal myiasis affecting the shepherds in Algeria. They suffered from acute conjunctivitis and rhinitis of short duration due to the first larval stage of *Oestrus ovis*. The disease has been considered self-limiting because the larvae never survive beyond the first stage. Only in their natural host would larvae mature to pupation. Humans that have handled sheep or goats and are contaminated with their odour seem to be more prone to infestation.

Our case is interesting for a number of reasons. The patient denied any recent contact with sheep and lived within the confines of the metropolis. Although an AIDS sufferer, he considered himself in reasonable health and had no prior record of helminthic infestation. It is unclear to what extent his HIV positive status may have contributed to this unique infection but we presume that larvae were able to mature because of the patient's immunosuppression. It is reported (Zumpt, 1965) that some humans completely unrelated to livestock have been attacked by *O. ovis*. This may be the result of female bot flies seeking suitable hosts in areas in which the natural recipients are very much in the minority, as would be expected should live animals be brought to a town for slaughter. We also consider it instructive that comparatively large, live larvae were retrieved endoscopically, rendering the earlier techniques of chloroform and turpentine packing inappropriate and ineffective.

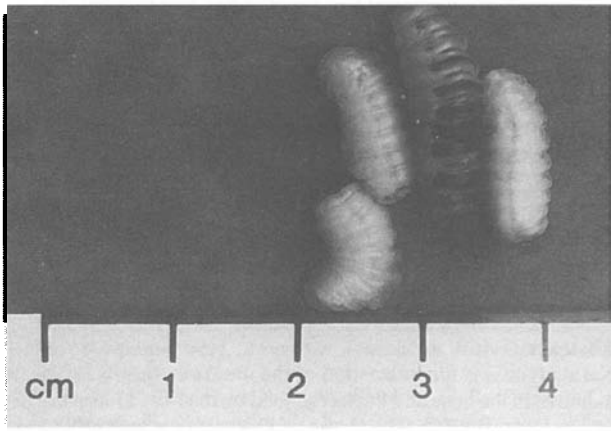

FIG. 2
Live larvae of *O. ovis*.

We conclude that nasal myiasis can occur in an urban setting and any patient reporting symptoms suggestive of nasal parasites may be managed primarily by an endoscopic approach which allows removal of insects for identification.

Acknowledgements

We would like to thank Mr Nigel Wyatt and Dr Martin Hall from the Entomology Department at The Natural History Museum, South Kensington, London, for their help in the identification of the larvae.

References

DeBord, B. A. (1959) Rapid extermination of nasal myiasis. *Laryngoscope* **69:** 543–544.

Josephson, R. L., Krajden, S. (1993) An unusual nosocomial infection: nasotracheal myiasis. *The Journal of Otolaryngology* **22:** 46–47.

Popov, N. P. (1947) Myiasis of the nose. *Archives of Otolaryngology* **45:** 112–116.

Sergent, E. (1952) La thimni myiase oculo-nasale de l'homme causée par l'oestre du mouton. *Archives de l'Institut Pasteur d'Algerie* **30(4):** 319–361.

Sharma, H., Dayal, D., Agrawal, S. P. (1989) Nasal myiasis: review of 10 years experience. *Journal of Laryngology and Otology* **103:** 489–491.

Singh, I., Gathwala, G., Yadav, S. P. S., Wig, U., Jakhar, K. K. (1993) Myiasis in children: the Indian perspective. *International Journal of Pediatric Otorhinolaryngology* **25:** 127–131.

Smith, D. R., Clevenger, R. R. (1986) Nosocomial nasal myiasis. *Archives of Pathologic Laboratory Medicine* **110:** 439–440.

Smith, K. G. B. (1989) An Introduction to the Immature Stages of British Flies. *Handbooks for the Identification of Insects*, vol. 10, part 14, The Royal Entomological Society of London, pp 115–116.

Sood, V. P., Kakar, P. K., Wattal, B. L. (1976) Myiasis in otorhinolaryngology with entomological aspects. *Journal of Laryngology and Otology* **90:** 393–399.

Ward, R. A. (1976) Other Arthropods and Venomous Animals. In *Pathology of Tropical and Extraordinary Diseases*, section 14, chap. 3 (Binford, C. H. and Conner, D. H., eds.), Armed Forces Institute of Pathology, Washington, D.C., pp 626–630.

Zumpt, F. (1965) Myiasis in Man and Animals in the Old World. *A textbook for physicians, veterinarians and zoologists*. 1st Edition, Butterworth & Co., London, pp 175–179.

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