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Case Report

Nasal Myiasis: Clinical Insights from a Case Report

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ABSTRACT

Background and objectives: Nasal myiasis is a rare parasitic infestation of the nasal cavity by dipteran fly larvae, often associated with poor hygiene, low socioeconomic status, or comorbidities, and is often neglected.

Presentation of the case: This case report highlights an unusual presentation of nasal myiasis in a middle-aged, well-educated individual with good personal hygiene and no significant predisposing factors in Dhanusha of Madhesh Province. Primary examination revealed increased blood pressure and epistaxis.

Discussion: Primary radiological findings are multiple round-oval hypodense areas in the right nasal cavity and in the nasopharynx near the opening of the left Eustachian tube. The aim is to underline the importance of early diagnosis, prompt treatment, and public awareness to prevent complications.

Conclusion: The early diagnosis of myiasis can overcome complications such as basal skull invasion, blindness, invaded meninges, and, in severe cases, death can be prevented. Understanding the feat, it can be treated even in a hospital setting with fewer resources.

Keywords: *Chrysomya*, nasal myiasis, neglected tropical disease, parasitic infestation

INTRODUCTION

An English naturalist and entomologist, Frederick William Hope, first used the word "myiasis" in 1840 in a report written for the *Transactions of the Entomological Society of London*. He came up with the name to characterize illnesses brought on by dipteran (fly) larvae invading humans and animals. Hope's investigation technically recognised

myiasis as a separate parasitic ailment; before that, broad terms like “maggot disease” or “fly larvae infestation” were used[1]. Of the order *Diptera*, Calliphoridae (blowflies), Oestridae (botflies), and Sarcophagidae (carrion flies) are the common families of flies causing human myiasis. The agents reported to cause nasal myiasis are *C. hominivorax, C. bezziana, Oestrus ovis, W. magnifica, Lucilia sericata, Drosophila melanogaster*, and *C. vicina* but the *Chrysomya bezziana* species *of* Calliphoridae causes nasal myiasis mostly in the Indian subcontinent, like the Terai-Madhesh of Nepal, due to conducive conditions [2].

Female *C. bezziana* lay eggs on minute superficial wounds like ulcers, sores, or scratches that can go unnoticed by a person or either directly within the nasal cavity or in the vicinity while the patient is sleeping. When the eggs hatch, the larvae burrow into the living tissue and feed on it, so-called by its special name "screwworm," producing a characteristic odor, which can again be unnoticed by humans. However, that odor entices female flies to lay more eggs there as well, causing further infestation.

Case Report

A 58-year-old male school teacher from a nearby rural village presented with a 1-day history of nasal itching, frequent sneezing, nasal discomfort, and intermittent episodes of epistaxis. He also complained of a sensation of something crawling inside his nostril, associated with facial discomfort and a mild headache. There was no history of fever, trauma to the nose, or similar episodes in the past. Prior to presentation, the patient had visited a local village pharmacy where he was given over-the-counter medications, including intravenous drugs administered without a registered medical prescription. During that visit, his blood pressure was noted to be elevated by the pharmacist. The patient had no known history of diabetes mellitus, hypertension, tuberculosis, or HIV infection. He lived in a well-ventilated house with cattle shed located nearby, suggesting possible exposure to flies. On physical examination, the patient appeared moderately ill but was conscious, oriented, well-nourished, and cooperative. His vital parameters revealed a blood pressure of 160/100 mmHg, pulse rate of 76 beats per minute, respiratory rate of 15 breaths per minute, axillary temperature of 98.2°F, and oxygen saturation of 98% on room air. Anterior rhinoscopy revealed moving maggots within the nasal cavity along with inflamed nasal mucosa and blood-stained discharge.

Basic laboratory investigations showed leukocytosis with a total leukocyte count of 14,500/mm^3, suggestive of an acute inflammatory response. The differential leukocyte count showed relative neutrophilia, consistent with infection. The random blood sugar (RBS) was 158 mg/dL, which is above the normal range; however, this isolated finding is insufficient to diagnose impaired glucose tolerance or diabetes mellitus. Hemoglobin, platelet count, renal function tests, liver function tests, and serum electrolytes were within normal limits. Serological tests for HIV, HBsAg, and HCV were negative, ruling out an immunocompromised state. Diagnostic nasal endoscopy (DNE) confirmed the presence of multiple live larvae within the nasal cavity as in the figure 1. A non-contrast computed tomography (NCCT) scan of the paranasal sinuses was performed to assess the extent of involvement and possible complications. The NCCT revealed multiple oval hypodense lesions within the right nasal cavity and

extending into the nasopharynx near the opening of the left Eustachian tube, corresponding to maggots. Associated findings included mucosal thickening of the maxillary, ethmoid, sphenoid, and frontal sinuses, consistent with pansinusitis. Partial resorption and thinning of the nasal turbinates were noted, suggesting chronic inflammatory changes. No evidence of orbital, intracranial, or bony erosion of critical structures was seen. Examination of the ears, throat, eyes, and a detailed neurological assessment revealed no abnormalities, ruling out cranial nerve involvement or intracranial

Fig 1: Diagnostic nasal endoscopy (DNE) confirmed the presence of multiple live larvae within the nasal cavity

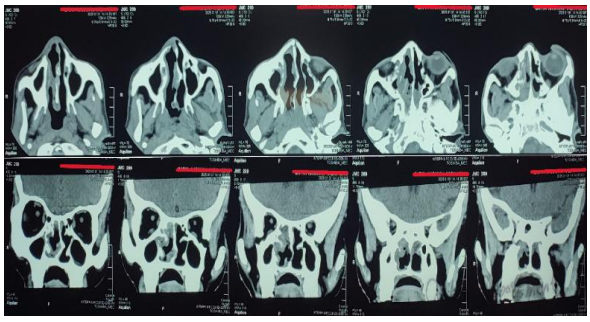

Fig 2: Examination of the ears, throat, eyes, and neurological assessment

The patient was admitted to the ENT ward and managed conservatively. Initial treatment included intravenous fluids, intravenous ceftriaxone 1 g twice daily for 7 days, esomeprazole 40 mg twice daily, paracetamol 500 mg three times daily for 3 days, and ondansetron for symptomatic relief. Turpentine oil was instilled locally to immobilize the larvae, followed by mechanical removal of maggots using Tilley's nasal dressing forceps under endoscopic guidance. A single oral dose of ivermectin (200 µg/kg) was administered.

Following complete removal of the larvae, the nasal cavity was thoroughly irrigated with normal saline and antiseptic solution to eliminate residual debris. The patient showed marked symptomatic improvement with no further episodes of epistaxis or discomfort.

He was discharged on oral co-amoxiclav 625 mg twice daily for 5 days and esomeprazole 40 mg twice daily, with advice on nasal hygiene and environmental sanitation. A follow-up visit after one week was advised to ensure complete healing and absence of recurrence.

DISCUSSIONS

Nasal myiasis is an uncommon opportunistic infestation of the nasal cavity caused by dipterous larvae, most frequently *Chrysomya bezziana* in tropical and subtropical regions. It is traditionally associated with poor hygiene, low socioeconomic status, advanced age, debility, and systemic comorbidities such as diabetes mellitus or immunosuppression [3]. In contrast, the present case occurred in a mid-aged, an educated individual with satisfactory hygiene and no major immunocompromising illness, highlighting that nasal myiasis can occur even in the absence of classical risk factors – a unique challenge to conventional understanding. The adaptability of fly species, coupled with increasing urbanization and environmental

changes, may play a role in expanding the epidemiology of myiasis. It has been placed under neglected tropical disease by one of the reputed publishers; however, WHO is still in a dilemma. Due to negligence of healthcare on time and social stigma following such infection in countries like Nepal, it should be considered an NTD [4]. The patient with nasal myiasis needs immediate hospitalization. The treatment is largely conservative, and the aim is removal of maggots before irreparable damage to the intranasal tissue. The manual extraction is the most common method, but it requires several sittings. There are reported cases of vulvar myiasis, orbital myiasis, myiasis in modified radical mastoidectomy cavity, and genital myiasis from Nepal [5-7].

Clinically, nasal myiasis often presents with nasal irritation, foreign body sensation, epistaxis, facial pain, and headache. Early diagnosis is crucial, as larvae possess proteolytic enzymes and mechanical anchoring hooks that can lead to mucosal necrosis, turbinate destruction, sinus involvement, and, in severe cases, orbital or intracranial extension. In the present case, timely nasal endoscopy and imaging enabled prompt identification of larval infestation and associated sinonasal inflammation, preventing further complications [8].

Radiological evaluation using non-contrast computed tomography (NCCT) is useful to assess the extent of sinonasal involvement and bony erosion. Typical findings include sinonasal mucosal thickening, sinus opacification, and intranasal hypodense foci corresponding to larvae. Extensive bone destruction or intracranial extension, although reported in advanced cases, was not observed in this patient, underscoring the importance of early intervention.

Topical agents such as turpentine oil have historically been used to induce larval asphyxiation and facilitate removal; however, their use must be cautious due to potential mucosal irritation and aspiration risk. Systemic ivermectin has emerged as a useful adjunct, particularly in extensive or difficult-to-access infestations, by reducing larval viability and migration. Antibiotic therapy does not treat myiasis directly but is indicated to prevent or manage secondary bacterial infection, especially in the presence of mucosal ulceration or sinusitis. Supportive care, including nasal irrigation and close follow-up, is essential to ensure complete clearance and mucosal healing.

CONCLUSIONS

This report explored a unique case of nasal myiasis in a middle-aged teacher residing in a semi-urban setting without known risk factors, with complete removal of larvae before irreversible tissue damage underscoring the need for heightened awareness among healthcare providers in limited-resource settings.

Ethical approval and consent: While ethical approval is not required, informed written consent has been taken from the patient for the publication of this report

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