



Maxillary Sinus Myiasis: A Case Report

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Abstract

Purpose: We report a rare case of maxillary sinus myiasis in a patient without any physical or mental deficiency and neither living in high humidity nor low socioeconomic status.

Methods: Myiasis is defined as the infestation of live vertebrates tissues or cavities with dipterous larvae of a variety of fly species. The distribution of the disease is worldwide, but especially in tropical area with high humidity. It is frequent in rural areas, among people of low socioeconomic status that suffer from poor sanitary hygienic conditions. A healthy, 36 year-old patient referred to Kayseri City Hospital, ENT clinic with story of sneezing larvae. At our examination anterior rhinoscopy and flexible endoscopy of the patient's nose revealed no further larvae. But in paranasal sinus tomography there was one larvae at right maxillary sinus. Therefore examination of the nasal cavity was performed under general anesthesia, one alive larva was found in superior part of the sinus.

Results: The patient was discharged the following day and on the control no new larvae were found and patient complaints were regressed.

Conclusion: Nasal myiasis, which is usually seen in regions with humid climates and people with predisposing factors, can rarely be seen in people who live in non-humid climate and completely healthy. Therefore, it should come to mind as an alternative diagnosis in patients with sinusitis symptoms. Since its complications can be dangerous, early diagnosis is important and should be treated early.

Keywords: Sinonasal myiasis, Maxillary sinus, Larvae

Introduction

Myiasis defined as infestation of the tissues or cavities of live vertebrates (human or animal) by dipterous larvae of various fly species. Although the term myiasis was first used in 1840 [1], such conditions have been known since ancient times. The flies most often responsible for myiasis are in the family Calliphoridae, which includes the genera Calliphora, Lucilia, Chrysomya, and Cochliomyia [2]. There are two forms of myiasis, primary and secondary. In primary myiasis, biophagous larvae feed on living tissue, whereas secondary myiasis involves necrobiophagous larvae feeding on dead tissue. Human myiasis is often classified according to the infested area, such as cutaneous, oral, ocular, nasal, urogenital, and gastrointestinal myiasis. The gravid fly leaves larvae or eggs in a body cavity or on injured skin where they then penetrate into tissue. After infestation, these larvae cause destruction of host tissues. The time they spend in the host varies depending on the species of fly and whether myiasis is primary or secondary. After maturation, they transition to the pupa stage and finally leave the host.

Myiasis occurs worldwide but is especially prevalent in tropical areas with high humidity, which is suitable for the fly life cycle. It is frequent in rural areas, among people of low socioeconomic status and those with poor nasal hygiene. The most common infestation site in the head and neck region is the eye [3], followed by the nose and ears due to the accessibility, orifice size, and decreased sensitivity of the mucosa [4].

The clinical features of nasal and nasopharyngeal myiasis include pain, foreign body sensation, epistaxis, sneezing, foul-smelling discharge, midface edema, and passage of maggots from the nose. Diagnosis of myiasis is based on the demonstration of larvae in the patient's tissues or organs, and treatment involves manual removal of all larvae either directly or with endoscopic assistance.

We report a rare case of maxillary sinus myiasis in a patient who had no physical or mental impairments, did not live in a humid tropical area, and was not of low socioeconomic status.

Case Presentation

A healthy 36-year-old man presented to the ENT clinic of Kayseri City and Training Hospital

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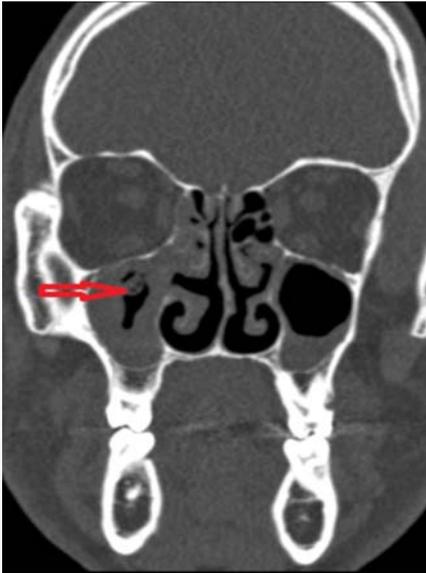


Figure 1: Paranasal sinus tomographic image of the larva in the right maxillary sinus.

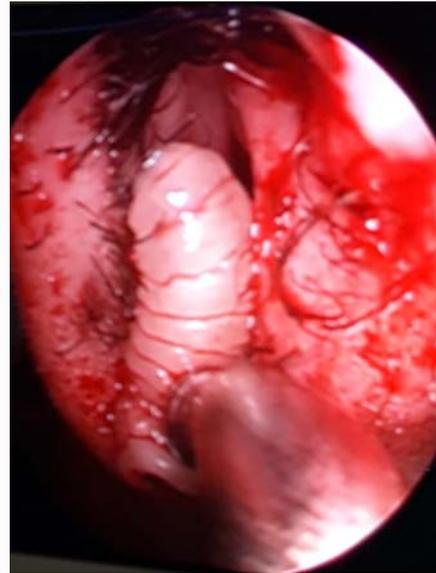


Figure 2: Intraoperative view of the larva.

with the complaint of sneezing out larvae. Based on his account, a fly hit his eye and serous nasal discharge started a few days later. About 2 weeks later he experienced foreign body sensation in his nose, frequent sneezing, nosebleed, and postnasal drip. Nineteen days after the fly hit his eye, larvae were expelled from his nose when he sneezed. He then blew his nose forcefully and another larva came out of his nose.

On examination, anterior rhinoscopy and flexible endoscopy of the nasal passages revealed no further larvae. However, paranasal sinus Computed Tomography (CT) revealed one larva remaining in the right maxillary sinus (Figure 1). Blood test results were normal.

Exploration of the nasal cavity was performed under general anesthesia. Right maxillary antrostomy was performed and a single live larva was found in the superior aspect of the sinus (Figure 2). The removed larva was a third instar (Figure 3). Anterior ethmoidectomy was also performed due to mucosal thickening detected on paranasal sinus CT. Despite an extensive search, no other larvae were found. The patient was discharged the following day with xylometazoline nasal drops, antihistamines, and antibiotherapy for sinusitis. In the follow-up examination 10 days later, no new larvae were detected and the patient's complaint of nasal mucosal edema had resolved.

Discussion

Myiasis is caused by infestation of dipterous fly larvae in the living tissue of a vertebrate host. The disease may be obligatory (primary) or facultative (secondary), in which larvae invade necrotic tissue. Several cases of secondary myiasis in the paranasal region have been reported in the literature, especially in patients with squamous cell tumors [5-9]. However, here we present a case of primary myiasis in a healthy adult.

Primary myiasis is caused by flies that need to deposit their larvae or eggs on living host tissue to complete their cycle. Female adults usually deposit first instar larvae into host nostrils or eyes, where they quickly crawl into the nasal cavities. First instar larvae migrate from the nasal septum and turbinates to the ethmoid, where the first molt



Figure 3: Image of the removed third instar larvae.

to second instar stage occurs. The second instar larvae then migrate to the sinus where they molt to third instar stage. These third instar larvae are later expelled by the host sneezing onto the ground, where they pupate. In our case, the patient had a history of sneezing larvae from his nose. Interestingly, larvae were present only in the maxillary sinus.

Predisposing factors to nasal myiasis include poor hygiene [10-14], psychiatric disorders, underlying diseases such as atrophic rhinitis, chronic rhinosinusitis, infective conditions like tuberculosis, leprosy, syphilis, leishmaniasis [12], malignancies, systemic diseases like diabetes mellitus [10], and other conditions causing [11,13]. Living in a rural area, advanced age, and low socioeconomic conditions are also risk factors. Our patient was healthy and had no predisposing factors.

Human myiasis is more common in areas with a warm and humid climate and usually occurs between spring and early autumn. It is not common in Turkey, with only a few cases documented to date. Türk et al. [15] reported nosocomial nasal myiasis in a 16-year-old girl who

was hospitalized in the intensive care unit due to a traffic accident [15]. Erenler et al. [16] reported a 20-year-old woman who developed an allergic reaction due to nasal myiasis in 2019 [16]. Aydin et al. [17] reported a case of nasal myiasis in a 33-year-old man who had visited southern Turkey [17]. Our patient is an example of an unexpected case from the non-humid Central Anatolia region of Turkey.

There is no consensus regarding a standard treatment for nasal myiasis. Published treatments including nasal irrigation with weak solutions of chloroform, nasal packing with chloroform and turpentine, manual removal of larvae, and antiparasitic treatment (e.g., ivermectin) in conjunction with endoscopic removal and saline irrigation have been reported to be effective with minor side effects [18-21]. In this case, we removed a larva from the maxillary sinus using an endoscope and administered postoperative antibiotherapy for 10 days. The patient's complaints and clinical findings resolved rapidly after the procedure.

Nasal myiasis can cause local destruction of the surrounding tissues. Patients may develop septal or palatal perforation if the condition is not detected and treated. Other complications include orbital and facial cellulitis, ulceration of the tonsils and posterior pharyngeal wall, and penetration into the intracranial cavity. Therefore, early detection and intervention are essential in the care of patients with myiasis.

Conclusion

Nasal myiasis, which is usually seen in regions with humid climates and in people with predisposing factors, is rare in completely healthy people who live in non-humid climates. Nevertheless, it must be considered as an alternative diagnosis in patients presenting with sinusitis symptoms. Due to its potentially dangerous complications, early diagnosis and treatment are important.

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