

Mastoid Cavity Myiasis: Result of Ignorance – A Case Report

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Abstract

Background: Myiasis is the infestation with dipterous larvae which feed on the host's dead or living tissue and bodily fluids. Aural myiasis is commonly seen in patients with poor personal hygiene, low socioeconomic status, mental retardation, diabetes mellitus, child neglect and old age.

Case Description: An 18 year old male presented with right ear pain and blood stained discharge since 5 days. Patient gives history of right ear surgery (modified radical mastoidectomy) 8 years back. On clinical examination, blood stained discharge was seen in the external auditory canal and multiple maggots were seen to fill the canal and mastoid cavity, which were manually removed under otoscopic visualisation with forceps. On subcutaneous dissection of tissues, a communication was seen to the external auditory canal, containing 2 maggots within this pocket, which was subsequently removed.

Literature Review: Myiasis is a type of parasitosis caused by the larvae of diptera. Certain populations are particularly susceptible to infestation, including children younger than 10 years of age and adults with mental or physical disabilities and it also requires a rare combination of environmental, social and medical risk factors. Following infestation patients can present with maggots in the external auditory canal, otalgia, foul smelling/blood tinged otorrhoea, perforation of the tympanic membrane, bleeding.

Clinical Relevance: Patients who have undergone modified radical mastoidectomy who ignore symptoms, infrequent follow up post surgery, maintain poor personal hygiene are at high risk of developing aural myiasis as seen in this patient. Hence follow up after such a procedure is of utmost importance.

Keywords: Aural Myiasis; Modified Radical Mastoidectomy; Ignorance

Introduction

In general, operations involving the removal of the posterior external canal wall are referred to as "open mastoid cavity procedures" and are a kind of surgical therapy for chronic otitis media. It goes by a variety of names, including radical mastoidectomy, modified radical mastoidectomy, and canal wall down mastoidectomy, depending on how the middle ear and illness are treated. The open cavity often heals by secondary intention.

The majority of patients who undergo MRM end up with a dry, self-cleaning mastoid cavity. However, as this is a long-term procedure, periods of severe cavity care may be combined with rest. A sizable portion of patients will be expected to come back for routine follow-up appointments, requiring the patient to commit and adding to the strain in the outpatient department. Failure to heal and fully epithelialize causes a variety of cavity issues, including vertigo, otorrhoea, hearing loss, wax/debris accumulation, a need for frequent cavity cleaning by a specialist, trouble using hearing aids, residual/recurrent illness, and even maggot infestation [1].

Myiasis is an infestation of the tissues and organs brought on by fly (diptera) larvae [2], *Lucilia sericata*, which feed on the host's dead or live tissue and body fluids³. The term "myiasis" is derived from the ancient Greek word "myia," which meant fly. It is possible to categorise the condition as main, secondary, obligatory, or accidental [2]. The larvae pierce the skin in primary myiasis. In secondary myiasis, larvae penetrate wound ulcerations or suppurative lesions that already exist [3]. The female insect is drawn to and stimulated to lay eggs on lesions with unpleasant discharge or blood. Some larvae need living vertebrates to grow while they are developing.

Patients with poor personal cleanliness, low socioeconomic level, mental retardation, diabetes mellitus, child maltreatment, and advanced age are more likely to get aural myiasis [4]. Although myiasis is a self-limiting illness in which the maggots leave the host once the eggs fully develop in 4 to 7 days, it can nevertheless result in lethal consequences. These patients may complain of hearing loss, vertigo, tinnitus, aural discomfort, haemorrhage, or the sense of something foreign in the ear. Myiasis of the mastoid cavity is a rare condition [5,6]. It is the outcome of a cavity that has been ignored. Maggots are typically deposited in the human ear in otomyiasis patients, and they usually pierce the auditory cavity's wall. Deafness, meningitis, or even death may result from a damage to the auditory meatus [7]. Therefore, early detection and treatment are strongly advised.

Case Report

An 18 year old male presented to OPD with complaint of right ear pain and serous discharge since 1 month. Following which he developed foreign body sensation and blood-stained discharge in the right ear since past 5 days. Patient gives history of right ear surgery (modified radical mastoidectomy) 8 years back. On clinical examination, blood stained discharge was seen in the external auditory canal and multiple maggots were seen to fill the external auditory canal, post op mastoid cavity and facial ridge was visualised (Figure 1). On day 1 post admission, under otoendoscopic visualisation, 91 maggots were manually removed from the external auditory canal and mastoid cavity with forceps (Figure 2). Following which he was started on intravenous antibiotic piperacillin-tazobactam and metronidazole and local ear drops containing clotrimazole 1% + gentamicin 0.3% and a combination

of anti-inflammatory and analgesics. Patient was taken for repeat otoendoscopy the next day after placing a turpentine soaked wick in the external auditory canal and 25 maggots were manually removed and dilute acetic acid aural syringing done.

Patient developed right post auricular swelling the next day. Patient was taken for OT the following day. An incision was taken post auricularly over the swelling. On subcutaneous dissection of tissues, a communication was seen to the external auditory canal, containing 3 maggots within this pocket, which was subsequently removed. Incision site closed with primary sutures. Patient had relief of symptoms from post operative day 2. Disease clearance was confirmed on subsequent visits with otoendoscopy (Figure 3 and 4).

Figure 1: Endoscopic examination of ear showing a) presence of multiple maggots (black arrow) b) post op mastoid cavity with facial ridge visualized.

Figure 2: Endoscopic examination of ear showing a) presence of multiple maggots (black arrow) b) post op mastoid cavity with facial ridge visualized.

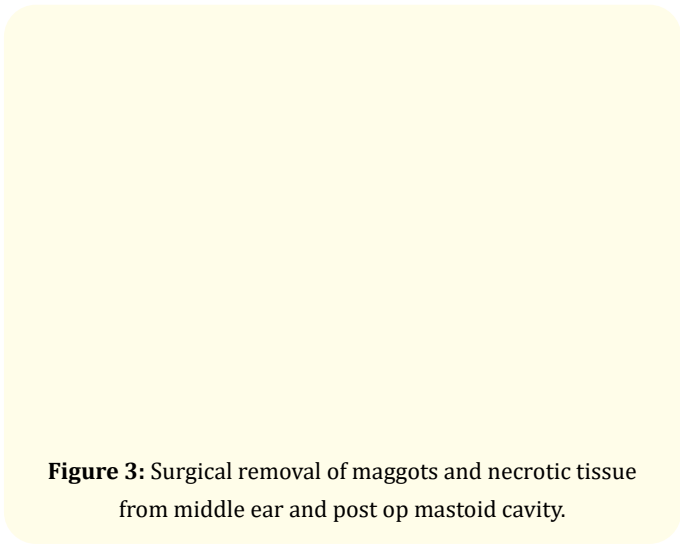


Figure 3: Surgical removal of maggots and necrotic tissue from middle ear and post op mastoid cavity.

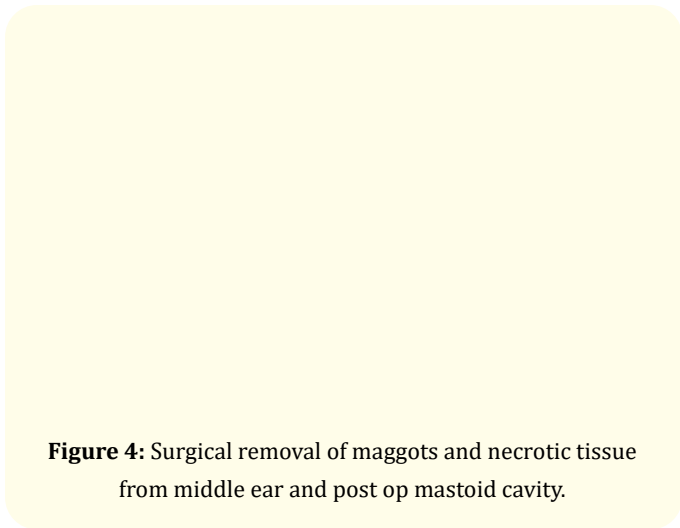


Figure 4: Surgical removal of maggots and necrotic tissue from middle ear and post op mastoid cavity.

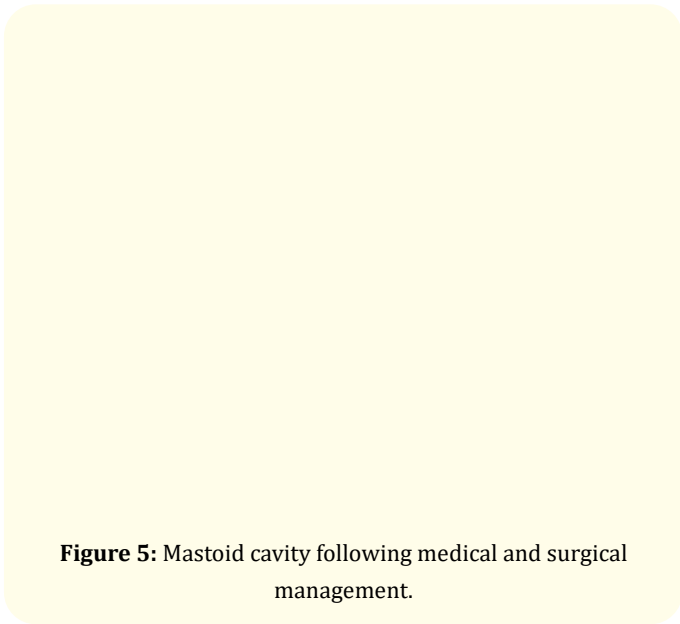


Figure 5: Mastoid cavity following medical and surgical management.

Discussion

Myiasis is a type of parasitosis caused by the larvae of diptera. The geographic distribution of the aural myiasis is almost exclusively limited to hot, tropical areas, and its etiological agent varies from one region to another. Certain populations are particularly susceptible to infestation, including children younger than 10 years of age and adults with mental or physical disabilities and it also requires a rare combination of environmental, social, and medical risk factors. Humans are accidental or facultative hosts. Flies are generally attracted to the odour of decaying necrotic tissue, which can arise from chronic otorrhoea. The fly lays its eggs while in flight on the skin, wounds or natural openings, larvae hatch from the eggs.

In our case, patient was a post-op case of modified radical mastoidectomy done eight years back, who presented with foreign body sensation and blood-stained discharge.

In a case report published by Erdem Mengi, *et al.* [4], a 87-year-old bedridden woman for 6 months who followed due to severe dementia and monitored in neurology clinic with the diagnosis of Alzheimer’s disease, was consulted presented with pruritus and bleeding of her left ear. This case report proved the fact that among the above mentioned predisposing factors mental retardation, immobilization, immunosuppression, and diabetes mellitus can also be enumerated, and that complaints of otomyiasis can manifest differences based on the patient’s mental health state.

In 2016, Yunus Emre Beyhan, *et al.* [6] presented a case on 4 year old child living in a socioeconomically poor family, who presents with complaints of otalgia, pruritus and otorrhea in the right ear for the last two days. In the physical examination, aural fetor, secretion and several foreign bodies were observed in the aural cavity. Even though this clinical condition is rare, generally seen in children

P Adhikari, *et al.* [5] presented a case of 48 years old male who presented with history of discharge, pain, bleeding and maggots coming out of his from right ear for the past 7 days. He also gave history of persistant ear discharge and progressive deterioration of hearing in the same ear for the past 2 years. He had undergone modified radical mastoidectomy 2 years back on the same side, which was similar to the history of our case.

Lokman Uzun, *et al.* [8] in 2004 presented a similar case of 31-year-old male, who had undergone radical mastoidectomy 10

years ago. He presented with otalgia, vertigo, bloody discharge, sensation of a moving foreign body and a maggot was observed to be protruding from the left ear

In this study patient is neither children nor mentally retarded. The clinical spectrum is from maggots in the ear, to otalgia, otorrhea, perforation of drum, bleeding, itching, roaring sound, tinnitus, and restlessness, which is a classical progress seen in Aural myiasis.

According to literature evaluations, cochliomyia hominivorax, wohlfahrtia magnifica, chrysomya bezziana, chrysomya megacephala, and parasarcophaga crassipalpis are the parasite species most often found in patients with auditory myiasis [4]. In our case segmented larvae measuring approximately 10-15 mm covered with bands of irregularly, and retrogradely arrayed spinous processes.

Treatment options include direct removal of the maggots and the use of chloroform, oil drops, urea, dextrose, hypertonic saline, topical ivermectine and iodine saline. Prophylactic antibiotic therapy may prevent secondary infections.

Patients who have undergone modified radical mastoidectomy and of poor socioeconomic status, ignore symptoms, infrequent follow up post surgery, maintain poor personal hygiene are at high risk of developing aural myiasis as seen in this patient. Myiasis is not common in patients with complaints in the ear region, thus, the possibility is rarely considered. Hence, educating the patient regarding follow up after such a procedure is of utmost importance.

Conclusion

Otoendoscopic procedure was found to be superior method for removal of maggots. The disease was controlled in shorter time with better visualization compared to the conventional method. Thus, quick and complete eradication of myiasis is possible before the maggots cause irreparable damage to the skin of EAC, middle ear and surrounding structures.

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