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# **Original Research Article**

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# **Evaluation of myiasis in hospital attending population** in a tertiary care hospital in Jalgoan

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#### **ABSTRACT**

**Background:** Human myiasis can present as aural myiasis, nasal myiasis, ocular, urogenital etc. Aural myiasis can lead to perforation of tympanic membrane, hearing loss, haemorrrhage and rarely the larva migrates into the meninges. Inflammatory reaction at the site if larviposition due to mast cell activation and IgE production may limit larval development. Flies are generally attractive to odour of decaying necrotic tissue, which can arise from chronic otorrhea or sinusitis.

**Methods:** The study was conducted at Dr. Ulhas Patil Medical College in the department of ENT from January 2017 to January 2019. On examination patients were irritable and blood stained ear discharge was noted in aural cases, while similar discharge from the nose in nasal cases.

**Results:** Over the 2 year study period a total of 200 cases of myiasis were seen. The youngest child seen was 11months and the oldest 70 years of age. Females (57.89%) were affected more commonly than males (41.48%). Most cases (96.8%) were from a rural background. Aural myiasis occurred from May to December. The peak incidence for both was seen from September to October.

**Conclusions:** Myiasis is a rare and benign manifestation with zero mortality rate. Meanwhile as it has been hypothesized in otolaryngology that intracerebral myiasis can be caused by the transcanal migration and invasion of fly larvae, there was no association between aural myiasis and intracerebral pathology of any kind observed in the study. The overwhelming majority of cases can be successfully managed without the need for surgical intervention.

Keywords: Myiasis, Aural, Nasal

# INTRODUCTION

Myiasis is a rare otolaryngological disease typically seen in poor hygienic conditions, medically disabled patients. Myiasis in otolaryngology can be traced back to ancient Hindu mythological works, in those days it was supposed to be due to commission of sins and the wraith of saintly persons on them. Previously it was called as scholichiasis, the term myiasis us of recent origin and Rew F.W. Hope coined the term in 1840. Aural myiasis presents a rare but unique clinical entitity for the otolaryngologists. Most cases in the literature are

reported in isolation, indeed only a small number of of cases series have been reported. <sup>1-3</sup> Infestation of live human or other vertebrate host with fly larvae belonging to the insects of order Diptera is called a myiasis. Human myiasis can present as aural myiasis, nasal myiasis, ocular myiasis or other types like genitor-urinary myiasis, anal myiasis, cutaneous myiasis etc. <sup>4</sup> Aural myiasis can lead to perforation of tympanic membrane, hearing loss, haemorrrhage and rarely the larva migrates into the meninges. Obligate myiasis causing flies create nasopharyngeal cavities (nasal bots), digestive tract bots and even involve the any internal organs of animals and

humans.<sup>5</sup> Larva can be deposited into the eye causing causing painful opthalmomyiasis resembling a foreign body in the eye sensation. Inflammatory reaction at the site if larvi position due to mast cell activation and IgE production may limit larval development.<sup>6</sup> Flies are generally attractive to odour of decaying necrotic tissue, which can arise from chronic otorrhea or sinusitis. Certain populations are particularly susceptible to infestation, including children younger than 10 years of age and adults with mental or physical disabilities.<sup>2,7</sup> Because myiasis require a rare combination of environmental, social, and medical risk factors, it is not surprising that there is limited literature describing it in humans.

#### **METHODS**

The study was conducted at Dr Ulhas Patil Medical College in the department of ENT from January 2017 to January 2019. All the patients underwent complete ENT examination. On examination patients were irritable and blood stained ear discharge was noted in aural cases, while similar discharge from the nose in nasal cases. Otoscopic examination and meticulous nasal examination was done, an animate whitish maggots occluding the external auditorty canal and harbouring the nasal cavity were found. After the instillation of turpentine oil maggots were removed in the external canal and nasal cavity with the use of proper headlight, sterile hand gloves and manual forceps. After removal otoscopic examination and anterior rhinoscopy in most of the cases revealed perforated tympanic membrane and wide nasal chambers in nasal cases respectively. All the patients underwent routine blood investigations. Imaging CT scan of temporal bone was done in selected cases. Patients were discharged from the hospital and antibiotic aural drops were advised. Patients were followed up to six months. All the patients were similarly evaluated for nasal and ocular myiasis including proper local examination, blood examination and imaging when required and were followed accordingly. The results were analysed using descriptive study of statistical analysis.

# **RESULTS**

It was observed that out of the total 42 thousand indoor patients. About 200 cases were diagnosed with myiasis. All the patients were studied for clinical features, treatment and outcome.

Over the 2 year study period a total of 200 cases of myiasis were seen. The youngest child seen was 11months and the oldest 70 years of age. Females (57.89%) were affected more commonly than males (41.48%). Most cases (96.8%) were from a rural background. Aural myiasis occurred from May to December. The peak incidence for both was seen from September to October (Figure 1). Out of total 200 cases of myiasis 176 cases (88%) were aural myiasis and 22 cases (10%) were nasal and 2 cases (2%) were ocular

cases. In aural myiasis the main symptoms included passage of worms (88%), ear discharge (45%) and pain in the ear (44%) (Table 1). Examination revealed maggots in all cases, perforation of TM (85%), blood-stained discharge (98.64%), otitis externa (10%) and ulcer over pinna (9%) (Table 1). In nasal myiasis the main presenting symptoms were: epistaxis (100%), a foul smell (100%), passage of worms (90%) and pain in the nose (81%). Examination revealed maggots in the nose (100%) with necrotic tissue (100%), a foul smell in 100% of cases and all the cases were suffering from primary atrophic rhinitis. Swelling of nose was seen in about 77% of cases. Two cases of ocular myiasis were also seen, the first had pyogenic infection over the left lower eye lid and second was a case of retinal malignancy (Table 2).

Table 1: Signs and symptoms of aural myiasis.

Observations	No. of cases	Percentage (%)
Maggots in ear	176	100
Passage of worms	156	88
Perforation of tympanic membrane	150	85
History of csom	80	45
Pain in ear	78	44
Bleeding from ear	42	23
History of ASOM	42	23
Otitis externa	18	10
Ulcer over pinna	16	9
Fever	4	2
Swelling of face	3	1

Table 2: Signs and symptoms of nasal myiasis.

Observations	No. of cases	Percentage (%)
Maggots in nose sign	22	100
Necrotic tissue	22	100
Foul smell	22	100
Atrophic rhinitis	22	100
Epistaxis	22	100
Passage of worms	20	90
Pain in nose	18	81
Swelling of nose	17	77
Fever	12	54
Past history of maggots	2	9
Mental retardation	2	9

All patients were treated with chloroform and turpentine oil in the ratio 1:4 followed by manual removal of the maggots by nasal or aural Tilley's forceps. All patients could thus be made maggot free in 2-3 days. Broad spectrum antibiotics Ampicillin and Amoxycillin were given in all cases. All patients could be discharged from hospital with in a period of 5 to 7 days. No complications were encountered.

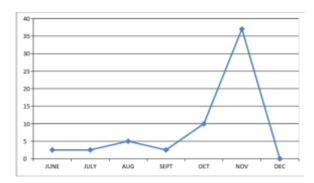


Figure 1: Seasonal variation of myiasis, peak incidence from September to October.

#### DISCUSSION

Myiasis, a common problem in the tropics, occurs only rarely in the temperate zones. <sup>8</sup> Most commonly the families Muscidue and Surcophagdue of the order Diptera are responsible. <sup>9</sup> The important genera of these families are *Luicilia* and *Chrysomia*. *C. bezziana*, *C. mocellati*, *C. megacephala* and *C. phanois* are the most common causative flies. <sup>10</sup>

Of all cases of myiasis, the reported incidence in children is 11-14%. <sup>10,11</sup> In the present study, children formed 37.9% of all cases of myiasis and remaining cases were of adults. In children Aural myiasis formed 31.88% of all cases in the present study whereas the reported percentage by others is 8-29%. <sup>11</sup> Aural myiasis has been reported to occur more frequently in children, with 75% of cases being less than 10 years of age and about 33% even less than 2 years. <sup>11</sup> In the present study, 81.47% of cases were less than 10 years and 55.32% were less than 5 years of age.

No sex predisposition has been observed with the reported male/female ratio being 1:16. 12 However, in our study, females outnumbered the males with a male/female ratio of 1:31. The reason for this may be that the male is better cared for in the rural Indian Society (96.8% of our cases were of rural origin). Myiasis has been reported to have a seasonal variation. The maximum incidence reported by various authors is from August to November, October to March, September to November and May to December. 14 In the present study, myiasis was seen from May to December with a peak from September to October (Figure 1). In aural myiasis pain and discharge has been reported as the presenting symptom in 69-100% of cases. In the present study they were observed in 41.97% and 71.60% of cases, respectively. The incidence of a blood-stained discharge reported by others is 31%. We observed it in 21.16% of our cases. In a similar percentage of our cases, acute suppurative otitis media was found in association with myiasis. Such an observation has not been reported earlier. On examination, maggots were seen in all cases, and a perforated tympanic membrane was noted in

81.48% of cases whereas it has been reported by others in 60-62% of cases.<sup>7</sup>

Otitis externa reported by others is in range of 16-35%, while in the present study it was seen in 18.51%.11 Compared to adults, nasal myiasis is uncommon in children. This due to the fact that the most common predisposing condition reported is atophic rhinitis, which is uncommon in children. <sup>13</sup> The reported incidence varies from 1.59-14%. 8,10 In the present study it was 11.7%. The main presenting symptoms observed were epistaxis, passage of worms, pain and swelling of the nose. The same have been reported by others earlier. 15 Dirty stinking wounds attract flies and act as a fertile ground for the development of maggots, as was observed in chronic suppurative otitis media, atrophic rhinitis and occular wounds. A similar observation has been made by several other authors.8 The main stay of treatment has been topical medication to paralyse the maggots followed by their manual removal. The topical agents used have included a 1:80 carbolic acid lotion spray, rectified turpentine oil douching, mercury bichloride 1:1000 solution and formaldehyde 1:10000, a combination of chloroform and turpentine oil in equal parts 111 and ether.<sup>4</sup> Nasal packs of chloroform and turpentine oil in a ratio of 1:4 twice daily followed by alkaline nasal douche has also been used for nasal myiasis.<sup>2,8</sup> In the present study chloroform and turpentine oil were used in a ratio of 1:4 followed by manual removal of the maggots with nasal or aural Tilley's forceps. The patients were made maggot-free in 2-3 days. Broad spectrum antibiotics (Ampicillin or Amoxycillin) were used in all cases. In cases of occular myiasis no topical agents were used to avoid any deleterous effect on the eyes. Although serious complications such as meningitis have been reported, no such complications were seen in the present study.<sup>4</sup>

## **CONCLUSION**

In otorhinolaryngology Myiasis is a rare and benign manifestation with zero mortality rate. Meanwhile as it has been hypothesized in otolaryngology that intracerebral myiasis can be caused by the transcanal migration and invasion of fly larvae, there was no association between aural myiasisis and intracerebral pathology of any kind observed in the study. The overwhelming majority of cases can be successfully managed without the need for surgical intervention. In our study the mainstay of treatment was topical medication to paralyse the maggots followed by the manual removal. Good hygiene and early detection of myiasis is advocated to be the followed to prevent complications.

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Institutional Ethics Committee

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