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Clinico-Epidemiological Profile of Myiasis Patients Attending a Tertiary Care Hospital of Jharkhand: A Retrospective Study

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Abstract
Introduction: *Infestation of the natural orifices and body tissues by the larvae of flies is a complaint commonly encountered by several patients presenting in Ear, Nose, Throat and Head and Neck Surgery (ENT & HNS) OPD of Rajendra Institute of Medical Sciences (RIMS), Ranchi. The objective of this study is to categorise the clinico-epidemiological profile of these patients and the site of infestation at the time of presentation.*
Design of Study: *Retrospective study.*
Materials and Methods: *Data for the study was collected from Admission Register, Department of ENT, RIMS, Ranchi during the period June 2015 – November 2016. Total sample size for this period was 30. Data was analysed using SPSS software.*
Results: *Upon analysis of 30 patients we came up with the result that myiasis is most commonly encountered amongst elderly (76.7%), mostly illiterate (90%) and females (63.3%), residing in rural areas (93.3%), with nasal and oral cavities being the most common site involved (53.4%). Passage of worms from the site (83.3%) and blood stained discharge (63.3%) are the usual presenting complaints.*
Conclusion: *Myiasis is a common complaint amongst elderly illiterate females, residing in rural areas of Jharkhand.*
Keywords: *Myiasis, Clinico-epidemiological.*

Introduction

Myiasis is the parasitic infestation of live human tissues or cavities. In 1840, Rev F.W. Hope coined the term "myiasis" (earlier known as scholechiasis). It is caused by dipterous larvae (maggots) which feed on the host dead or living tissues. These cases are extremely rare in the developed countries but common parasitic infestation in the tropics and subtropics, like Indian and African countries. Aural myiasis is most common in the paediatric age group while nasal myiasis is more common in adult age group.[1]

Many species of dipterous flies of the genera chrysomyia have been reported as the most important obligatory myiasis producers among humans and animals in India.[2,3]

Based on the relationship with their hosts, the parasites are classified into two groups:

1. Obligate parasites, which are specifically producers of myiasis and can develop only on live hosts.
2. Facultative parasites, the larvae of which feed primarily on cadavers or vegetables, but can sporadically infest human or animal tissues.

Myiasis of natural orifices like ear, nose, and oral cavity is more common, but myiasis of tracheostomy wound site is a rare finding. The severity of myiasis depends upon the site of infestation, size of wound and degree of tissue inflammation.

Materials and Methods

This retrospective study included 30 patients presenting in OPD, ENT department, RIMS, Ranchi with complaints of passage of worms from nose, ear, oral cavity or head & neck regions and blood stained nasal discharge during the period of 18 months (June 2015 – November2016).

Patients without any history of passage of worms were excluded.

Templates were generated in MS Excel and data wasanalysed using SPSS (version 20) software.

Patients were categorised on the basis ofage, sex, area of residence, literacy status, socio-economic status, presenting complaints, sites involved in myiasis.

Detailed history and examination of each patient was taken under following headings:

I) History of Presenting Illness:

1. History regarding epistaxis, pain, swelling of nose, discharge, passage of worms from nose, ears or oral cavity.

2. Any history of toothache, swelling of gums, ulcers in mouth, vomiting, dysphagia.

3. Tracheostomy wound condition.

II) History of Past Illness:

Any history which could be a predisposing factor for myiasis in ENT such as any old disease, crust formation in nose/ozaena, loss of smell, bleeding or foul smelling discharge from ear, nose or oral cavity.

III) Personal History:

Detailed inquiry about social status, condition of surroundings, sanitation.

IV) Clinical Examination:

(a) General examination: To assess the built of the patient, nutritional status, degree of dehydration, anaemia or any associated disease.

(b) Systemic examination: Examination of CNS, CVS, Respiratory system.

(c) ENT Examination

i) Ears:

- External ear (Pinna): for any deformity, swelling, infected wound, presence of maggots.
- External Auditory Canal: Discharge - Purulent / mucopurulent / blood stained; furuncle; infected wound.
- Tympanic membrane: Congestion, perforation, colour.

ii) Nose: External deformity, deviation/perforation of septum, nasal discharge, crusting, atrophy of nasal mucosa, turbinates, presence of maggots.

iii) Throat: Teeth and gums for dental caries , swelling of gums, palate for any perforation, tonsils, tonsillarfauces, posterior pharyngeal wall, presence of maggots.

iv) Posteriorrhinoscopy and indirect laryngoscopy were done in all cases and findings noted.

(d) Investigations: Routine and special investigations

- Blood examination, Hb%, TLC, DLC, ESR.
- Urine - Sugar, Albumin.
- X-ray paranasal sinuses- Occipitomental view
- X-ray chest- postero-anterior view
- CT scan nose and paranasal sinuses

Results

Following the analysis of the 30 patients, we came up with the result that 76.7% (n=23) patients belonged to <50 years age group, of which 63.3% (n=19) were females, 86.7% (n=26) were tribals, 93.3% (n=28) were from rural areas of Jharkhand and 90% (n=27) of them were illiterate. Table 1 depicts the socio-demographic profile of the patients.

Table 1: Socio-demographic profile of patients.

Criteria	Groups	Frequency (n=30)	Percentage (%)
Age(years)	< 50	7	23.3
	> 50	23	76.7
Gender	Male	11	36.7
	Female	19	63.3
Ethnicity	Tribal	26	86.7
	Non tribal	4	13.3
Residence	Urban	2	6.7
	Rural	28	93.3
Literacy	Literate	3	10.0
	Illiterate	27	90.0

Passage of worms from nasal or oral cavities was the most common presenting complaint present in 83.3% (n=25) patients while 63.3% (n=19) presented with blood stained nasal discharge. Facial pain, foul smell form the affected cavity, headache, ulcers in mouth and nasal regurgitation were the rest of the complaints at presentation, in the order of frequency. Table 2 depicts the categorisation of the patients on the basis of their presenting complaints.

Table 2: Categorization of patients on the basis of presenting complaints

Presenting Complaint	Frequency	Percentage (%)
Passage of worms from nasal or oral cavity	25	83.3
Blood stained nasal discharge	19	63.3
Facial pain	18	60
Foul smell	17	56.7
Headache	13	43.3
Ulcer in mouth	10	33.3
Nasal regurgitation	9	30

Nasal cavity was the most common site involved in 36.7% (n=11) while scalp burn wound and tracheostomy wounds were involve least, in 3.3% (n=1) patients. Nasal and oral cavities together, oral cavity alone and ear were the other affected sites. Table 3 categorises the patients on basis of the site of body affected with maggots.

Table 3: Categorization of wounds on the basis of site involved.

Site involved	Frequency	Percentage (%)
Nasal cavity	11	36.7
Nasal cavity + oral cavity	8	26.7
Oral cavity	7	23.3
Ear	2	6.7
Scalp burn wound	1	3.3
Tracheostomy wound	1	3.3

Discussion

One of the earliest reports was from Soares "d" Souza (1587) who reported a case of cutaneous myiasis.[4]Castellani and Chalmer's (1919) described nasalmyiasis caused by chrysomya, known as Peenash in India.[4] According to Sahay the most common months for the myiasis is March to June.[3]

Chrysomyabezzianais also known as "old world screwworm", is an obligate parasite from the order Diptera, family Calliphoridae, suborder Cyclorrhapha. It is widely distributed in tropical and subtropical countries of Africa and Asia, including Southeast Asia, India, Saudi Arabia, Indonesia, the Philippines, Papua, New Guinea, and Persian Gulf.[5,6] The adult fly feeds on decomposing corpses, decaying matter, excreta. The adult female fly lays eggs only on live mammalian tissue, depositing about 200 eggs at sites of wound, which hatch after 12–18 hours and develop to adult in 18 days under optimal conditions. The first-stage larvae, a white coloured 1.5 mm long worm, emerges from the eggs and then burrow into the wound. The larvae moult into the second and third stages in four days. After 5–7 days, the third-stage larvae leave the wound, pupate and transform into adult fly seven days later.

The predisposing factors for myiasis are poor hygiene, epistaxis, infected wounds, atrophic rhinitis, leprosy, diabetes with purulent sinusitis, syphilis involving nose, CSOM, vegetative state of patient, psychiatric condition, foreign body, and immunocompromised state of the patient.[7,8]
According to Chigusa et al. (1996), the patients with psychiatric disorders,elderly and debilitated patients must be protected from flies, which may make it easy to deposit eggs or larvae on the patient's body surface or orifices, due to their decreased resistance and sensitivity.[9]
The treatment of this infestation is as follows:

- Regular douching of the site with turpentine oil and careful removal and proper disposal of the maggots.[10]
- Isolation of the patient using mosquito bed nets.
- Restoration of proper hygiene.
- Proper antibiotic coverage
- Prevention of complications

The complications of myiasis may be maxillary sinusitis, diffuse cellulitis of face, palatal perforation or sepsis.
Most of the patients presenting with complaint of maggots in our study were old, illiterate females from rural areas, which points towards the poor hygienic conditions in rural areas and the negligence of females towards their health. Worms from nose or oral cavity with blood stained discharge from nose were the most common presenting complaint. Grossly neglected elderly from well-to-do families also presented with the same.
The most important predisposing factors in our study were poor hygienic conditions, vegetative state of patient, and their psychiatric condition.
Many patients had been referred to RIMS from primary health centres of Jharkhand.
Gross negligence by the patients themselves and inability to approach for treatment due to monetary factors were also claimed by few of the attendants.

Conclusion

Once a deadly disease, advances in management including supportive therapy has led to the early healing with significant reduction in the hospital stay.
Larvae of flies of genus chrysomia are most commonly isolated in India.
Hospital admission may be useful to avoid spreading of the infection and prevention of complications.
Prognosis, when there are no complications, is good.
The above study points towards the requirement of spreading awareness about the same amongst the poor rural population and extension of its treatment to the primary level of health management.

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