

Study on Oral Myiasis at a Tertiary Care Hospital in India

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Abstract : Introduction: Myiasis - a parasitic infestation of vital tissue of human or other mammals by dipterous larvae (maggots). Though myiasis in oral squamous cell carcinoma patient is rare entity, it is one of the possible risk factor for it in tropical countries. It is mostly due to poor oral hygiene, suppurative lesions, cancerous wounds, alcoholism, severe halitosis, senility, social boycott and also due to poor manual dexterity in mentally challenged patients.

Materials and methods : The aim of the present article is to highlight the occurrence of oral myiasis in association with oral squamous cell carcinoma and to know its incidence in relation to socio economic class, male: female ratio, occupation, site of carcinoma and also to accent the preventive aspects of it.

Results: In this study we have found male preponderance. While the mean age was 60.16 years. Maggots affected patients are mainly from poor socioeconomic strata. Most of the patients (33.50%) had involvement of tongue and rest were buccal mucosa (33.33%), floor of the mouth and lips. Occurrence of maggots was mostly during October to December. All maggot patients were treated with manual removal of maggots followed by regular dressing and antibiotic coverage.

Conclusion: Oral Myiasis is a preventable disease if proper care of wound is taken beforehand. Once it occurs it can be treated by the proper removal of maggots and wound care.

Keywords:- Oral myiasis, oral squamous cell carcinoma.

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I. Introduction

Parasitic infestation occurring through common flies are rare but most daunting entity of orodental complex. Among all carcinomas squamous cell carcinoma (SCC) is the most common type of oral cancer. Which forms more than 90% of all oral malignancies^[1,2]. Advanced oral squamous cell carcinoma can cause significant morbidity and mortality due to its local infiltration and cause significant tissue destruction leading to fascia disfigurement, loss of function, pain, bleeding and necrosis^[1]. A rare complication of advanced SCC is oral myiasis^[3,4].

Zumpt^[5] defined myiasis as an infestation of live human and vertebrate animals by dipterous larvae which atleast for certain period of its lifecycle feed on host's living or necrotic tissues, liquid body secretions and fluids or ingested food. F William Hope first coined the term 'myiasis' in 1840 while was first described by Lawrence in 1909. The word 'myiasis' is derived from Greek language wherein 'myia' means fly and 'asis' means disease. Myiasis is caused by Dipteran fly. These flies belong to the order Diptera. When tissues of oral cavity are invaded by parasitic larva of flies, this condition is known as oral myiasis. In India the most common housefly associated with myiasis is *MuscaNebulo*^[6].

Clinically, myiasis is classified in two type: 1} Primary myiasis-larvae that feed on living tissue caused by biophagous larvae. 2} Secondary myiasis- larvae that feed on dead tissue caused by necrobiophagous flies. On the basis of anatomical sites involved: 1) Cutaneous myiasis; 2) Myiasis of external orifices; and 3) Myiasis of internal organs^[7].

Another classification of myiasis categorizes into following types: 1) Accidental myiasis- the larvae get ingested along with the food; 2) Semi-specific myiasis- when the larvae lay on neurotic tissue of the wound; 3) Obligatory myiasis- which requires living tissues for larvae development; and 4) Facultative myiasis- which requires neurotic tissues for flies to lay eggs and incubate them^[8]. Its incidence is higher in tropical and subtropical regions of Africa and America due to the favourable climatic conditions of heat and humidity^[9].

In humans, most commonly affected sites are skin, nose, eyes, anus, vagina, and oral cavity. Oral myiasis is commonly associated with certain anatomical and medical conditions, such as poor oral hygiene and consumption of fermenting foods associated with poor manual dexterity leading to severe halitosis attracting the flies, low socioeconomic state, debilitated and unhygienic living conditions. India is country of farmers so peoples are directly in close contact to livestock-an environment favouring flies due to their profession also. Immunocompromised state is also one of the provoking factor. The incidence of oral myiasis is relatively less as

compared to cutaneous myiasis since tissues of the oral cavity are not permanently exposed to the external environment. Although a rare, many oral myiasis cases associated with squamous cell carcinoma have been reported.

II. Materials And Methods

The study was conducted to know the incidence of oral myiasis in association with oral squamous cell carcinoma patients. And to know its incidence in relation to socio economic class, male:female ratio, occupation, site of carcinoma and also to highlight its preventive measures. Inclusion criteria: 1) All patients who gave positive informed and written consent for study. 2) All patients having oral squamous cell carcinoma with maggots. Exclusion criteria: Patient who is not willing to participate in study. Methodology: The study was conducted in the department of Otorhinolaryngology, Sir T Government Hospital Bhavnagar, India. It is a retrospective observational study conducted for period of 5 years.(January 2012 to November 2017). Twenty four cases of oral myiasis associated with squamous cell carcinoma were reported. The patients in this study were categorised by following parameters: age, gender, address, socio-economical class, occupation, systemic comorbidities, mental status, hospital stay, complications and numbers of maggots removed, post operative radiotherapy & chemotherapy taken or not.

Each patient is briefly examined for Otorhinolaryngological and general condition. Detailed history regarding the oral disease, addiction, associated complaint of pain, bleeding, difficulty in swallowing, toothache, swelling gums, ulcer in mouth, vomiting, radiotherapy & chemotherapy, prolonged steroid therapy, HIV, diabetes mellitus, anaemia, hypertension, blood transfusion taken. Also inquired about social status, work, religion, condition of surrounding and sanitation was taken.

A brief general examination was done to assess the built and nourishment of the patient, degree of hydration, anaemia. All routine as well as special investigation if needed was carried out like complete haemogram, blood sugar level, liver and kidney function test and urine routine microscopy, serology etc. There is no standard guideline is available for the management of the oral myiasis. However, the ideal approach is to manual removal of the maggots with the help of hemostatic artery forceps. Topical administration of asphyxiant agent turpentine oil is useful for the removal of larvae. Chloroform, iodoform, ether, phenol mixture can also be used^[10]. Regular aseptic dressing and gargling with povidine iodine 2% w/v. Sinha V^[11] et al strongly advocated to use mosquito net during sleep to prevent further laying of eggs. Systemic management involve broad spectrum antibiotics such as injectable amoxicillin with clavulanic acid, metronidazole, especially when the wound is secondarily infected.

III. Results

In our study out of 24 patients 20(83.33%) were male and 4(16.67%) were female patients. Age varies between 40 years to 80 years with slightly higher distribution in geriatric age groups. The mean age is 60.16 years. The mean age in female was 65 years while in male it is 59.19 years. The age distribution is more towards male geriatrics age group. All patients' personal and social data collected and analysed thoroughly. There were 19 (79.16%) cases residing in urban slum area, 4 (16.66%) cases were from rural slum area and 1 (4.16%) cases were from well urbanized area(Figure-1). 15(62.5%) patients were Hindu by religion where as 9(37.5%) were Muslims. Out of twenty four cases, 4(16.66%) were house wives, 6 (25%) were labourer and 14 (58.33%) were non worker. 23 (95.83%) cases were from lower socio economical class, whereas only 1 (4.1%) belonged to upper socio economical class (Table :1). 1 (4.1%) patient was mentally retarded. A study by Gabriel J^[12] et al in 2008 on oral myiasis and a case report by Jabr IA^[13] in 2015 on aural myiasis also support that poor socio economic class, illiteracy and poor hygiene were significant predisposing factors for myiasis. On other hand in another study conducted by Arora S et al^[14] in 2009 on myiasis also mentioned that 60% house wives, 25% labourers, 5% farmers and 7.5% students and 2.5% businessman were reported. Average maggot load was 85.83 per patient. Highest numbers of maggots (approximately 250) were reported with left side carcinoma of buccal mucosa recurrence. Out of 24 patient 2(8.33%) were right buccal mucosa carcinoma, 6(25%) were left buccal mucosa carcinoma (Fig:1), so 8(33.33%) cases of carcinoma of buccal mucosa. 4(16.66%) were right lateral border of tongue, 1(4.16%) was left lateral border of tongue, 2(8.33%) were whole tongue carcinoma, and 2 case of carcinoma of base of tongue. So 9(37.5%) cases of carcinoma of tongue, 2(8.33%) anterior arch carcinoma, 1(4.16%) right retro molar trigon, 1(4.16%) left retro molar trigon, so total 2(8.33%) were carcinoma of retro molar trigon. 1(4.16%) was tonsillar carcinoma. 2(8.33%) were anterior pillar carcinoma (Table-2).

IV. Discussion

All the patients were diagnosed and got admitted in Sir. T. Government Hospital, Bhavnagar ; India and managed with frequent manual removal of maggots, regular dressing and with antibiotic cover which covers gram positive as well as gram negative bacteria and mosquito netting is provided to prevent further

infestation. The number of maggots significantly reduced on 3rd day of admission. The average hospital stay encountered was 3.9 days. We have observed that myiasis commonly encountered during period of October to December. A study conducted by Singh^[15] et al in 1993 on aural myiasis have similar findings. Systemic comorbidities which correlated were uncontrolled diabetes 2 (8.33%), immunocompromised status 2 (8.33%). Whereas 16 (66.66%) presented with anaemia. Where as death is reported in 1(4.16%)case. Maggots after removal killed by putting into boiling water and then sent for bio waste management. (Fig:2)

V. Conclusion

Prevention is better than cure. Oral myiasis is rare, but preventable disease. It can be prevented by controlling fly population, maintaining good oral and personal hygiene such as proper bio waste management, cleaning and covering the wounds, and educating the vulnerable people with basic sanitation methods. Patient with mental and/or, physical disability should be well taken care-of.

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Fig:1 : Showing mandible and buccal mucosa involved by myiasis



Fig: 2: Maggots kept in kidney tray for disposal

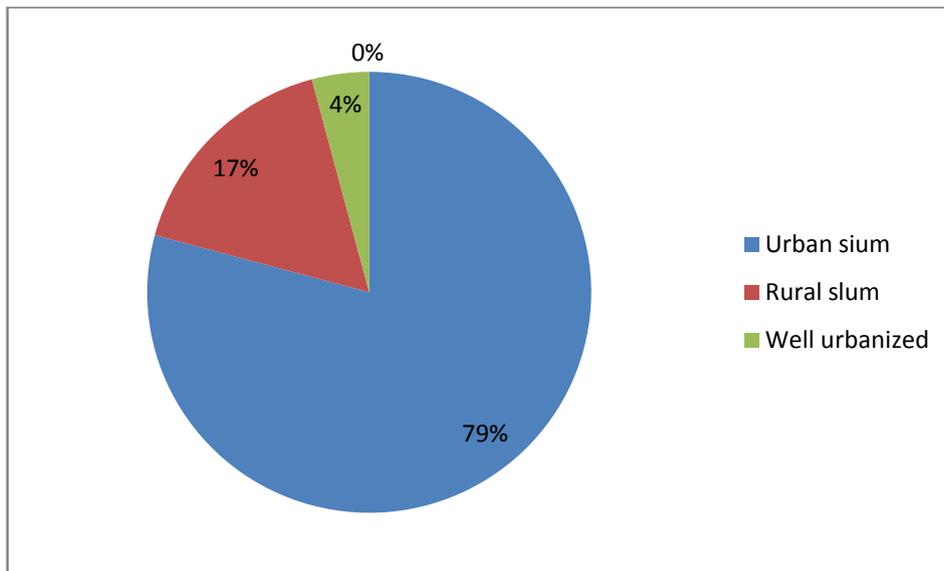


Table: 1 : Socio economic class distribution of patients

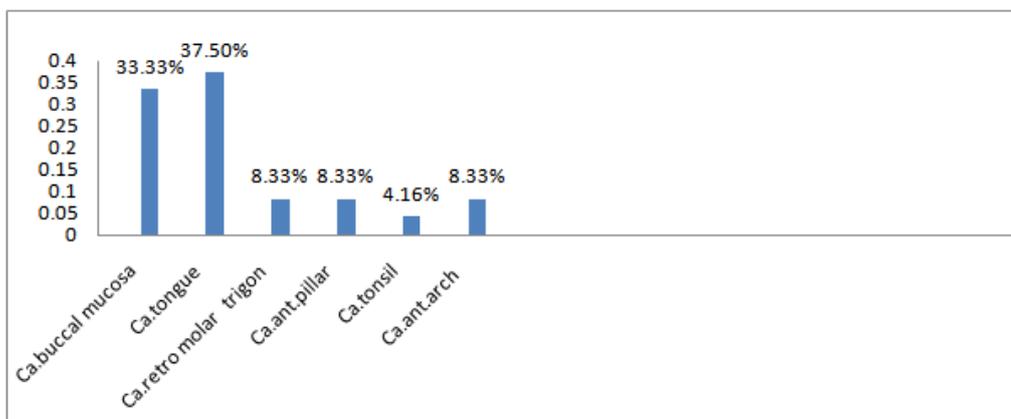


Table: Maggots involving different parts of oral cavity cancer.

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