RESEARCH COMMUNICATION

Prevalence of Oral Pre-malignant and Malignant Lesions at a Tertiary Level Hospital in Allahabad, India

Ravi Mehrotra*, Shruti Pandya, Ajay Kr Chaudhary, Mahendra Kumar, Mamta Singh

Abstract

<u>Objective</u>: In a previous article, we reported the prevalence rates of oral mucosal lesions in this hospital from 1990-2001. This study was planned to study the spectrum of potentially malignant and malignant oral lesions in Allahabad, North India in the subsequent years till 2007 and to assess change in pattern of prevalence, if any. <u>Materials and Methods</u>: This is a single institutional retrospective study in and around Allahabad from 1990 to 2007. Data was collected year wise with reference to age, sex, site involved and histopathological findings. <u>Results</u>: 1,151 oral biopsies were reviewed. Of these, 365 biopsies were benign, 344 were potentially malignant and 442 were malignant. The buccal mucosa was the most frequently involved site in benign and premalignant lesions, however in malignant lesions, the tongue was most common site. Oral submucous fibrosis constituted the highest number of patients in premalignant group, while in malignant group, squamous cell carcinoma was most prevalent. <u>Conclusion</u>: This study showed that potentially malignant and malignant oral lesions were widespread in the patients visiting the hospital in this region.

Key Words: Oral lesions - squamous cell carcinoma - prevalence - Allahabad, India

Introduction

Oral cancer is a major health problem in some parts of the world, especially in developing countries. Worldwide, the annual incidence exceeds 3,000,000 new cases. The main risk factors are tobacco and alcohol. Prognosis of oral cancer differs significantly between specific oral locations, with carcinoma of the lip, for example ,having a much better prognosis than at the base of tongue or on the gingiva. Prognosis of intra-oral cancer is generally poor, with a five-year survival less than 50 percent. Local recurrences as well as lymph node metastases occur in a significant percentage of patients, while distant metastases are less frequent.

Several oral lesions such as leukoplakia, erythroplakia and lichen planus carry an increased risk for malignant transformation in the oral cavity. Oral submucous fibrosis (OSMF), an potentially oral malignant condition has increased manifold especially among the younger generation in South Asia (Gupta et al., 1998). This disease occurs most commonly in South East Asia, but cases have been reported worldwide in countries like Kenya, China, UK, Saudi Arabia, and other parts of the world (Shah et al., 2001). In India, about 5 million people suffer from this disease (Chui et al., 2002).

Oral carcinoma is a global health problems with rising prevalence and mortality rates. It constitutes the largest group of malignancies in the Indian subcontinent with an incidence rate as high as 30-40%. posing a significant challenge to health services, both preventive and diagnostic (Parkin et al., 2002). Data from the National Cancer Registry programme of the Indian Council of Medical Research has confirmed the fact that oral cancer is indeed a common form of cancer in India. (National Cancer Registry, 2003). It is the most prevalent cancer in males as well as third most common in females (Sankaranarayanan et al., 1990).

However, the spectrum of oral malignancy varies from place to place within the country with a marked increase in the occurrence in many parts of country like Uttar Pradesh, Madhya Pradesh, Gujarat, Bihar and Maharashtra. The prevalence rate of oral cancer is high in the Allahabad region and the bulk of patients come from the surrounding areas to the tertiary level referral S.R.N Hospital of the Moti Lal Nehru Medical College, University of Allahabad. In a previous article, we reported the prevalence rates of oral mucosal lesions in this hospital from 1990-2001. This study was planned to study the spectrum of potentially malignant and malignant oral lesions in Allahabad, North India till 2007 and to assess change in pattern of prevalence, if any from the previously reported data.

Department of Pathology, Moti Lal Nehru Medical College, University of Allahabad, Allahabad, India
*For Correspondnece: E mail: rm8905@gmail.com

Materials and Methods

This is a single institutional retrospective study from 1990 to 2007. The study was cleared by the departmental ethics committee. The catchment area was in and around Allahabad. This is a central eastern district of Uttar Pradesh (U.P.) with Pratapgarh, Fatehpur and Jaunpur in its north, Varanasi and Mirzapur in the east, Rewa (M.P.) in south and Banda in the west. Data was collected year wise in the context of age, sex, site involved and history of addiction. Patient records were maintained in the Department of Pathology and were retrieved manually.

Results

A total of 67,909 surgical biopsies were reported in this Institute in the study period. Of these biopsies, 1,151 were from the oral region. 365 (31.7%) patients were reported as benign, 344 (29.8%) potentially malignant and 442 (38.4%) were malignant. The year wise trends of prevalence revealed the maximum rate of these oral biopsies in1997 (15.58 per 1000 biopsies) followed by during 1999 (11.67 per 1000) (Table 1). In the benign group, 221 were males and 144 were females. Of the premalignant cases, 252 were males and 92 were females. Of these 252 males, 41 had dysplasia, 67 had leukoplakia and 144 had OSMF. Of 92 females, 17 had dysplasia, 23 had leukoplakia and 52 had OSMF. In the group of 442 patients with malignancy, 188 males had well differentiated carcinoma and 141 moderately differentiated carcinoma, while in females, 53 had well differentiated carcinoma and 42 suffered from moderately differentiated squamous cell carcinoma (Figure 1).

According to the age wise distribution, majority of the benign and premalignant biopsies were reported in the age group of 20-29 years with a mean age 25 years, while malignant lesions were observed mainly in the 50-59 years age group with mean age of 55 years (Figure 2).

On the basis of the site of involvement, biopsies from

Table 1. Number of Biopsies Reported Yearly

| Year	Total biopsies	Oral	Benign	Pre-malignant	Malignant	IR/1000
1990	4128	46	15	9	22	5.33
1991	4621	50	17	12	21	4.54
1992	4546	40	18	7	15	3.30
1993	3913	45	17	10	18	4.60
1994	3109	54	13	11	30	9.65
1995	3361	73	30	19	24	7.14
1996	3652	95	43	13	39	10.56
1997	2951	111	42	23	46	15.58
1998	3789	67	11	31	25	6.60
1999	2999	94	29	30	35	11.67
2000	3490	84	12	44	28	8.02
2001	2982	33	08	3	22	7.38
2002	3644	31	06	4	21	5.76
2003	3705	54	13	19	22	5.93
2004	3663	54	13	22	19	5.19
2005	4127	66	29	22	15	3.63
2006	4630	79	17	41	21	4.53
2007	4599	75	32	24	19	4.13
Total	67,909	1151	365	344	442	6.50
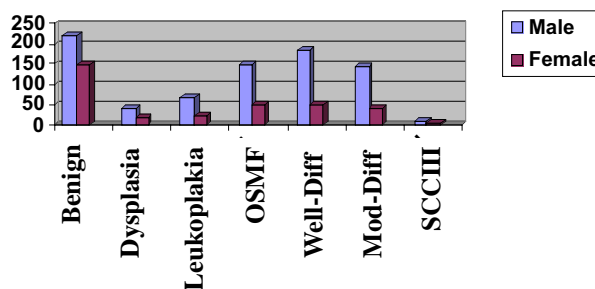
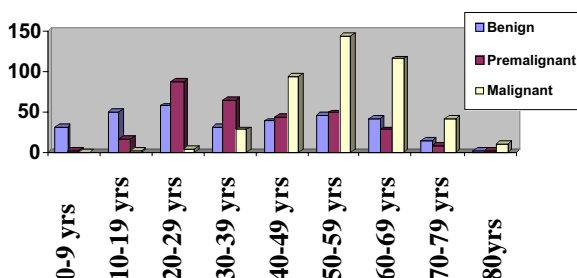**Figure 1. Distribution of Cases by Clinical Diagnosis**

Figure 2. Classification by Age and Histopathology

the oral cavity revealed that in the benign and premalignant group, the buccal mucosa was most frequently involved in 260 (47.7%) patients, followed by the tongue 26 (27.6%). However, in malignant lesions, the tongue in 167 (37.8%) patients was the most common site followed by buccal mucosa in 149 (33.7%) patients.

Discussion

In the last 18 years, 1151 oral biopsies were studied, in this institute. In the 344 premalignant cases 73.2% were males and 26.7% were females while 38.4% of oral biopsies were diagnosed as oral squamous cell carcinoma (OSCC), of which 76.9% were males and 23% were females. Padmakumary et al reported that OSCC constituted 14% of all cancers at the Regional Cancer Center, Kerala, India and reported that this was responsible for 17% of all cancers in males and 10.5% in females. (Padmakumary et al., 2000)

The male to female ratio reported in this study was 2.4:1 and was similar to the 2.3:1 ratio reported by Iype et al 2001 . (Iype et al, 2001) Akin to our observations, majority of their oral malignancies were reported in the 50-59 year age group. Gangane et al reported similar findings (Gangane et al., 2007) . However, Saraswathi et al reported maximum patients in the 40-61 year age group. (Saraswathi et al., 2006).

Interpretation of data from a single institution has clear limitations. The data reflects the specific patient population reporting to this hospital and not the community as a whole. In this study,year- wise trends of prevalence of malignancy revealed maximum number in 1997 followed by 1999. These results have been previously reported from the author's group (Mehrotra et al., 2003). However, analyzing the results from 2003-2007, no clear-cut trends in prevalence could be observed, although a hint of a gradual increase could be discerned.

This could reflect increasing usage of chewing gutka and paan masala. Consumption of gutka has been significantly associated with oral precancer and cancer cases (Gangane et al., 2007). What was the cause of the sudden increase in 1997-1999 cannot be easily explained. Could it be due to the induction of enthusiastic oral surgeons in the hospital or to a spurt in awareness about oral health coupled with awareness campaigns launched by the hospital?

Histopathological diagnosis revealed that 365 benign lesions comprised 31.7% cases. Of the 344 potentially malignant lesions, 58 were dysplasia, 90 leukoplakia and 196 were OSMF made up 29.8%. In the 442 oral malignancies, well-differentiated carcinoma constituted 42.5% while moderately differentiated carcinoma constituted 31.9% malignancy. Iype et al in their study also reported that 52.6% of their patients had well-differentiated tumours. (Iype et al., 2001)

On the bases of site of involvement, in benign and premalignant group, the buccal mucosa (47.7%) was found to be most frequently involved site followed by tongue (27.6%). In malignancy, the tongue (67.4%) was the first frequent site followed by buccal mucosa (7.75%). This was similar to Iype's finding from Trivandrum who reported 52% of their patients had tongue involvement followed by 26% with lesions in the buccal mucosa (Iype et al., 2001). Bhurgri suggested in her report from South Karachi, Pakistan that in oral malignancy, the buccal mucosa was the most frequently involved site (55.9%), followed by tongue (28.4%) (Bhurgri, 2005).

Since, the oral cavity is more accessible to complete examination, it could be used in early detection of precancerous and cancerous lesions, but either due to ignorance or inaccessibility of medical care, the disease usually gets detected in later stages. Use of screening and detection aids such as vital stains, visualization aids like Vizylite® and VELscope® as well as Oral CDX® brush biopsy have been reported to increase the number of cases diagnosed at an early stage, or even in the pre-malignant stage. Development of molecular markers may improve the early diagnosis and help in predicting treatment response. New treatment modalities including tumor specific antibodies and gene therapy are emerging, giving more hope for patients with oral cancer. There is an urgent need for appropriate prevention and cessation strategies for smoking and smokeless tobacco products. Study of prevalence patterns form different parts of India may help in devising such strategies.

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