ORIGINAL ARTICLE

Retrospective Study of Variations in the Microscopic Morphology of Dental Biopsy Specimens Received in Pathology Department of Lahore Medical and Dental College

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ABSTRACT

Design: Cross sectional study / Retrospective study
Setting: Lahore Medical and Dental College, Lahore, Pakistan
Duration of study: 4 years. From cases received in Pathology Department from 2004 – 2008
Main outcome: Morphological spectrum of dental biopsy specimens
Results: During the study period, 127 biopsies were performed by Dental Department, and were sent to the Histopathology Departmrnt. The age range of the samples were from 5 – 80 yrs. The mean age of the group was 32.16 yrs. Out of 123 cases, there were 62 (50%) males and 61 (49.6%) females in the study. Maximum number of dental lesions that required biopsy was seen in the second decade 33 (26.8%) followed by third decade 28 (22.8%). Chronic Inflammation was the most common non-neoplastic oral mucosa lesion (38.46%). Hemangioma constituted 46.7% of the benign neoplastic lesion. Squamous cell carcinoma was the most common lesion (94.73%) in malignant group. Amongst cystic lesions, Radicular cyst was seen in 7 out of 18 patients (38.8%) with an age range between 12 – 30 yrs and a mean of 20.85 ± 5.58 yrs.
Conclusion: This study has provided information about the epidemiologic aspects of oral mucosal lesions that may prove valuable in planning of future oral health studies.
Key words: Dental biopsy, Miscroscopic Morphology, Prevalence

INTRODUCTION

Diagnosis of wide variety of lesions that occur in oral cavity is an essential part of dental practice. An important element in establishing a diagnosis is the knowledge of the lesions' relative frequency[1]. Despite the availability of vast data on the prevalence of oral and maxillofacial diseases[1,4-11], very few studies are available describing the relative frequency of oral biopsied lesions done by dental surgeons in Lahore, Pakistan[2,3]. In addition, most of the conducted studies were of tumours[2] and did not include all the oral biopsied lesions.

Oral health survey data are essential for proper health planning programmes. In order to stress the importance of dental biopsy for correct treatment of the disease, this 4-year retrospective study was planned. All the oral biopsies received in the Pathology Department of Lahore Medical and Dental College was studied with reference to the site and the histopathological diagnosis. Dec2008 were included in the study. The data was retrieved from the biopsy record files of Pathology

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MATERIALS AND METHODS

All the dental biopsies done in Dental Department of Lahore Medical and Dental College from Jan 2004 to Department Lahore Medical and Dental College, Lahore. In order to see the frequency of oral and Maxillofacial lesions as detected by dental surgeons, biopsies which were not operated by the dental department, were excluded from the study. Data regarding to location, histopathological features, age and gender were evaluated. Biopsies were then ranked under 13 categories, as described by Lima et al, 2008. The categories are as follows:

1. **Hyperplastic/reactionary lesions:** Pyogenic granuloma, inflammatory fibrous hyperplasia, peripheral giant cell granuloma, peripheral ossifying fibroma, lymphoid hyperplasia, gingival hyperplasia, pulp polyp, parulis.
2. **Benign neoplasms:** Fibroma, squamous papilloma, nevus, hemangioma, giant cell fibroma, lymphangioma, neurofibroma, congenital epulis, vascular hamartoma, lipoma, common wart.
3. **Oral mucosa lesions:** Unspecific inflammatory process, acanthosis, hyperkeratosis, hematoma, foreign body granulomatous inflammation.
4. **Cystic lesions:** Periapical cyst, paradental cyst, residual cyst, dentigerous cyst, eruption cyst, unclassified cysts of odontogenic origin, epidermoid

cyst, median lingual cyst, pilar cyst, incisive canal cyst.

5. Odontogenic tumors: Odontoma, keratocystic odontogenic tumor, ameloblastoma, myxoma, ameloblastic fibrodentinoma.

6. Bone pathologies: Giant cell central granuloma, aneurysmal bone cyst, traumatic bone cyst, fibrous dysplasia, exostosis, central ossifying fibroma, massive osteolysis, ossifying periostitis, cherubism, reaction bone tissue, bone sequestrum.

7. Salivary gland lesions: Mucocele, ranula, sialolithiasis, sialocyst, adenomatoid hyperplasia, pleomorphic adenoma, myoepithelioma.

8. Malignant neoplasms: Rhabdomyosarcoma, Langerhans cell histiocytosis, Burkitt's lymphoma, neuroblastoma, nevoid basal cell carcinoma.

9. *Morphological description only*

Statistical analysis: Data were recorded and analyzed by Microsoft Excel Programme of Microsoft Office 2007.

RESULTS

During the study period, 127 biopsies were performed by Dental Department between Jan 2004 to Dec 2008 and were submitted to the pathology Department of Lahore Medical and Dental College. 4 cases were excluded from the study as no record of their age or sex was given in the requisition forms for histopathology. Figure 1 shows the patient distribution for age groups and the prevalence of cases in ages in decades. The age range was from 5 – 80 yrs. The mean age of the group was 32.16 yrs. Out of 123 cases, there were 62 (50%) males and 61 (49.6%) females in the study. Maximum number of dental lesions that required biopsy was seen in the second decade 33 (26.8%) followed by third decade 28 (22.8%).

Mandible area was the most commonly affected site (40/123), followed by the buccal mucosa (29/123), and the lower lip (table 1).

Of 123 cases the relative occurrence of neoplastic and non-neoplastic lesions were shown in (Figure 2). Hemangioma constituted 46.7% of the benign neoplastic lesion. Squamous cell carcinoma was the most common lesion (94.73%) in malignant group. It was more common in males with mean age 48.9$\pm$14.59 years.

The morphological spectrum of different dental lesions during the study period is shown in Fig: 3.

Chronic Inflammation was the most common non-neoplastic oral mucosa lesion (38.46%). Granulomatous inflammation was seen in 11.53%. Inflammation of the oral mucosa was common in the age range 12-75 yrs with a mean of 32.6 $\pm$ 15.85 yrs.

Granuloma pyogenicum was more common in females (47.6%) than males (28.57%). The age range for granuloma pyogenicum was 6.5 – 45 yrs with a mean of 27.35 $\pm$ 12.84 yrs.

Amongst cystic lesions, radicular cyst was seen in 7 out of 18 patients (38.8%) with an age range between 12 – 30 yrs and a mean of 20.85 $\pm$ 5.58 yrs. Keratocyst was seen in (5/18) 27.77%.

Table: Sex prevalence of oral biopsy lesions based on site (n=123)

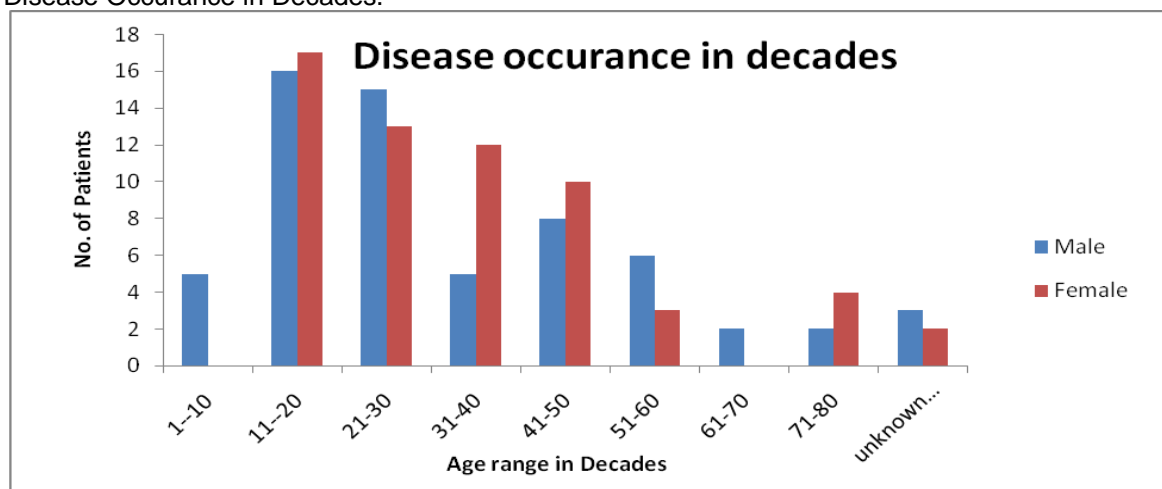| Site	Male	Female	Total
Mandible	23	17	40
Maxilla	6	6	12
Buccal mucosa	16	9	25
Tongue	6	2	8
Lymph node	3	1	4
Gingiva	5	14	19
Lip	3	4	7
Unknown			8

Fig: 1 Disease Occurance in Decades.

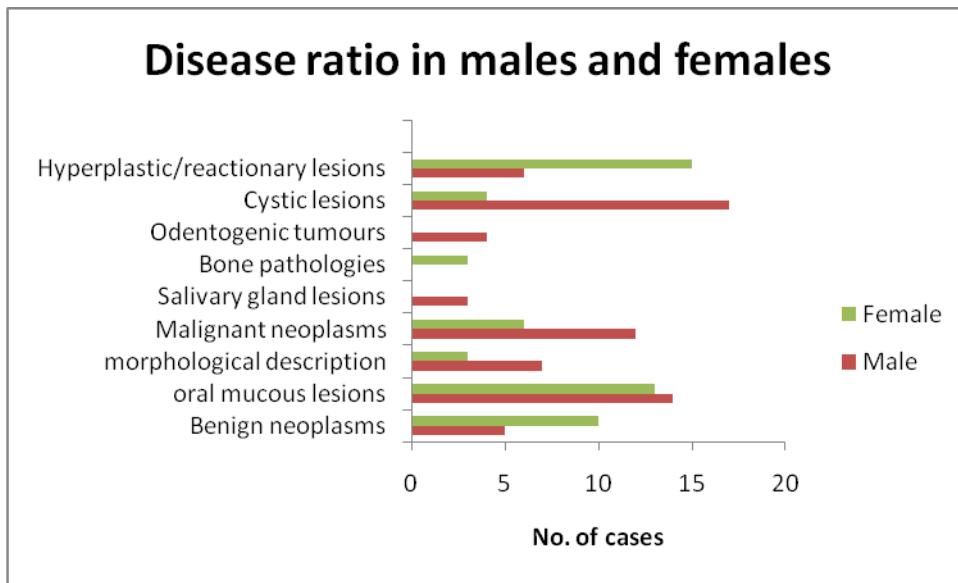Fig: 2 Frequency of non-neoplastic and neoplastic cases in dental biopsy specimens
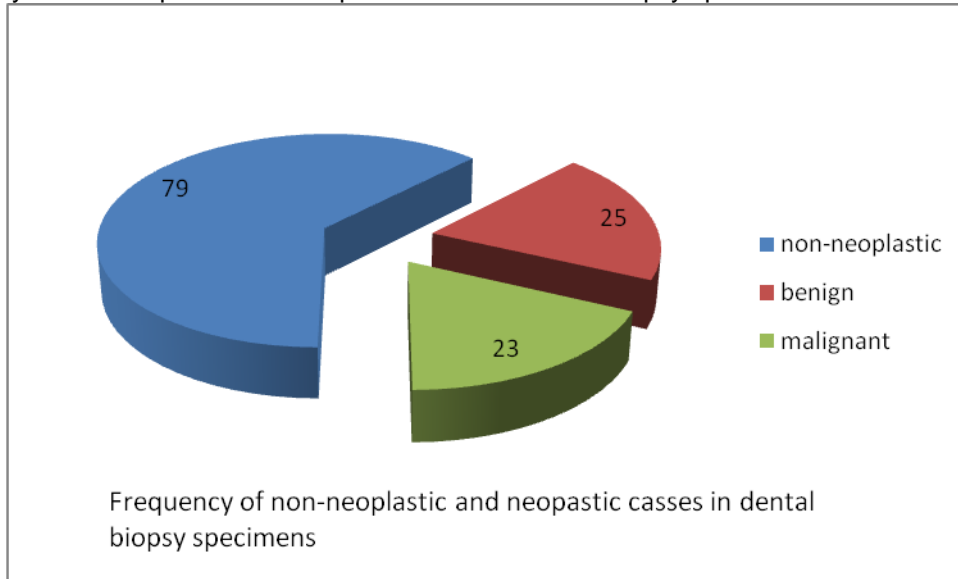

Fig: 3 Morphological spectrum of Diseases based on sex

DISSCUSSION

Oral mucosal lesions could be due to infection (bacterial, viral, fungal), local trauma and or irritation (traumatic keratosis, irritational fibroma, burns), systemic disease (metabolic or immunological), or related to lifestyle factors such as the usage of tobacco, areca nut, betel quid, or alcohol. For planning of national or regional oral health promotion programs as well as to prevent and treat oral health problems, baseline data about magnitude of the problem is required[6]. Oral cancers rank from sixth to eight most common cancer around the world[7].

Oral soft tissue lesions requiring biopsy, presents a significant health problem with considerable morbidity. Despite its importance, few studies are available showing the incidence of different diseases in Pakistani population.

Results of the study conducted by Al-Mobeeriek 2009 shows a maximum incidence in the 4th decade followed by 2nd and 3rd decade. The difference is probably because their study included all the oral lesions whether requiring biopsy or not and our study comprised of only biopsied lesions.

In our study, Mandibular area was the most common site disease followed by buccal mucosa and

gingival. This was in contrast to a study in which maxilla was the most commonly affected site, followed by the mandibular region, and the lower lip[5].

In our study the incidence of malignant tumours were higher than reported by others. This is because of high incidence of smoking and paan eating in our population[9]. Squamous cell carcinoma was the most common cancer, mean age 48.6yrs. The result was similar to other studies[2,10] in which mean age of oral cancer patients was 46.28 years. It was more common in males.

In accordance with others[8], oral mucous lesions were the most common lesions. However equal incidence was seen in Oral mucous lesions amongst males and females in contrast to Al-Mobeeriek 2009, who showed female preponderance. The difference might be because of the small sample size in our study group. Moreover, the relatively high incidence of inflammatory and reactive lesions in adult patients implies the importance of stringent oral hygiene.

Similar prevalence of granuloma pyogenicum was noted in our study as cited by Torres-Domingo et al 2008. We report radicular cyst as the most common odentogenic cyst. The finding is in accordance with a study conducted by Nuñez-Urrutia 2010.

CONCLUSION

Generally, the results of the present study are in line with those reported in the literature concerning the most prevalent lesions in the pediatric population. Most detected lesions were benign, and malignant lesions were diagnosed in a very small part of the whole sample. The present study suggests the distribution pattern of oral diseases in our people is similar to other countries. This study has provided information about the epidemiologic aspects of oral mucosal lesions that may prove valuable in planning of future oral health studies.

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