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Original Article

Evaluation of Histopathological Lesion in Oral and Maxillofacial Department at Tertiary Care Hospital Peshawar

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ABSTRACT

Around the world, maxillofacial disorders are distributed widely. The oral and maxillofacial area is affected by a wide variety of illnesses, from inflammatory lesions to benign and malignant cancers. **Objective:** This is a base line study that will aid in the diagnosis and management of oral healthcare and also guide recommendations and associated research in the local population in the future. **Methods:** In this descriptive observational study, 124 patients with orofacial lesions reported at the Hayat Abad medical complex, Department of Oral Maxillofacial and Dental Surgery between 2021 and 2022 were analyzed. **Result:** A total of 124 orofacial lesions were found, of which 47 were malignant and 57 benign, with the posterior mandible being the most commonly affected area. The pathology that affected most frequently was squamous cell carcinoma. In the fourth, fifth, and sixth decades of life, the soft tissue lesion affected 41% of males and 37% of females. These included squamous cell carcinoma well-differentiated in 32 (25.80%), fibrous epulis in 11(8.8%), and pyogenic granuloma in 16(12.90%) of cases. **Conclusion:** With the posterior mandibular area being the most common site, oral squamous cell carcinoma affects adolescents and the elderly with the most incidence rate.

INTRODUCTION

There are many different pathologies of the oral and maxillofacial region, ranging from inflammatory lesions to benign and malignant tumors. The distribution of maxillofacial diseases varies across the globe, according to reports [1]. Both soft tissue and bone can be affected by these lesions or neoplasms, which can also affect any or both of the structures in the oral or maxillofacial region. The lesion can be divided into odontogenic and non-odontogenic categories [2]. There are two types of oral lesions: benign and malignant. Malignant lesions are defined by progressive autonomous growth [3] whereas benign lesions are typically inflammatory or the result of a response to some type of irritation or mild injury as well as the effects of chemicals like arsenic and others, radiation, and viral infections like HPV, HIV, and EBV, predisposing genetic factors like genetic mutation and P53 suppression gene modification also play a role. Malignant tumor formation has typically been found to be correlated with immune dysfunction [4]. Oral tumor incidence is on the rise due to environmental variables such as chewable tobacco,

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moist snuff, and betel quid. When smoking and alcohol are combined oral disorders are more likely to develop [5]. Patients who have oral or maxillofacial lesions can either show symptoms or not. Depending on the stage, manner, and kind of presentation, symptoms may change. The symptoms might range from a small swelling to large ulceration and mass [3]. Sometimes benign oral soft tissue tumors can appear clinically to be malignant tumors. It might be difficult for clinicians to diagnose these lesions based only on physical examination, clinical presentation, and the physical condition of the afflicted people. Although when making a diagnosis and suggesting a treatment plan, knowledge about the occurrence and location of such lesions is also important [6]. Based on these results, only a clinical differential diagnosis may be determined. It is only when supported by relevant non-invasive and invasive investigations that a conclusive final nature of the disease can be documented. These could consist of blood tests, radiography, and tissues biopsies [3]. According to studies, cancer and blood group may be associated. People with blood group O appear to have an increased chance of developing squamous cell carcinoma, according to a Malaysian study [7]. Without minimizing the value of a correct diagnosis for prognosis and treatment, a biopsy is required to establish the final diagnosis in order to evaluate the histological grade and identify the distinct histological characteristics of lesion [8]. Additionally, any oral mucosal lesion suspected of being a carcinoma requires a biopsy, including ulcers that do not heal in 2 to 3 weeks [9]. A definitive treatment plan can only be tailored considering the lesion's predicted pattern of local growth, risk of metastasis and likely sites of distant spread [10]. If the lesion is big or the operating physician detects a malignancy, an incisional biopsy is performed. If the lesion is little and, in the opinion of the clinician, poses no threat of malignancy, excisional biopsy is used. Depending on the lesions and the doctor's preference, true-cut, broad bore, and punch biopsies are the approaches for histopathological sample. When there is a potential that tumor cells will shed during an open biopsy, fine needle aspiration cytology / fine-needle aspiration biopsy with a 16/23 gauge needle is recommended to distinguish between cystic and solid tumors. Under certain conditions, FNAC and FNAB in inaccessible areas are guided by ultrasound, CT, and MRI to prevent harm to the nearby important tissues. In some situations, frozen section biopsy is used to preserve tissues and help with proper patient management [11-12]. In comparison to developed countries, developing countries, particularly in South Asia, often have a higher incidence of oral lesions [13-14]. This emphasizes the importance of early identification and treatment planning for oral lesions in this region of the world in order to prevent complications, lower morbidity, and plan appropriate care. To determine the prevalence of oral lesions with respect to age, sex, and site, as well as to highlight the significance of comparing the clinical picture with the histopathological pattern of oral lesions in order to make a definitive diagnosis, the current study was planned in a tertiary care teaching hospital located in the Peshawar, Pakistan. In this study, patients undergoing orofacial surgery at the Hayat Abad medical complex were evaluated for their frequency, type, and site distributions of orofacial lesions.

METHODS

This study used a non-probability sampling technique to analyze 124 cases of orofacial lesions treated at the Department of Oral Maxillofacial and Dental Surgery in Peshawar between January 2021 and 2022. It is an observational, descriptive study with a cross-sectional design. Only patients who voluntarily decided to participate in the study after providing informed consent were chosen for it. The on-duty doctor routinely checked the patients before referring them to a maxillofacial surgeon for a professional opinion. The surgeon made a pro-visionary diagnosis of the cases necessitating biopsy for confirmation diagnosis based on the patient's major complaint, medical history, and clinical examination. Patients under investigation who had a probable diagnosis had their biopsies scheduled. For lesions with a suspected malignant nature and lesions larger than 2 cm in diameter, incisional biopsies were carried out. Excisional biopsies were performed on patients who had benign lesions according to provisional diagnosis. Under careful infection control procedures, local anesthetic was used for all of the biopsies. The specimens were sent to the medical laboratory for a microscopic examination after being preserved in 1:10 of 10% formalin in a carefully labeled jar. A thorough histo-pathological request form was included with the specimens. Frequency and percentages were substituted for the data. To evaluate the relationship between the lesions diagnosed, the lesion site, and the age, gender, and location of the pathology, the chi-squares was used. A p value of 0.05 or less was considered as statistically significant.

RESULTS

There were 57 benign and 47 malignant oro-facial lesions diagnosed out of a total of 124. The most common lesions were 79.06 percent soft tissue lesions, which included 41 percent males and 37 percent females. Table 1 shows hard tissue lesions included ameloblastoma (5%), benign cystic lesion (2%), bony trabeculae with necrotic alterations 2 (1.61%), calcifying-odontogenic cyst 2 (1.61%), dentigerous cyst 4 (3.22%), odontogenic ker atocyst 3 (2.41%),

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osteosarcoma 2 (1.61%), adenocarcinoma 2 (1.61%), radicular cyst 9(7.25%), TB 2(1.61%).

Soft Tissue Lesion	Frequency	Percentage	Hard Tissue Lesion	Frequency	Percentage
Inflammation (Acute)	2	1.61%	Ameloblastoma	5	4.03%
Extravasation (Mucocele)	2	1.61%	Bening Cystic Lesion	2	1.61%
Fibrous (Epulis)	11	8.87%	Bony Trabeculae with Necrotic Changes	2	1.61%
Giant Cell Granuloma	2	1.61%	Calcifying Odontogenic Cyst	2	1.61%
Hyperplastic Mucosa With (Fibrosis and Dilated Duct)	2	1.61%	Dentigerous Cyst	4	3.22%
Inflammatory (Polypoidal Lesion)	2	1.61%	Odontogenic Keratocyst	3	2.41%
Keratotic Hyperplasia with (Mild Dysplasia)	2	1.61%	Osteosarcoma	2	1.61%
Pyogenic Granuloma	16	12.90%	Polymorphous Low-Grade Adenocarcinoma	2	1.61%
SCC (Well-Differentiated)	32	25.80%	Radicular Cyst	9	7.25%
SCC (Moderately Differentiated)	6	4.8%	Tuberculosis	2	1.61%
SCC (Poorly Differentiated)	2	1.61%			
Skin Appendegeal Tumor	2	1.61%			
Spindle Cell Tumour Fibromyxoid Tumour	2	1.61%			
Verrucous Carcinoma	4	3.22%			
Total (N)	91	79.06%	Total (N)	33	20.94%
	Grand Total (N)		124		

Table 1: Number and percentage for the occurrence of the oral lesions

As shown in table 2, a high incidence of 31 cases was reported in the fourth and fifth decades, followed by 25 cases in the third, indicating a tendency for young adults and the middle-aged. The most common pathology was well-differentiated oral squamous cell carcinoma (SCC), accounting for 32 (25.80%) of cases. Others include pyogenic granuloma 16 (12.90%), fibrous epulis 11 (8.8%), moderately differentiated SCC 6 (4.8%), poorly differentiated SCC 2(1.61%), giant cell granuloma 5(4.08%), verrocous carcinoma 4 (3.22%), spindle cell tumour fibromyxoid tumour 3(2.41%), acute inflammation 2(1.61%), kerototic hyperplasia with mild dysplasia 2 (1.61%), and extravasation mucocele 2 (1.61%). Soft tissue lesions were found in 41% of males and 37% of females in their fourth to sixth decade. The average age of all soft and hard tissue lesions was 40 years. There was no statistically significant predilection for soft and hard tissue lesions diagnosed to patient age at p-value 0.10.

Types of Lesion	Age Groups					Total	p-Value
	12<yrs	13-30 yrs	31-40 yrs	41-60 yrs	>60 yrs		
Soft Tissue	4	25	18	31	13	91	0.10
Hard Tissue	2	8	7	2	2	21	

Table 2: Distribution of the lesions diagnosed according to the age groups of the patients

In table 3, posterior mandible positive was found in 37% of males and 22% of females, while anterior mandible positivity was found in 5% of males and 11% of females. Anterior maxilla was found in 10% of males and 8% of females, while posterior maxilla was found in 5% of males and 2% of females. For the prevalence of soft and hard tissue lesions detected, no statistically significant predilection was found at p-value 0.083.

Lesions	Male	Female	Total	p-value
Post Mandible	37	22	59	0.083
Ant Mandible	5	11	16	
Ant Maxilla	10	8	18	
Post Maxilla	5	2	7	
Total(N)	57	43	100	

Table 3: Distribution of lesions based on the gender of the patient

The most common location positivity in table 4 was found in the posterior mandible, with 62 cases identified between the 4th and 6th decade, followed by the anterior maxilla with 29 cases, anterior mandible with 19 cases detected between the 13th and 30th years, and posterior maxilla with 10 cases. At a p-value of 0.77, no statistically significant site preference could be identified in the patients for the prevalence of soft and hard tissue lesions diagnosed.

Diagnosed Lesion Type	12<yrs	13-30 yrs	31-40 yrs	41-60 yrs	>60 yrs	Total	p-Value
Posterior Mandible	3	16	15	24	4	62	0.77
Anterior Mandible	1	9	3	5	1	19	
Anterior Maxilla	3	8	7	10	1	29	
Posterior Maxilla	1	2	2	4	1	10	
Total(N)	8	35	27	43	7	120	

Table 4: Distribution of lesion based on the site of occurrence

DISCUSSION

Oral epithelial dysplasia has been observed to rise with gradual variations and the potential for micro-invasion, particularly in the fifth and sixth decades of life, manifesting on the buccal mucosa rather than the floor of the mouth [15-16]. Our data revealed 77 cases of epithelial dysplasia, with the majority (42%) occurring in the second to fourth decades, with an increase among young people

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and the highest in the fifth and sixth decades (33 percent). This study indicates 77 cases of epithelial dysplasia, with the majority (42%) arising between the second and fourth decades, with an increase among young individuals and the highest in the 5th and 6th decades (33 percent). A research found 144 malignant lesions, the majority of which were Grade II Oral squamous cell carcinomas in people in their sixth decade as a result of eating Zarda and paan masala [17]. Squamous cell carcinoma is the most common pathology in the current study, with 32 cases, predominantly well differentiated with a male to female ratio of 2:1 between the 4th and 6th decades, which is consistent with a similar study conducted in Karachi, which reported Oral squamous cell carcinoma as the most common pathology among 121 cases out of a total of 256 lesions. Our data revealed that males (57%) and females (43%) were positive for a wide spectrum of oral lesions. Pyogenic granuloma 12.90%, fibrous epulis 8.87%, moderately differentiated SCC 4.8%, poorly differentiated SCC 1.61%, giant cell granuloma 4.8%, verrucous carcinoma 2.41%, spindle cell tumor fibromyxoid tumor 2.41%, acute inflammation 1.61%, keratotic hyperplasia 1.61%, and extravasation mucocele 1.61%, were among the other oral lesions diagnosed in the current study, which are consistent with the findings of a Pakistani audit conducted at Islamic University Pakistan [18]. Like Dentigerous cysts, Odontogenic kerato cysts (OKCs), and nasolabial cysts, odontogenic cysts are frequently of a developmental nature [19]. Odontogenic lesions accounted for 25% of all cases reported in the current study, which included the 4th, 5th, and 6th decades. Adenomatoid tumours and ameloblastomas made about 5% of all bone lesions. Additional hard tissue lesions identified included radicular cysts (7.25%), dentigerous cysts (4.03%), odontogenic kerato cysts (2.41%), benign cystic lesions (1.61%), bony trabeculae with necrotic alterations (1.61%), calcifying-odontogenic cysts (1.61%), and tuberculosis (1.61%). In the fourth to sixth decade, men had a prevalence of hard tissue lesions of 41% and women of 37%. The results of the current study partially agree with those of a related study conducted in Pakistan [20]. The number of cases may vary to indicate an enduring prevalence among the local population. This disparity between local and global statistics may be the result of incorrect diagnosis and referral to laboratory testing.

CONCLUSION

The posterior mandible was the most often affected region for oral squamous cell carcinoma, which was the most prevalent pathology observed in adolescents and the elderly. The regular consumption of pan, areca nut, zarda, naswar, and paan masala is mostly responsible for the etiology of these oral lesions.

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