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ORIGINAL ARTICLE

Main reasons for consultation and referral to a stomatologist

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Abstract:

Objective: To investigate the main oral lesions diagnosed, the professionals most frequently referring to Stomatology, the time taken to seek care, and the epidemiological profile of the patients. **Methods:** A census study analyzing all stomatological consultations over a 15-year period. **Results:** A total of 553 lesions were evaluated across 492 records, with a predominance of white individuals. The most affected sites were the buccal mucosa, gingiva, and lower lip. Most lesions were traumatic in origin, with inflammatory fibrous hyperplasia as the most frequent diagnosis. Malignant lesions accounted for just over 3% and were strongly associated with smoking and occupational sun exposure. Dentists stood out as the main professionals identifying and referring cases. **Conclusion:** Traumatic lesions remain the most prevalent, but the identification of potentially malignant changes in at-risk groups highlights the need for clinical vigilance and targeted prevention strategies.

Keywords: Oral Medicine; Mouth Diseases; Oral Diagnosis; Epidemiology.

INTRODUCTION

Oral lesions are frequently encountered in the routine clinical practice of Dentistry. Their detection relies on the physical examination (oroscopia) performed on all patients, a simple procedure based on the direct visual inspection of the components of the oral cavity. Thus, it is presumed that the early detection of these lesions is achievable. However, dentists often report difficulty in detecting, diagnosing, and consequently treating oral diseases. These challenges may arise from the lesion's location, the absence of pathognomonic characteristics, or the rarity of the case[1].

According to the National Cancer Institute, in 2023, the estimated number of new cases of oral cavity cancer was 15,100, with 10,900 in men and 4,200 in women[2]. Approximately 73% of cases are diagnosed in advanced stages. This neoplasm has a 5-year survival rate of 50% or less, although this number may vary if lesions are diagnosed at earlier stages[3,4].

The early identification of oral cancer can contribute to a better clinical prognosis of the disease. Therefore, it is essential for dentists to understand the epidemiology and risk factors associated with this neoplasm[5,6].

Statement of Clinical Significance
Study reinforces the role of dentists in identifying and referring patients to a stomatologist, with most cases involving traumatic lesions. The presence of potentially malignant and neoplastic lesions in smokers and individuals with sun exposure highlights the need for targeted prevention.

For the diagnosis of lesions, complementary exams are necessary, and biopsy is considered the gold standard for definitive diagnosis as it provides crucial information to complete the diagnosis and guide treatment[7].

Article 57 of the Consolidation of Standards for Procedures in the Dental Councils, approved by Resolution No. 63/2005 of the Federal Council of Dentistry (CFO), states that Stomatology is the dental specialty responsible for the prevention, diagnosis, prognosis, and treatment of diseases originating from the stomatognathic system, as well as manifestations of systemic diseases and complications arising in patients undergoing treatment for malignant neoplasms. In Brazil, there are 713,638 dentists, but only 1,052 stomatologists and 420 specialists in oral and maxillofacial pathology[8]. According to the Brazilian Society of Stomatology and Oral

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Pathology, stomatologist dentists are a critical resource for diagnosing oral lesions[9].

The difficulty of general practitioners in diagnosing oral lesions, combined with the low number of qualified and specialized professionals in Brazil, results in diagnostic delays, causing significant harm to the population. This delay often leads to more invasive treatments and a poorer prognosis.

Moreover, the diversity of existing oral diseases contributes to the insufficient preparation of dental students during their undergraduate education. This is due to the complexity of teaching Stomatology in dental schools, where diseases involving complex diagnoses are often referred to high-complexity centers[9]. Unfortunately, such centers are not widely distributed across Brazil and are primarily located in the dental schools' teaching clinics.

Epidemiological studies focusing on oral diseases can be a valuable tool for establishing the profile of these conditions, revealing their distribution based on individual characteristics, such as genetic and environmental factors, risk factors, prevalence, and incidence. These studies enhance the understanding of the etiology and pathogenesis of oral diseases and support healthcare professionals. Unfortunately, only a few studies report the relative frequency or prevalence of conditions, including demographic data, histopathological diagnosis, and anatomical location of lesions[1].

In this context, understanding the main oral lesions, identifying the referring professionals, and determining the time patients seek care are critical for understanding the challenges and delays in diagnosing and treating oral lesions. Additionally, understanding the epidemiological profile of these patients would assist professionals in diagnosing and improve treatment outcomes and the population's quality of life.

METHODS

This research is an observational, analytical, and retrospective study, with no interference in the inspected group and no identification of patients. The study was approved by the Research Ethics Committee via the Brazil platform (approval code: 61345822.3.0000.5496) on August 25, 2022.

The sample for this study was a census type and included all consultations from 2007 to 2022. Data relevant to the research were obtained from patient records in a dental clinic located in the municipality of Adamantina, São Paulo, focusing on the specialty of Stomatology.

The inclusion criteria required that patients have oral lesions with a diagnosis and all data fully recorded. The exclusion criteria included cases without a diagnosis and insufficient data for analysis.

The study included the collection and analysis of the following information:

- Demographic data: age, sex, race/skin color, and occupation;
- Reason for consultation;
- Professional category responsible for the referral;
- Habits and addictions;
- Time of evolution;
- Primary lesion, location, and size;
- Clinical and definitive diagnosis;
- Treatment.

The data were extracted from the medical records by the researchers and organized into tables using Google Workspace.

Statistical analysis was performed using R software, with a significance level set at 5%. Descriptive analyses of qualitative characteristics are presented in frequency tables and graphs, while quantitative characteristics are described using the mean and standard deviation.

The association between the nature of the lesion and exposure to sunlight and tobacco use was analyzed using the Chi-square test of independence. The quantitative variables related to lesion evolution and size were evaluated through one-way ANOVA and Pearson correlation.

RESULTS

A total of 492 medical records were analyzed, in which 553 oral lesions were identified. In some cases, the same patient presented multiple lesions simultaneously or across multiple consultations at different times.

Table 1 provides a descriptive analysis of the profile of the patients treated. It is notable that some records did not include information on the patient's race/skin color.

Given the wide variety of professions, a category was created to classify occupations with high or low sun exposure for comparative analysis with the nature of the lesions.

The variety of referral reasons and main complaints did not allow for conclusive tables and graphs in this study, as all cases indicated that patients were referred and had complaints of oral lesions. Most of the referrals (69%) were made by dentists, followed by

spontaneous visits (18%), physicians (8%), pharmacists (5%), and other professionals accounting for 1%.

A total of 502 fundamental lesions were identified as the most prevalent since some patients presented only variations of normal appearance, or the fundamental lesion could not be characterized. The most prevalent fundamental lesions are shown in Table 2.

Figure 1 illustrates the location of oral lesions reported in this study. Other locations accounted for less than 1% each and were grouped together.

Regarding the diagnostic approach, most cases (33.45%) involved excisional biopsy. An initial clinical examination alone was performed in 29.65% of cases, imaging exams such as radiographs, CT scans, or ultrasounds in 15%, incisional biopsy in 6.51%, trauma removal in 5.42%, and procedures such as scraping, exfoliative cytology, diascopy, and micromarsupialization accounted for less than 5% each.

Table 1. Descriptive analysis of the variables gender, race and age of patients treated.

Variables	Frequency	%
Sex		
Man	208	42.28
Woman	284	57.72
Race/skin color		
Yellow	18	3.65
White	231	46.95
Black	48	9.75
ND	195	39.63
Age (years old)		
From 0 to 12	22	4.47
From 13 to 60	288	58.54
Over 60	182	36.99

ND: Not declared.

Table 2. Prevalence of fundamental injuries.

Fundamental injuries	Frequency	%
Nodule, papule, swelling and vegetation	225	44.821
Ulcer and erosion	113	22.51
Stain and plaque	106	21.116
Hyposalivation	21	4.183
Intraosseous injury	17	3.386
Vesicle and blister	13	2.59
Pain	5	0.996
Tooth change	2	0.398

The clinical diagnosis refers to the most likely diagnosis made during the initial consultation, while the definitive diagnosis is determined after complementary exams. In this study, 89% of the definitive diagnoses were consistent with the clinical diagnoses. A total of 107 types of clinical diagnoses and 115 types of definitive diagnoses were recorded. Figure 2 show the 15 most prevalent clinical and definitive diagnoses. Diagnoses with less than 2% frequency were not included.

Oral lesions were subclassified according to their nature: traumatic, neoplastic, potentially malignant, infectious, developmental anomalies, acquired, hypersensitivity-related, incidental, and genetic.

The comparative analysis between the nature of the lesion and tobacco use is presented in Table 3.

Smokers and former smokers showed a higher prevalence of neoplastic and potentially malignant lesions compared to non-smokers, with a significant association ($p<0.05$) identified through the chi-square independence test. The same association was observed when comparing high occupational sun exposure, which showed more neoplastic and potentially malignant lesions than low occupational sun exposure.

The nature of the lesion was also compared with the average time of lesion evolution. For neoplastic lesions, patients sought care between 3 and 9,131 days after the lesion appeared; for potentially malignant lesions, this ranged from 7 to 3,652 days; for traumatic lesions, from 1 to 3,652 days; and for infectious lesions, from 2 to 1,460 days. Due to the wide variation in days, no significant association ($p<0.05$) was observed. Pearson's correlation coefficient was -0.04.

The most common treatment was surgical (33%), followed by pharmacological treatment (32%), referral to another professional (8.5%), and trauma removal (6%).

DISCUSSION

This research provides an important contribution regarding the clinical and demographic profile of a population referred by health professionals to a specialized center for the diagnosis of oral diseases, compiling 15 years of data. The investigation covered 553 oral lesions evaluated in 492 medical records. It is worth noting that this difference is due to some patients presenting more than one lesion at the time of the consultation or returning with other oral lesions at a different time. These lesions predominantly affected white-skinned individuals aged 13 to 60 years and were located in the buccal mucosa (14%), followed by the gingiva (9%) and

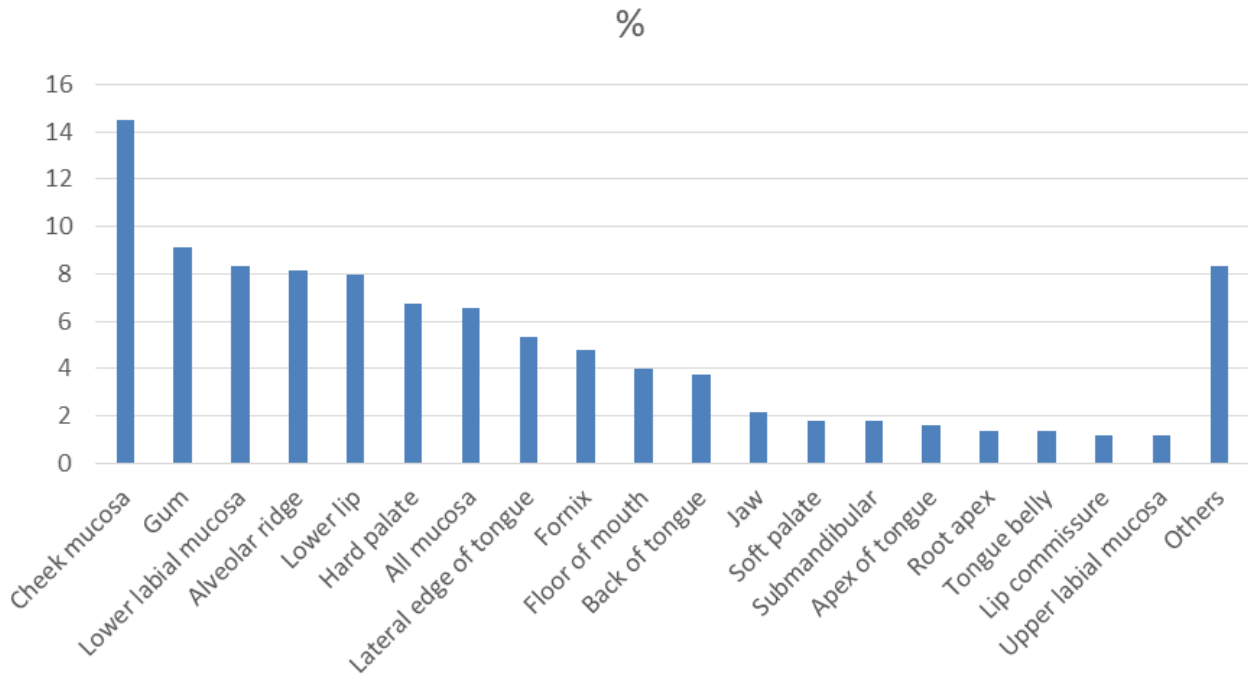

Figure 1. Main locations of mouth lesions.

the lower labial mucosa, alveolar ridge, and lower lip, each with 8%. These regions show higher incidences of trauma. Of the patients, 57.72% were women, and 42.28% were men, findings similar to those of Soares et al.[1], which highlight that women attend healthcare services more regularly than men.

Regarding their nature, most lesions were traumatic, with the most frequent diagnoses being inflammatory fibrous hyperplasia (9.33%), traumatic ulcer (5.83%), and mucocele (5.44%), corroborating the findings of other researchers[1,10]. This is also related to the age of the patients, as most were adults, and these alterations primarily occur due to constant and long-term trauma, such as from poorly adapted dentures, parafunctional habits, diet, and brushing techniques.

It is evident that oral lesions are frequently encountered in routine dental clinical care, making the clinical examination fundamentally important. This study found a higher prevalence of nodular lesions, papules, swelling, and vegetation (44.82%), which are more compatible with traumatic lesions. Ulcers and erosions appeared second, at 22.5%, and stains and plaques third, at 21.11%. These latter findings may be associated with potentially malignant lesions and malignant neoplasms.

The importance of accurate diagnosis is emphasized to ensure appropriate treatment for patients. In this context, the dentist is primarily responsible for detecting oral lesions, as their expertise includes conducting thorough examinations[9,11]. In this study, a little over 5% of the referrals involved variations of normality that did not require treatment and were easily diagnosable, where the general practitioner could have managed them without specialist referral.

The oral cavity can be affected by diseases of various natures, including benign and malignant neoplasms, inflammatory processes, infections, and non-neoplastic proliferative lesions, which vary in severity[12]. Some lesions are very common in clinical practice and can precede serious problems, be aggressive, and/or directly interfere with individuals' quality of life. However, many of these conditions can be prevented, treated, and monitored early, reducing their morbidity and impact[13].

It is worth noting that squamous cell carcinoma, diagnosed in 16 cases (3.11%), is an aggressive disease with high morbidity, mortality, and recurrence rates. The professional should consider it a relevant diagnostic hypothesis when dealing with ulcerated lesions in specific anatomical sites (lateral borders of the tongue, floor of the mouth), especially in patients with known risk factors (smoking and alcohol use)[5]. When comparing the nature of lesions, such as traumatic, neoplastic, potentially malignant, infectious, and other types, with

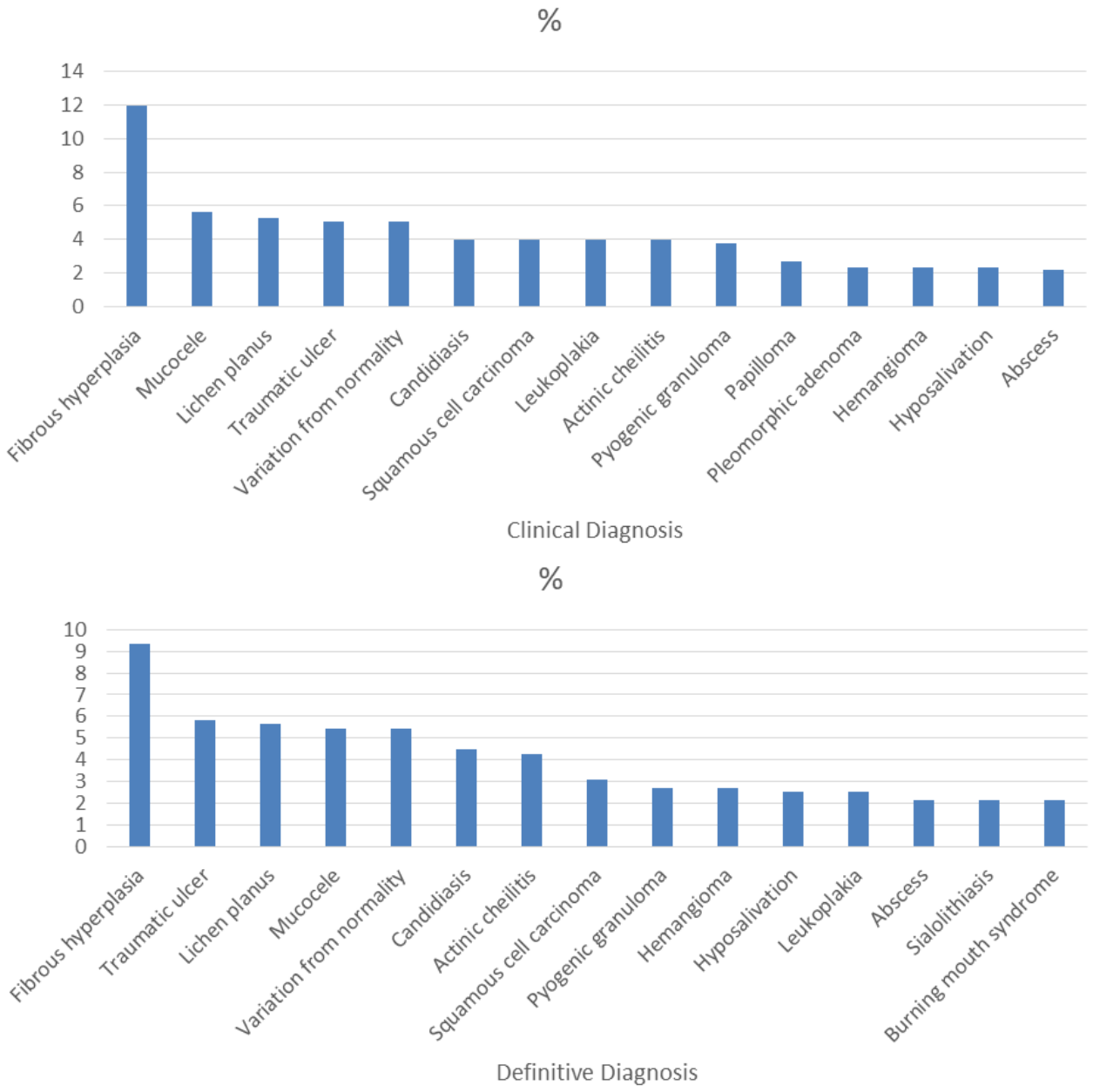

Figure 2. Prevalence of clinical and definitive diagnoses.

tobacco use, it was found that smokers and former smokers had more neoplastic and potentially malignant lesions than non-smokers, with a significant association ($p<0.05$) determined by the χ^2 test of independence. This supports Schneider et al. studies, which highlight a worse prognosis with increased mortality[14].

Comparing the nature of lesions with occupations involving high or low sun exposure, it was found that patients with high sun exposure had more neoplastic and potentially malignant lesions than non-smokers, with a significant association ($p<0.05$) determined by the chi-square test of independence. This aligns with the studies of Hedberg et al., which show molecular alterations leading to carcinogenesis due to ultraviolet radiation. The cancer associated with this is primarily lip cancer, particularly of the lower lip[15].

Table 3. Frequency table of the nature of the injury and tobacco addiction.

Nature of the injury	Frequency (%)		
	Former smoker	Smoker	Non-smoker
Development change	8 (13.11)	9 (10.23)	52 (12.87)
Traumatic	19 (31.15)	13 (14.77)	155 (38.37)
Acquired	2 (3.28)	0 (0.00)	10 (2.48)
Hypersensitivity	8 (13.11)	4 (4.55)	54 (13.37)
Uncertain	3 (4.92)	0 (0.00)	14 (3.47)
Iatrogenic	0 (0.00)	0 (0.00)	1 (0.25)
Neoplastic	11 (18.03)	18 (20.45)	33 (8.17)
Infectious	8 (3.28)	18 (20.45)	68 (16.96)
Genetics	0 (0.00)	1 (1.14)	1 (0.25)
Cancerizable lesion	2 (3.28)	25 (28.41)	16 (3.96)
Total	61 (100.00)	88 (100.00)	404 (100.00)

The reason for referral and the main complaint of patients varied widely, ultimately resulting in oral lesions. Dentists were responsible for most referrals, as they oversee oral health[8,9]. Spontaneous visits ranked second in referral cases, often due to conversations with family and friends who had oral lesions and were treated by stomatologists. Doctors and pharmacists were also responsible for some referrals, emphasizing the importance of training other health professionals in detecting oral lesions for future referrals. In some rural areas of Brazil, like the city where this research was conducted, it is challenging to find specialized health professionals. For this reason, and due to the high number of pharmacies, pharmacists often become a reference for patients. The medication-oriented culture in Brazil is also evidenced by this finding, as patients frequently seek medication treatment before a diagnosis.

Diagnosis is a crucial step in achieving a cure. Ideally, it should be performed as early as possible. However, the numbers in this study revealed that patients delayed seeking professional help for oral lesions, ranging from 1 day to 20,000 days, which may explain the late diagnosis of lesions, including oral cancer. When comparing the nature of lesions with the average time of evolution of the identified lesions, no significant association was observed ($p<0.05$). Pearson's correlation was -0.04. This low correlation may be associated with the heterogeneity in the nature of the lesions.

The professional responsible for the diagnosis utilizes complementary exams. In this study, excisional biopsy was performed in 29.65% of cases, and it is considered the gold standard for diagnosis. In this study, 89% of the definitive diagnoses were consistent with the clinical diagnoses. There were 107 types of clinical diagnoses and 115 types of definitive diagnoses. This study reinforces the importance of histopathological analysis as an auxiliary diagnostic method, enabling the development of specific strategies for the prevention and early detection of the most frequent oral diseases in the population. The diversity of existing oral diseases highlights the lack of preparation among students during undergraduate studies, given the complexity of teaching stomatology in dental schools. Complex diagnostic cases are often referred to high-complexity centers[5,9], which are limited in number and mostly located in dental school clinics.

CONCLUSION

In conclusion, the presence of an oral lesion is the main reason for referral to a stomatologist. Delays in diagnosis are primarily due to delays in seeking specialized care. Dentists are the professionals who most frequently identify and refer these patients. The epidemiological profile of patients included a wide age range, predominantly 13 to 60 years old, and the most prevalent oral lesions were traumatic, such as fibrous hyperplasias, often clinically presenting as nodular lesions. There is a higher prevalence of potentially malignant and neoplastic lesions among individuals who smoke and those with high sun exposure related to their occupations.

AUTHORS' CONTRIBUTIONS

MMS: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. LOA: Formal analysis, Investigation, Methodology, Visualization. GBN: Formal analysis, Investigation, Methodology, Validation.

CONFLICT OF INTEREST STATEMENT

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Competing interests: The authors have no relevant financial or non-financial interests to disclose.
Ethics approval: The study was approved by the Research Ethics Committee via the Brazil platform (approval code: 61345822.3.0000.5496).

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