

Pediatric Oral Biopsy: A Retrospective Survey in Central Indian Population

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Abstract

Background/Purpose: Although the general profile of oral biopsies from Asian children has been reported, it was still worth examining whether there were racial and geographic variations in the categories and incidence of pediatric oral lesions. This retrospective study mainly evaluated the categories and incidence of biopsied oral lesions in pediatric patients in and around Nagpur City.

Methods: Biopsy records of all oral lesions from pediatric patients, aged 0-14 years, in the files of the Department of Oral Pathology, Swargiya Dadasaheb Kalmegh Smruti Dental College & Hospital from 2010 to 2020 were evaluated. The patients were divided into 3 age groups (0-5, 6-10, and 11-14 years), and the oral lesions were classified into four main categories: inflammatory and reactive, cystic, neoplastic, and other lesions.

Results: Of a total of 1350 biopsied oral lesions, 57 (4.22%) were found in pediatric patients. The most common oral lesions were salivary gland pathology, followed by mucosal and developmental dental pathologies.

Conclusion: The mucous extravasation phenomenon, odontoma, or dentigerous cyst was the most common inflammatory and reactive lesion in pediatric patients. The relatively high incidence of inflammatory and reactive lesions in pediatric patients implies the importance of stringent oral hygiene in children.

Keywords: Mandibular third molars • Complications • Age

Introduction

The knowledge of pediatric oral pathology helps clinicians to gain an understanding of such lesions thus aiding diagnosis. It also forms a useful reference source and provides an update on recent literature [1]. Data on the prevalence of pediatric oral lesions are scarce. A few reports have elaborated on the prevalence of specific oral pathologic conditions (cysts, tumors, and oral mucosal lesions) in the Indian population [2, 3]. However, there is little data on the type and occurrence of biopsied oral lesions in pediatric populations in India. To date, this is the first study to report on the frequency of histologically diagnosed oral pathological lesions in pediatric patients in central India, the previous being reported in western India [4].

Materials and Methods

The incisional and excisional oral biopsy records between the years 2010–2020 from the Swargiya Dadasaheb Kalmegh Smruti Dental College and Hospital (Oral and Maxillofacial Pathology Dept.) were reviewed retrospectively. Pediatric cases where the patient is between 0-14 years of age. Biopsy reports regarding facial, peri-oral, and neck lesions were excluded, as were nine reports with incomplete data, these were primarily due to insufficient biopsy specimens. Only lesions with adequate pathological documentation were included. No personal or identifiable inform-

-ation information was recorded to maintain anonymity. The study was approved by the Ethics Committee of the Institution.

The histological reports included each patient's age at the date of biopsy, gender, anatomic site, and pathologic diagnosis. The latter was then categorized into the following 9 categories [5].

- Salivary gland pathology
- Dental (Tooth) pathology
- Tumours-Hamartoma: benign or malignant
- Cysts-odontogenic or non-odontogenic
- Mucosal pathology
- Gingival and periodontal pathology
- Bone pathology
- Miscellaneous pathology
- Connective tissue pathology

Result

Of a total of 1350 biopsied oral lesions, 57 (4.22%) were found in pediatric patients. The most common oral lesions were salivary gland pathology, followed by mucosal and developmental dental pathologies (Table 1). The majority of oral biopsies (57.89%) were taken from male patients from the 7-10 years age group. All oral neoplastic lesions obtained were benign. The top five oral lesions in pediatric patients were mucous extravasation phenomenon followed by dental follicle, dentigerous cyst, radicular cyst, and odontoma.

Table 1. Oral pathology specimens in children

Diagnostic group	Total (%)	(%) Male	(%) Female
Salivary gland pathology	15 (26.31)	8	7
Dental pathology			
Developmental	9(15.78)	5	5
Inflammatory	5 (8.77)	3	2
Tumors			
Benign	2 (3.5)	2	0
Hamartoma	0 (0)		
Malignant	0 (0)		
Cyst			
Odontogenic	3 (5.26)	2	1
Non –Odontogenic	2 (3.5)	1	1
Mucosal Pathology	11 (19.29)	6	5
Gingival and Periodontal Pathology	4(7.01)	3	1
Bone Pathology	2(3.5)	1	1
Miscellaneous pathology	3 (5.26)	2	1
Connective tissue pathology	1 (1.75)	1	0
Total	57 (4.22%)	33	24

Discussion

Nagpur, a metro city in India has a population of approximately 10 million. Our institute serves as one of the major referral centers for histopathological diagnosis of oral lesions in and surrounding the Vidarbha region. Hence, the data presented in the current study can represent the prevalence of pediatric oral lesions in this area of central India. Previous retrospective studies have shown that the percentage of pediatric oral biopsies generally varies from 7% to 15% of all the cases referred to histopathology services [6-10].

The percentage observed in the present study, 4.18%, is lower than that found by S S Patil 12.1%, Jones and Franklin (8.2%), Martins-Filho (12.0%) Skinner (12.8%), Das and Das (12.3%) Shah (7%), Lawoyin (24.8%) and Zuniga (20.6%) and higher than reported by Lei (2.8%). Variations in occurrence are most probably explained by differences in study design, mainly the length of time of the studies (ranging from 8 to 32 years) and the age range studied. Some authors have included individuals up to 20 years while in most studies the 0 to 16 years age range was used [4, 5, 7, 10, 11-15, 17-19].

Overall, the male/female ratio was 1:37 a very slight male dominance, which is in agreement with other reports [5, 7, 16, 20, and 21]. Amongst the nine diagnostic groups, salivary gland pathology was the most frequent, accounting for 26.31% of all lesions and the age group of children were ranging from 7years -10 years in concordance [10, 22].

Mucocoeles were the commonest of all lesions (15.0%), as previously reported [10-12]. In the present study, mucocoeles were commoner in the lower lip, which may be due to the high incidence of mechanical trauma in this region [9]. In the dental pathology group (24.56%), periapical granuloma accounted for 5.3% of all the biopsies as previously reported in similar studies [5, 6, 23]. We found 2 cases of benign lesions and both were found to be Keratocystic Odontogenic Tumors (KCOT) and were found in the mandible and the 11 years-13 years age group. KCOT is relatively uncommon in children with a peak occurrence in the third decade of life [24].

In the present study, a low prevalence of eruption cysts (0.5%) was observed in the posterior mandibular region, probably because most cases are diagnosed and treated, based on clinical findings. Mucosal pathologies accounted for 19.29% of all pediatric oral lesions (M:F=1.20) and all were non-specific mucosal inflammation was most commonly seen (3.3%), Gingival and periodontal diseases comprised of chronic gingivitis (5.0%) and pyogenic granulomas (2.0%) suggesting that poor oral hygiene in children could be the main etiological factor [9].

Amongst bone lesions, we reported only 2 cases of the aneurysmal bone cyst with seven cases (3.5%), which was lower than that reported by 4 cases and 7 cases [4,5]. The miscellaneous pathology group included a mixture of diagnostic categories not placed into other diagnostic groups [5]. It accounted for over 5.26% of the specimens. Within this group, non-specific ulceration was the most common lesion, comprising 2.2% of the total followed by granulation tissue (1.4%), but mainly seen in the 10-13 years age group. The various types of connective tissue pathology accounted for 1 (1.75%) of the total cases similar to Jones and Franklin and were found to be of Radulae on the lip and floor of the mouth [5].

Cases of periapical granuloma, chronic hyperplastic pulpitis, supernumerary teeth, and especially enamel opacities (which are currently being diagnosed with increasing frequency) are routinely treated but may not be considered for histological examination by a clinician; hence their prevalence may be underestimated. Additionally, the collection of adequate biopsy specimens may be difficult in pediatric patients.

Conclusion

The importance of obtaining a histopathological analysis of even seemingly innocuous lesions is to be stressed, particularly those of salivary glands. The diverse classification systems used by authors in the past make a direct comparison of data challenging.

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