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INTRAORAL VASCULAR LESIONS IN PEDIATRIC POPULATION-A 17 YEAR RECORD BASED STUDY

Dental Science

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ABSTRACT

Aim: To assess the prevalence of biopsied intra oral vascular lesions in pediatric patients reported at our institution and to compare the demographic variables with previous studies.

Materials and methods: Histopathology archival records of the Department of Oral Pathology and Microbiology and department of pedodontics were reviewed and all the cases of biopsied intraoral vascular lesions during the period from 2001 to 2017were retrieved.

Results : Pediatric vascular lesions accounted for 0.17% of the total biopsies received . Males were more affected than females with a M:F ratio of 1.2:1.Pyogenic granuloma was the most common lesion followed by hemangioma ,lymphangioma and Hemangioendothelioma. The most commonest site was mandibular gingiva followed by maxillary gingiva, lip ,tongue, buccal mucosa and palate.

Conclusion: Studies from India could contribute additional knowledge to the literature and serve as a potential source of information to understand the role of regional or geographic variations.

KEYWORDS

Vascular lesions, Hemangioma, Gingiva

INTRODUCTION

Vascular lesions are the most common congenital and neonatal abnormalities[1].Vascular lesions are derived from blood vessels and lymphatics with different clinical and histological features and treatment also varies[2].More than 50% of these vascular malformations are benign lesions located in the head and neck[3].Vascular lesions can be localized defects in vascular morphogenesis that is usually caused by dysfunction of embryogenesis and vasculogenesis regulator component[4].Various etiology that causes vascular lesion are trauma, infection, hormonal alterations and progressive increase with age[5].They usually occurs in children and young adults with a prevalence in head and neck areas this is true for venous type[6] .In oral cavity the lips ,tongue, cheek mucosa and palate are mostly affected [7]which leads to esthetic changes, pain, ulceration and bleeding impaired speech ,dental symmetry and obstruction of upper airway[8]. Vascular anomalies of the head and neck region constitute approximately 60% of vascular anomalies diagnosed in children and affect approximately 1 in 22 children[9,10]. Studies about the prevalence of vascular lesions in the oral cavity of pediatric patients are scarce in literature. To the best of our knowledge this is the first study from Kerala and also from India which retrospectively analyzed the prevalence of intraoral vascular lesions from a tertiary dental health care centre of north Kerala.

AIMS & OBJECTIVES

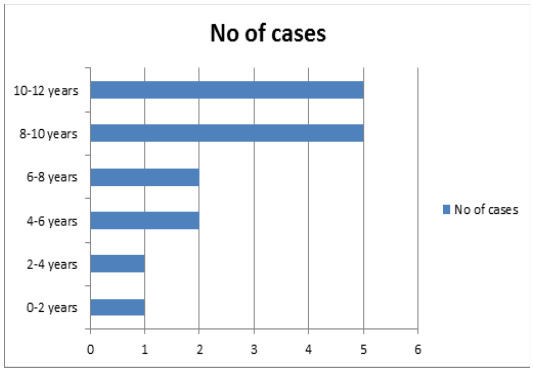
1. To assess the prevalence of biopsied intra oral vascular lesions in pediatric patients reported at our institution
2. To compare the demographic variables of intraoral pediatric vascular lesions with previous studies

MATERIALS AND METHODS

Histopathology archival records of the Department of Oral Pathology and Microbiology and department of pedodontics were reviewed and all the cases of biopsied intraoral vascular lesions during the period from 2001 to 2017were retrieved. The histopathologic diagnosis were confirmed by reviewing the hematoxylin and eosin stained slides and were reclassified according to the 2013 WHO soft tissue classification. If any recurrence was noticed, it was considered as a single case. Cases with incomplete records were excluded from the study. The study variables were age, gender, site of the lesion and histopathology of intraoral vascular lesion. Descriptive statistical analysis was performed using the computer software, Statistical Package for Social Sciences version 16.

RESULTS

A total of 8967 biopsies were received at the department of oral pathology during the period 2001- 2017.Pediatric vascular lesions accounted for 0.17% of the total biopsies received .The relative frequency of all pediatric vascular lesions was found to be 0.01%.The mean age of the pediatric patients with vascular lesion was 7.9 years. The lowest age recorded in our study was 1.5 years .Prevalence was highest in age groups 8-10 and 10-12(Graph 1). Males were more affected than females with a M:F ratio of 1.2:1.



Graph 1:Percentage distribution of pediatric intraoral vascular lesions according to age

Pyogenic granuloma was the most common lesion(62.5%) followed by hemangioma(25%), lymphangioma(6.25%) and Hemangioendothelioma (6.25%) (Fig 1).

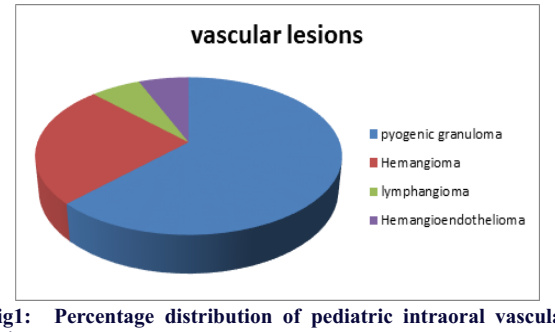


Fig1: Percentage distribution of pediatric intraoral vascular lesions

The most commonest site was mandibular gingiva(31.25%) followed by maxillary gingiva(25%), lip(18.75%) tongue(6.25%) and buccal mucosa (12.5%) and palate (6.25%). (Fig 2).

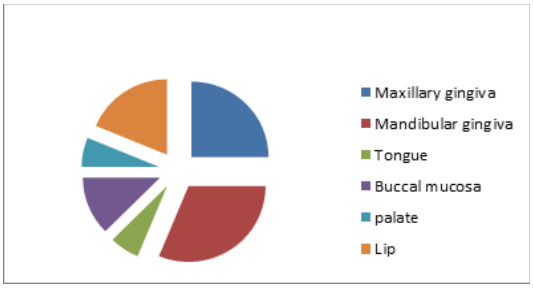


Fig2:Percentage distribution of intraoral vascular lesions according to site

Hemangioma showed equal predilection for lip and buccal mucosa. The most common site of Pyogenic granuloma was found to be mandibular gingiva. Hemangioma showed equal sex predilection in this study. Capillary hemangioma was the only histologic subtype observed. Also hemangioma was the lesion affected the lowest age group in the current study.

DISCUSSION

In the present study, we analysed the prevalence of biopsied intraoral vascular lesions occurring in a pediatric cohort in our institution. Our institution is a major tertiary referral centre in northern kerala. Hence the data presented in this study can in most part represent the prevalence of pediatric intraoral vascular lesions in northern Kerala ,South India.

The annual frequency of pediatric vascular lesion in this study was 0.17%. Z Jaafari et al[11] reported a frequency of 1.34% in south Iranian children and adolescents. The higher frequency observed may be due to the difference in inclusion criteria. Some studies recruited children up to 15 years of age whereas others included children less than 18 years in their study group. Most of the previous published studies pertaining to pediatric population have analysed oral lesions broadly. Detailed analysis of vascular lesions has not included in those studies. So the prevalence of these lesions cannot be assessed precisely in those studies.

The mean age of the pediatric patients with vascular lesions observed in our study was 7.9 years. The lowest age group recorded 1.5 years, which was found to be Hemangioma. Capillary hemangioma is the most common benign vascular tumor of infancy affecting as many as 1 in every 100 live births and comprising between 32% and 42% of all vascular tumors[12]. Prevalence of vascular lesions was highest in age groups 8-10 and 10-12. These age groups are mainly affected by pyogenic granuloma. Highest prevalence observed is attributed to this fact. Pyogenic granuloma was the second most reactive lesion of pediatric patients in studies of south india[13]. The tooth brushing technique which has not been mastered in children may be considered as a significant cause of microtrauma and inflammation in the gingiva. Trauma to deciduous teeth, aberrant tooth development and occlusal interferences may also be other precipitating factors[13].

In the present study males were more affected than females with a M:F ratio of 1.2 : 1. Regarding oral hemangioma, females are more commonly affected than males[12]. .Most of the earlier studies pertaining to pediatric oral lesions have shown almost equal sex predilection[14,15].However in the South Indian studies by Krishnan et al[16] and Heera et al[13] it was found that pediatric pathologies are more common in females than males.

The most common lesion was found to be pyogenic granuloma followed by Hemangioma. Pyogenic granuloma is a very common vascular lesion of the skin and mucous membranes, which for many years was considered to be a reactive or infective process. This was based on the presence of extensive superficial secondary inflammatory changes (due to frequent ulceration) and an apparent association with trauma in up to a third of cases. The underlying process, however, is a lobular vascular proliferation, which appears to be neoplastic, has deep and intravascular counterparts and has been redesignated, appropriately, as lobular capillary hemangioma[12]. It is important to emphasize the fact that all hemangiomas may not always be biopsied. Therefore occurrence of hemangioma might be even higher than actual cases[13].

The most common site of vascular lesion was found to be gingiva .This may be attributed to the fact that pyogenic granuloma was the predominant lesion comprised in our study which occur more in gingiva. Oral pyogenic granuloma, which in reality is the most common gingival tumor , shows a striking predilection for the gingiva accounting for 75% of all cases, where they are presumably caused by calculus or foreign material within the gingival crevice[17]. According to Vilmann et al[18], majority of pyogenic granulomas are found on the marginal gingiva with only 15% of the tumors on the alveolar part. Maxillary gingiva is more commonly affected than mandibular gingiva in previous studies[19]. Studies by Maia etal [20] and Lima et al[21] reported maxilla as the most common site of pediatric lesions, but studies from south India showed predilection for mandible[22]. In the present study mandibular gingiva is more commonly affected than maxillary gingiva. Hemangioma showed equal predilection for buccal mucosa and lip.

Capillary hemangioma was the only histologic subtype found in our study. The majority of hemangioma involves the head and neck. However, they are rare in the oral cavity but may occur on tongue, lips, buccal mucosa, gingiva, palatal mucosa, salivary glands, alveolar ridge, and jaw bones[8,23]. Lister WA et al[24] found that capillary hemangioma affected females slightly more than males. In the present study capilary hemangioma showed equal sex predilection.1 case each of lymphangioma and hemangioendothelioma were also observed in our study.. Lymphangiomas rarely affect the oral cavity. Affected sites in the oral cavity may include the tongue, palate, gingiva, lips, and alveolar ridge of the mandible[25,26].In our study Lymphangioma was observed in 6 year old child on dorsum of tongue. Epithelioid HE is an uncommon angiocentric vascular neoplasm characterized by proliferation of endothelial cells around the vascular lumen. It is an extremely rare neoplasm affecting one in 10 lakh people and only 0.01% of the cancer population[27]. Slightly above 30 cases of intraoral epithelioid HE have been reported in literature to date[28]. Epithelioid hemangioendothelioma of the oral cavity has been infrequently reported. Clinically, the tumour occurred in nearly all age groups, ranged from the first to the seventh decade. Men and women were otherwise equally affected. The most common intraoral sites were the gingival alveolar mucosa and tongue.[29]The present study also observed a case of hemangioendothelioma in 7 year old child on lower lip.

CONCLUSION

It is important to note that the overall and relative frequency of pediatric vascular lesions differ from region to region. The difference in reported frequency could be due to geographic or ethnic differences . The present hospital-based study is designed to provide demographic data on pediatric vascular lesions from the Southern Indian population in the state of Kerala, which is ethnically (Australoid) and linguistically (Dravidian) different from the central, northern, western, and eastern Indian populations, for comparison among pertinent series from other geographic regions.

REFERENCES

1. Smith JD. Vascular lesion of the head and neck. In: Pediatric Facial Plastic and Reconstructive Surgery. New York: Raven Press, 1993, cap. V, pp. 53, 78.
2. S. C. Nair, N. J. Spencer, K. P. Nayak, K. Balasubramaniam: Surgical management of vascular lesions of the head and neck: a review of 115 cases. Int. J. Oral Maxillofac. Surg. 2011; 40:577–583,
3. Ales˘ VESNAVER1, David A. DOVS˘ AK. Treatment of vascular lesions in the head and neck using Nd:YAG laser. Journal of Cranio- Maxillofacial Surgery (2006) 34, 17–24.
4. Mulliken JB, Glowacki J: Hemangiomas and vascular malformations in infants and children: A classification based on endothelial cell characteristics. Plast Reconstr Surg 69:412, 1982,
5. Enjolras O, Mulliken JB: Vascular tumours and vascular malformations (new issues). Adv Dermatol 13:375, 1997.
6. Dubois J, Soulez G, Oliva V, et al: Soft-tissue venous malformations in adult patients: Imaging and therapeutic issues. Radio-Graphics 21:1519, 2001,
7. Buckmiller LM: Update on hemangiomas and vascular malformations. Curr Opin Otolaryngol Head Neck Surg 12:476, 2004,
8. Gill JS, Gill S, Bhardwaj A, Grover HS. Oral Haemangioma. Hindawi Publishing Corporation Case Reports in Medicine Volume 2012, Article ID 347939, 4 pages doi:10.1155/2012/347939.
9. Hemangioma Investigator Group, Haggstrom AN, Drolet BA, Baselga E, Chamlin SL, Garzon MC, Horii KA, Lucky AW, Mancini AJ, Metry DW, Newell B, Nopper AJ, Frieden IJ. Prospective study of infantile hemangiomas: demographic, prenatal, and perinatal characteristics. J Pediatr 2007;150:291-4.
10. Drolet BA, Esterly NB, Frieden IJ. Hemangiomas in children. N Engl J Med 1999;341:173-81.
11. Zohreh Jaafari Ashkavandi, Zahra Ahmadi Sheshdeh, Fereshteh Kamali orofacial pathologic lesions in children and adolescents,A clinicopathologic study in southern iran. Iran J Pediatr Jun 2014; Vol 24 (No 3), Pp: 307-312.
12. Diagnostic histopathology of Tumors Christopher D.M Fletcher: 4th Edition
13. Heera R, Bharathan R, Padmakumar SK, Rajeev R, Sivakumar R. Oral and Maxillofacial Biopsy Reports of Children in South Kerala Population: A 20-year Retrospective Study. Int J Sci Stud 2016;4(8):104-108.

14. Gültelkin SE, Tokman B, Türkseven MR. A review of paediatric oral biopsies in Turkey. Int Dent J 2003;53:26-32.
15. Jones AV, Franklin CD. An analysis of oral and maxillofacial pathology found in children over a 30-year period. Int J Paediatr Dent 2006;16:19-30
16. Krishnan R, Ramesh M, Paul G. Retrospective evaluation of pediatric oral biopsies from a dental and maxillofacial surgery centre in Salem, Tamil Nadu, India. J Clin Diagn Res 2014;8:221-3.
17. Sternberg ss, Antonioli DA,carter d,mills se,oberman h(1999)Diagnostic pathology,3rd ed, lippincott william & Wilkins,philadelphia 69,174
18. VilmannA,Vilmann P,Vilmann H (1986) Pyogenic granuloma.Evaluation of oral conditions Br J oral Maxillofac surg 24, 376-382.
19. Hamid Jafaradeh, Majid sanatkhani, Nooshin mohtasham. Oral pyogenic granuloma; A review, Journal of oral science, vol. 48,No.4 167-175,2006
20. Maia DM, Merly F, Castro WH, Gomez RS. A survey of oral biopsies in Brazilian pediatric patients. ASDC J Dent Child 2000;67:128-31, 83.
21. Lima Gda S, Fontes ST, de Araújo LM, Etges A, Tarquinio SB, Gomes AP. A survey of oral and maxillofacial biopsies in children: A single-center retrospective study of 20 years in Pelotas-Brazil. J Appl Oral Sci 2008;16:397-402
22. Resmi G Nair, Sudha Sathyabhama, Ismayil Paikkadan, Faseela Beegum. A sixteen year retrospective study of biopsied pediatric oral lesions from north kerala.
23. Bonet-Coloma C, Mínguez-Martínez I, Palma-Carrio C, Galan-Gil S, Penarrocha-Diago M, Mínguez-Sanz JM. Clinical characteristics, treatment and outcome of 28 oral haemangiomas in pediatric patients. Med Oral Patol Oral Cir Bucal. 2011 Jan 1; 16 (1): e19-22
24. Lister WA The natural history of strawberry naevi. Lancet 1938; 1:1429-1434
25. Iamaroon A, Pongsiri wet S, Sri Suwan S, and Krisanaprakornkit S. Lymphangioma of the tongue. Int J Paediatr Dent. 2003;13(1):62-3.
26. Stnescu L, Georgescu EF, Simionescu C, Georgescu I. Lymphangioma of the oral cavity. Rom J Morphol Embryology. 2006;47(4):373-77.
27. Basavannaiah S, Deogaonkar S, Shinde V, Gore C. Hemangioendothelioma of oral cavity and oropharynx: A rare neoplasm. Indian J Oral Sci 2014;5:35-8.
28. Sreenivasan BS, Ambooken M, Radhakrishna M, Sebastian J. An intraoral epitheloid hemangioendothelioma masquerading clinically as pyogenic granuloma. Iran J Med Sci 2015;40:185-9.
29. ZJ Sun1, L Zhang, WF Zhang, XM Chen, FMM Lai, YF Z hao.Epithelioid hemangioendothelioma of the oral cavity. Oral Diseases (2007) 13, 244–250