

A retrospective study of 55 cases on cysts and tumors of oral cavity in a dental hospital

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Abstract: Aim: to determine the type and frequency of the cysts and tumors in the oral cavity and to assess their sex, age and site distribution.

Materials and Methods: A Retrospective study was conducted in the Department of maxillofacial Surgery, Narayan Medical College and Hospital, Sasaram, Bihar, India for 1 year. Total 55 patients who have sustained cysts and tumors were included in this study. The categories of age, sex and site with its frequency, which were documented in the department of oral medicine and radiology.

Results: The study group consists of total 55 patients which were categorized under age, sex, and site of which 22(40%) patients were females and 33(60%) patients were males. A Radicular cyst which was more common among all the cyst in the study shows more prevalence for males i.e. 15 patients (75%) than females i.e. 5 patients (25%) and the Dentigerous cyst (66.67%), residual cyst (100%) and lateral periodontal cyst (100%) shows more prevalence in males than females whereas nasolabial cyst (100%) and the mucocele (62.5%) which is the pseudocyst shows female predilection. Among the Odontogenic tumor, ameloblastoma was found to be more common in females (75%) than males (25%), whereas squamous cell carcinoma (66.67) and KOT (50%) found to be more common in males than females and among the non-odontogenic tumor-like hemangioma and fibro-osseous lesions, hemangioma shows more prevalence towards females (66.67%) and fibro-osseous lesions are more common in males (66.67%).

Conclusion: cyst occurs more frequently than tumors in the oral cavity and the most common cyst is radicular cyst whereas most common tumor is ameloblastoma.

Keywords: Cysts, Tumors, Oral cavity, Frequency distribution, Odontogenic, Pseudo-cyst

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I. Introduction

The oral cavity is a unique environment, peculiar in its nature and one of the most dynamic regions in the body.¹ It is made up of structures that are the target of a wide variety of lesions that vary in location, etiology, and histogenesis, as well as presenting with variable clinical manifestations. Orofacial cysts and tumors exhibit geographic variations in the prevalence and pattern of occurrence.² Cysts and tumors derived from the odontogenic tissues constitute an unusually diverse group of lesions. This diversity reflects the complex development of the dental structures, since all these lesions originate through some alteration from the normal pattern of odontogenesis.³ These orofacial cysts and tumors are known to exhibit geographic variations in prevalence and pattern of occurrence.⁴ The knowledge of the epidemiology of odontogenic cysts and tumors is limited in a developing nation like India, which may be attributed to inadequate documentation in our hospitals and health care centres.⁵ Studies of cysts and tumors of the oral cavity from several parts of the world indicate that knowledge of the location, frequency, and basic clinical features of these lesions is essential to assess the expression of these lesions in diverse populations as well as to identify the groups at risk. The incidence and epidemiological behavior of odontogenic lesions exhibits geographical variations in different regions of the world. These lesions occur frequently in gnathic bones and represent approximately 2.5% of all the lesions biopsied in the dental services.⁶ Odontogenic tumors have a unique histological structure, reflecting various stages of odontogenesis and are located mainly in the jaws. The reported relative frequency of odontogenic tumors is generally low: India (4.13%), Asia (2.14%), South America (1.82%), North America (1.55%), Europe (0.74%); the highest values being in Africa, Nigeria (9.6–19%).⁷ The aim of this study was to determine the frequency of cysts and tumors diagnosed in the department of Maxillofacial surgery Rashmi Dental Clinic, Juran Chapra Muzaffarpur, Bihar, India and compare our findings with other studies reported in other parts of the world.

II. Material and methods

This Retrospective study was conducted in the Department of Maxillofacial surgery, Narayan Medical College and Hospital, Sasaram, Bihar, India for one year.

Methodology

Total 55 patients who have sustained cysts and tumors were included in this study. The categories of age, sex and site with its frequency, which were documented in the department of oral medicine and radiology. World Health Organization (WHO) criteria was adopted for the classification of cysts and tumors and also pseudocyst/mucocele is also included in this study.

Statistical analysis

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2010) and then exported to data editor page of SPSS version 19 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics included computation of percentages and means.

III. Results

The study group consists of total 55 patients which were categorized under age, sex, and site of which 22(40%) patients were females and 33(60%) patients were males. Gender distribution of cysts and tumors in the oral cavity are shown in Table 1. Based on the distribution cyst are most commonly seen in males (63.16%) than females (36.84). A Radicular cyst which was more common among all the cyst in the study shows more prevalence for males i.e. 15 patients (75%) than females i.e. 5 patients (25%) and the Dentigerous cyst (66.67%), residual cyst (100%) and lateral periodontal cyst (100%) shows more prevalence in males than females whereas nasolabial cyst (100%) and the mucocele (62.5%) which is the pseudocyst shows female predilection. Among the Odontogenic tumor, ameloblastoma was found to be more common in females (75%) than males (25%), whereas squamous cell carcinoma (66.67) and KOT (50%) found to be more common in males than females and among the non-odontogenic tumor-like hemangioma and fibro-osseous lesions, hemangioma shows more prevalence towards females (66.67%) and fibro-osseous lesions are more common in males (66.67%) among the patients which were recorded from the hospital. Site distribution of the cysts of the oral cavity is shown in Table 2. Radicular cyst was found to show a greater predilection towards maxilla (60%) than mandible (40%). Dentigerous cyst is found to be more common in the mandible (66.67 %) than maxilla (33.33%) whereas the rest, residual cyst, nasolabial cyst, and lateral periodontal cyst show more of occurrence in maxilla rather than mandible. Table 3 shows the age distribution of cysts and tumors of the oral cavity. Dentigerous cyst (50%), radicular cyst(50%) and residual cyst (100%) are seen more commonly between the age groups of 20-30 years of age whereas lateral periodontal cyst is also more commonly seen in the age group between 30-40 years of age (50%) and nasolabial cyst is mostly seen during fifth decade of life. Among the tumors, ameloblastoma is more commonly seen in the age group between 30-40 years (50%). Squamous cell carcinoma is mostly seen in the age group of 50-60 years (66.67%) and Keratocystic odontogenic tumor most commonly occurs between age group of 20-30 years (100%) and both hemangioma (66.67%) and fibro-osseous lesion (66.67%) which is non-odontogenic tumor-like lesions are commonly seen in between age group of 30-40 years

Table 1: Gender distribution of cysts and tumors of oral cavity

| Type of lesion | Males=33 | Females=22 | no. of patients=55 |
|---------------------------|-----------|------------|--------------------|
| CYSTS | | | |
| Dentigerous cyst | 4(66.67%) | 2(33.33%) | 6(100%) |
| Radicular cyst | 15(75%) | 5(25%) | 20(100%) |
| Residual cyst | 1(100%) | 0 | 1(100%) |
| Nasolabial cyst | 0 | 1(100%) | 1(100%) |
| Lateral periodontal cyst | 2(100%) | 0 | 2(100%) |
| Pseudo- cyst(mucocele) | 3(37.5%) | 5(62.5%) | 8(100%) |
| TUMORS | | | |
| Ameloblastoma | 1(25%) | 3(75%) | 4(100%) |
| CEOT | 0 | 0 | 0 |
| Pleomorphic adenoma | 1(50%) | 1(50%) | 2(100%) |
| Squamous cell carcinoma | 2(66.67%) | 1(33.33%) | 3(100%) |
| Adenoid cystic carcinoma | 0 | 0 | 0 |
| Muco epidermoid carcinoma | 0 | 0 | 0 |
| KCOT | 1(50%) | 1(50%) | 2(100%) |
| Tumor Like:- | | | |
| Hemangioma | 1(33.33%) | 2(66.66%) | 3(100%) |
| Fibro-osseous lesion | 2(66.67%) | 1(33.33%) | 3(100%) |

Table 2: Site distribution of cysts of oral cavity

| Type of lesion | Maxilla | Mandible | Total no. |
|--------------------------|-----------|-----------|-----------|
| Dentigerous cyst | 2(33.33%) | 4(66.67%) | 6(100%) |
| Radicular cyst | 12(60%) | 8(40%) | 20(100%) |
| Residual cyst | 1(100%) | 0 | 1(100%) |
| Nasolabial cyst | 1(100%) | 0 | 1(100%) |
| Lateral periodontal cyst | 1(50%) | 1(50%) | 2(100%) |

Table 3: Age distribution of cysts and tumors of oral cavity

| Type of lesion | Below 20 years | 20-30 Years | 30-40 Years | 40-50 Years | 50-60 Years | Above 60 Years | Total no. |
|------------------------------|----------------|-------------|-------------|-------------|-------------|----------------|-----------|
| Cysts | | | | | | | |
| Dentigerous cyst | 2 (33.33%) | 3 (50%) | 1(16.67%) | 0 | 0 | 0 | 6(100%) |
| Radicular cyst | 2 (10%) | 10(50%) | 4 (20%) | 1 (5%) | 2 (10%) | 1(5%) | 20(100%) |
| Residual cyst | 0 | 1 (100%) | 0 | 0 | 0 | 0 | 1(100%) |
| Nasolabial cyst | 0 | 0 | 0 | 1(100%) | 0 | 0 | 1(100%) |
| Lateral periodontal cyst | 0 | 1(50%) | 1(50%) | 0 | 0 | 0 | 2(100%) |
| Pseudo-cyst(mucocele) | 2(25%) | 4(50%) | 0 | 2(25%) | 0 | 0 | 8(100%) |
| Tumors: | | | | | | | |
| Ameloblastoma | 0 | 1 (25%) | 2 (50%) | 1 (25%) | 0 | 0 | 4(100%) |
| Pleomorphic adenoma | 0 | 0 | 0 | 1(50%) | 1(50%) | 0 | 2(100%) |
| SCC | 0 | 0 | 0 | 1(33.33%) | 2 (66.67%) | 0 | 3(100%) |
| KCOT | 0 | 2(100%) | 0 | 0 | 0 | 0 | 2(100%) |
| tumor like:- | | | | | | | |
| Hemangioma | 0 | 1 (33.33%) | 2 (66.67%) | 0 | 0 | 0 | 3(100%) |
| Fibro- osseous lesions | 0 | 1(33.33%) | 2(66.67%) | 0 | 0 | 0 | 3(100%) |

IV. Discussion

This paper targets the updating of frequency, demographical characters of cysts and tumors of the oral cavity in our teaching hospital at Bihar, India. With regard to a comparison of the results of this retrospective study with those published by other authors reveals several similarities and differences. According to the gender comparison where the radicular cyst is most common cyst among all the cyst of oral cavity shows more prevalence towards male patients (75%), this finding differs from the studies reported by Luivillasis Sarmiento et al.⁸ GO Bassey et al.⁹ and however shows similarities with the studies of Prashanth Ramachandra et al.¹⁰ Monika Aroquiadasse et al.¹¹ Niranjan KC et al.¹² and SoudabehSargolzaei et al.¹³ Dentigerous cyst (66.67%) and lateral periodontal cyst (100%) were found to occur more commonly in males in this study and show agreement with the studies of SoudabehSargolzaei et al.¹³ and differs with the studies of Monika Aroquiadasse et al.¹¹ Luivillasis Sarmiento et al.⁸ as they show lateral periodontal cyst has more prevalence in female population Ameloblastoma which is a true neoplasm of enamel organ type tissue which does not undergo differentiation to the point of enamel formation. It is the most common tumors of oral cavity according to this study shows higher incidence of occurrence in female patients (75%) which correlates with the studies of Monika Aroquiadasse et al.¹¹ Niranjan KC et al.¹² and differ from the studies of Manisha S Ahire et al.¹⁴ AjinkyaVarkhede et al.¹⁵ GO Bassey et al.⁹ where they show male predilection more. Squamous cell carcinoma occurs more commonly in males (66.67%) as similar to the studies of Paolo G Arduino et al.¹⁶ Monika Aroquiadasse et al.¹¹ Dentigerous cyst which is known as Odontogenic cyst that is commonly associated with impacted tooth is most commonly occurs during the third decade of life (50%) these findings differ from the studies of Monika Aroquiadasse et al.¹¹ where it is more common in the second decade and also differ from Hyun-Kyung lee et al.¹⁷ and GO Bassey et al.⁹ studies and correlates with Prashanth Ramachandra et al.¹⁰ study. Radicular cyst shows the highest frequency during 20-30 years of age and the findings are similar to the findings of Monika Aroquiadasse et al.¹¹ study. Among the tumors, ameloblastoma shows high occurrence during 30-40 years of age (50%) which correlates with the studies of Monika Aroquiadasse et al.¹¹ and AjinkyaVarkhede et al.¹⁵ According to the site distribution of cysts of the oral cavity, Dentigerous cyst most commonly located in the mandibular region

showing frequency of 66.67% which shows similar findings with the studies of PrashanthRamachandra et al.¹⁰ Hyun-Kyung lee et al.¹⁷ and Luivillasis Sarmiento et al.⁸ Radicular cyst (60%) and lateral periodontal cyst (100%) more frequently occur in maxillary region which shows similar findings with Monika Aroquiadasse et al.¹¹ Hyun-Kyung lee et al.¹⁷ Prashanth Ramachandra et al.¹⁰ and Luivillasis Sarmiento et al.⁸ studies. Residual and nasaolabial cyst are also more common in maxillary region according to this study.

V. Conclusion

The cyst occurs more frequently than tumors in the oral cavity and the most common cyst is radicular cyst whereas most common tumor is ameloblastoma. Since most of the data on the frequency of cysts and tumors are derived from hospital-based institution which may show some biases while collecting information from the patients or from the old records of the hospital.

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