

Characteristics of Odontogenic Tumor in Patients of Dr. Hasan Sadikin Central General Hospital, Oral Surgical Installation, Period January 2016 – December 2020

Fadly Rasyid¹, Indra Hadikrishna², Eka Marwansyah³

ABSTRACT

Introduction: Odontogenic tumors are derived from the epithelial cell rests of Malassez that form teeth. These lesions are varied and range from the proliferative process of hamartomatous/non-neoplastic tissue to malignancies with metastasis capability. The odontogenic tumors classification is based on interactions between odontogenic ectomesenchyme and epithelium. This study used odontogenic tumors classification based on the latest updates. This study aims to determine the characteristics of odontogenic tumors incidence in patients at dr. Hasan Sadikin Central General Hospital Bandung period January 2016–December 2020.

Material and Methods: This research is a descriptive study with a cross sectional design using medical record data. This study is a total sampling conducted from January 2016 to December 2020. The variables studied included age, gender, location, anatomical pathology, and therapy.

Results: The samples collected from January 2016 to December 2020 were 187 patients consisting of 69 men (37%) and 118 women (63%) that occurred most frequently in patients aged 20-60 years were 124 people (66%) with the most location occurring in the mandibular area were 171 people (91%). Ameloblastoma was the most common odontogenic tumor found based on histopathological examination which was 114 people (61%). Based on the treatment, 49 people (26%) underwent diagnostic therapy and 44 people (24%) underwent definitive therapy.

Conclusion: Based on gender, a female has a higher prevalence of odontogenic tumor than a male. Based on the location and histopathological examination, most areas affected by odontogenic tumors are mandible, especially ameloblastoma. Most patients underwent diagnostic therapy.

Keywords: Ameloblastoma, Oral Cavity, Odontogenic Tumor.

odontogenic tumors are mostly found intraosseously within the maxillofacial skeletal. These tumors can occur in any part of the gingiva or the alveolar mucosa and that is called peripheral odontogenic tumors. The majority of odontogenic tumors are benign and rarely exhibit malignant behavior. Odontogenic tumors are divided into three categories based on the type of odontogenic tissue: 1. epithelial tumors, 2. epithelial and mesenchymal tumors, and 3. mesenchymal tumors. Odontogenic tumor is a rare tumor that represents less than 1% of all oral cavity tumors. Ameloblastoma and odontoma are the most common among odontogenic tumors.² Case reports of odontogenic tumors vary in different countries. In Tanzania, odontogenic tumors were reported to comprise about 12% of all tumors of the orofacial region, and elsewhere in Africa, they accounted for 10% to 14% of all orofacial tumors. The African prevalence is less than 5% in Brazil, China and Pakistan. However, in Iran, the prevalence is reported to be around 26%. In Tanzania, ameloblastoma was documented to be the most common (73.7%) odontogenic tumor followed by odontogenic myxoma (10.3%). Similarly, in Kenya, ameloblastoma was the most common (45.9%) odontogenic tumor followed by keratocystic odontogenic tumor (KOT) with 11.2%. While in India odontoma was reported as the most common odontogenic tumor (56%) followed by ameloblastoma (14%), in China KOT was the most common benign tumor (38.73%) followed by ameloblastoma (36.52%).³ Based on research conducted at Sanglah Hospital, Denpasar Bali, there were 105 cases of oral tumors for the period January 2015 – October 2016, 56 cases of benign oral tumors, and 49 cases of malignant oral tumors. The highest prevalence of the final diagnosis for benign oral tumors was Ameloblastoma with 28 cases (50%).⁴ The prevalence of oral cavity tumors in various countries and Indonesia is

INTRODUCTION

An oral cavity tumor is an abnormal mass or tissue from a lump that occurs in the oral cavity. These lumps can grow on the anterior, posterior part of the oral cavity, and the jaw. A tumor is a mass or group of abnormal cells that can cause infection, inflammation, cancer, and others. Benign tumors stay in their primary location without invading other sites of the body. Malignant tumors occur when tumor cells spread from their original location to other parts of the body, which is called metastasis.¹

Odontogenic tumors are relatively rare and destructive lesions of the jaw originating from the remnants of tooth forming apparatus. As teeth develop in the jawbone,

¹Oral Maxillofacial Surgery Residency Program, Faculty of Dentistry Universitas Padjadjaran, Indonesia, ²Installation Oral Maxillofacial Surgery, Hasan Sadikin Hospital, Bandung, Indonesia, ³Oral Maxillofacial Surgery Department, Faculty of Dentistry, Universitas Padjadjaran, Indonesia

Corresponding author: Fadly Rasyid, Oral Maxillofacial Surgery Residency Program, Faculty of Dentistry Universitas Padjadjaran, Indonesia

How to cite this article: Rasyid F, Hadikrishna I, Marwansyah E. Characteristics of odontogenic tumor in patients of Dr. Hasan Sadikin Central General Hospital, oral surgical installation, period January 2016 – December 2020. International Journal of Contemporary Medical Research 2022;9(8):H1-H3.



still high and there were few studies on the characteristics of odontogenic tumors carried out in Bandung and the high number of referrals from Regional Hospitals in West Java, especially the city of Bandung. Based on this background, researchers are interested in further researching the characteristics of odontogenic tumors at dr. Hasan Sadikin Central General Hospital period January 2016 - December 2020.

MATERIAL AND METHODS

This study is a descriptive study with a cross-sectional design using medical record data in patients diagnosed with odontogenic tumors both clinically and the results of histopathology from January 2016 to December 2020. The study was conducted at the Oral Surgery Installation of Dr. Hasan Sadikin Central General Hospital, Bandung. Incomplete data were not included in the study sample. This research is a total sampling conducted from January 2016 to December 2020.

The research variables studied were based on gender, age, length of stay, location of occurrence in the oral cavity, results of anatomical pathology, and therapy performed on patients.

The data that has been collected is processed computerized to convert the data into useful information. The data were processed and analyzed using SPSS version 25. The study has obtained an ethical clearance letter from the Ethics Committee of the Dr. Hasan Sadikin Central General Hospital, Bandung and obtained permission from the Dr. Hasan Sadikin Central General Hospital, Bandung.

RESULTS

The data collected on the characteristic of odontogenic tumors in patients at the Oral Surgery Installation from January 2016 to December 2020 obtained as many as 187 patients consisting of 69 males (37%) and 118 women (63%). Based on the age category, the majority of patients were aged 20-60 were 124 people (66%), ages 11-19 years were 31 people (17%), and age > 60 years were 20 people (11%).

Based on the Length of Stay (LOS), most patients with oral odontogenic tumors were 111 days (59%), and for 3 days were 57 people (30%). Then followed by 14 days were 16 people (9%) and a maximum of 21 days and > 21 days respectively as many as 2 people (1%) and 1 person (1%).

Based on the anatomical location of patients with oral odontogenic tumors, the most occurred in the mandibular area were 171 people (91%), followed by the maxilla were 8 people (4%). The maxilla and mandible were 4 people (2%) and the buccal and palate were 2 people (1%).

Based on the results of anatomical pathology that most of them were ameloblastoma were 114 people (61%), followed by ossifying fibroma and squamous cell carcinoma each were 8 people (4%), while odontogenic myxoma and ameloblastic fibroma each were 6 people (3%).

Based on the treatment, most of the incision biopsies were 49

ResearchCharacteristic	Total	Percentage
Gender		
M	69	37
F	118	63
Age Group		
2 - 10 years	12	6
11 - 19 years	31	17
20 - 60 years	124	66
> 60 years	20	11
Total	187	100

Table-1: Research characteristics data by gender and age

Research Characteristic	Total	Percentage
LOS		
3 days	57	30
7 days	111	59
14 days	16	9
21 days	2	1
> 21 days	1	1
Location		
Mandible	171	91
Maxilla	8	4
Maxilla andMandible	4	2
Buccal	2	1
Palate	2	1
Total	187	100

Table-2. Research characteristics data based on Length of Stay (LOS) and the location of the occurrence in the oral cavity

Research Characteristic	Jumlah	Persentasi
Treatment/Therapy		
Incisional biopsy	49	26
Excisional biopsy	4	2
Extirpation biopsy	5	3
Enucleation	4	2
Dredging Method	19	10
Segmental resection	30	16
Marginal resection	5	3
Hemimaxillectomy	5	3
Hemimandibulectomy	44	24
Maxillectomy	1	1
Mandibulectomy	19	10
Sequesterectomy	1	1
Shaving	1	1
Total	187	100

Table-3: Research characteristics data based on the treatment

people (26%), hemimandibulectomy was 44 people (24%), segmental resection was 30 people (16%).

DISCUSSION

Odontogenic tumors in this study were more common in women and have similarities in studies from Brazil.⁵ Research from India, Australia, China shows a male tendency compared to women.⁶ Research conducted by Nalabolu GRK, et al in 2016 was in the age group of 21-40 years with the number of cases being 82 patients with

a percentage of 50.4%.⁷ In contrast to this study, it can be seen from the age groups of 20-60 years, the number of cases were 124 patients with a percentage of 66%. This study has similarities in the type of ameloblastoma tumor as the most common odontogenic tumor.

The percentage of patients based on length of stay (LOS) showed that the largest number was found in patients with a length of stay of 7 days was 59%, for 3 days was 30%, and for 14 days was 9%. The average LOS difference between Norway and America is 3 days shorter. Due to non-reconstructive treatment procedures, the recovery rate is faster.⁸

The distribution of locations of the occurrence in the oral cavity has a large presentation as much as 91% in the mandibular area. The incidence of the location of the oral cavity in the mandibular area can be seen in a study in Turkey in 2021 where it was found that most of the oral pathological lesions were found in the posterior mandible as many as 2852 cases with a presentation of 45.1%.⁹

The distribution of pathological results was more in ameloblastoma with a total of 114 cases with a presentation of 91%. In the journal Govind R K Nalabolu et al 2017, the incidence of ameloblastoma was 79 cases with a presentation of 49.06%, while the difference was in the study of Tando, et al in 2020, the incidence of ameloblastoma was 11 cases with a presentation of 23%.^{7,10,11} Odontogenic tumor patients based on the range over the last 5 years, who were examined and diagnosed with odontogenic tumor patients, the most were ameloblastoma as much as 59%, ossifying fibroma and squamous cell carcinoma respectively 8 people (4%), while odontogenic myxoma and ameloblastic fibroma each as many as 6 people (3%). Meanwhile, from Table 11 regarding the distribution of the location of the occurrence in the oral cavity, the majority were mandible 91%, maxillary 41%, maxillary and mandibular 2%, while the buccal and palate were 1% each. Ameloblastoma is the most common odontogenic tumor with an incidence in the oral cavity about 1%, 80% in the mandibular area and another 20% in the maxilla.¹²

Based on the treatment, most of them with incisional biopsies were 49 people (26%), hemimandibulectomy procedures as many as 44 people (24%), segmental resection as many as 30 people (16%). The authors' considerations regarding incisional biopsies were included in small n counts because they did not proceed to definitive treatment. The journal of Muhammad Ruslin et al 2018 which was carried out by research at the Hasanuddin University General Hospital and Undata General Hospital showed a different incidence of 62.5% with 35 cases.¹³

CONCLUSION

Characteristics of odontogenic tumors in Dr Hasan Sadikin Central General Hospital, Bandung for the period January 2016 to December 2020, women have a higher prevalence than men with an age range of 20-60 years. Based on the length of stay (LOS) at most 7 days while the location and anatomical pathology examination the majority of areas affected by odontogenic tumors occurred in the mandible

with the type of ameloblastoma. The majority of patients with odontogenic tumors underwent diagnostic therapy and definitive therapy including hemimandibulectomy and segmental resection.

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Source of Support: Nil; **Conflict of Interest:** None

Submitted: 25-06-2022; **Accepted:** 28-07-2022; **Published:** 30-08-2022