Prevalence of odontogenic cysts in oral and maxillofacial surgery department of hasan sadikin general hospital: 2 years retrospective study

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ABSTRACT

Background: *Odontogenic cysts are cysts arising from the odontogenic epithelium. According to the World Health Organization in 2017, classification of odontogenic cysts are classified into cysts originating from inflammatory and developmental processes. Most cystic lesions of the oral and maxillofacial cavity are of odontogenic origin and have higher incidence than other body parts. This study to explain about prevalence of odontogenic cyst in RSUP Hasan Sadikin in 2019-2020 .*
Method: *This study was a retrospective study that included 30 patients diagnosed with odontogenic cysts during 2019-2020. The data taken in each patient were age, gender, location of predilection, investigations, diagnosis, management, and recurrence of cases of odontogenic cysts.*
Result: *A total of 15 patients had developmental odontogenic cysts and 15 had inflammatory odontogenic cysts. Most developmental cysts were 12 patients with dentigerous cysts, Odontogenci Keratocyst in 2 patients, and calcifying odontogenic cyst in 1 case. Inflammatory cysts were dominated by 15 patients with radicular cysts.*
Conclusion:*Prevalence of odontogenic cyst was found more in female, with radicular cyst and location in the maxilla*

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INTRODUCTION

Cysts in the oral cavity can be divided into two types, namely those arising from the odontogenic epithelium (odontogenic cysts) and those arising from the trapped oral epithelium during the embryogenesis process until now (non-odontogenic cysts).[1,2,3,4] According to the classification of the World Health Organization. published in 2017, odontogenic cysts are classified into cysts of inflammatory and developmental origin.[2,4,6,8] The precipitating factors that initiate developmental cyst formation are unknown, but these lesions are not the result of an inflammatory reaction. Meanwhile, inflammatory cysts are the result of an inflammatory process.[3,5,7,9] The most common inflammatory odontogenic cyst is the radicular cyst, while the developmental cyst which is considered the most common is the dentigerous cyst..[4,10,12,15]

Most cystic lesions of the oral and maxillofacial cavity are of odontogenic origin and have a higher incidence than other body parts. Early diagnosis and treatment of odontogenic cysts are very important because adjacent tissue can be resorbed by the cyst. If this happens, it can cause bone resorption and jaw enlargement, pathological fractures and facial deformities.[5,11,13,14] Odontogenic cysts are generally small in size and are found on radiographic examination of the jaw. These cysts are, in most cases asymptomatic, but pain may develop if the cyst becomes infected.[22,23] Odontogenic cysts are rarely large in size resulting in a displacement of the causative tooth and expansion of the maxillary cortex characterized by an “eggshell-cracking” or “frog-belly” phenomenon in the mandible palpation. In odontogenic cysts, there is no root resorption of adjacent teeth and neurosensory deficits are rare.

Cyst therapy in the jaw is carried out using one of four basic methods, namely enucleation, marsupialization, a combination of enucleation with marsupialization, and resection. Enucleation indication for small cyst with size up to 1 cm diameter. Marsupialization make window outer of wall cyst reduce cyst content drainage to mouth. Bone resection indication for large cyst to elimination invasive to adjacent tissue.[1,19,20,21]

The purpose of this study is to find out the description of odontogenic cysts at Oral and Maxillofacial Surgery Department at Hasan Sadikin General Hospital for the period January 2019 until December 2020.

MATERIAL AND METHODS

This study’s ethical exemption was approved by research ethics committee Universitas Padjadjaran with number of 925/UN6.KEP/EC/2021. The samples in this study were patients who were diagnosed with radiolucence with appearance in root of tooth and histopathological odontogenic cysts, patients who received treatment at Oral and Maxillofacial Surgery Department at Hasan Sadikin General Hospital in the period January 2019 – December 2020 and had complete medical record data.

The age category in this study was the age when the patient was diagnosed with an odontogenic cyst and grouped into four age categories, namely 0-15 years; 16-31 years old; 31-45 years; and more than 45 years. The gender category of patients was divided into two, namely male and female. Based on the location of the predilection, the cysts are divided into maxilla (anterior and posterior) and mandibular (anterior and posterior). The categories of supporting examinations the patient has to diagnose cysts are panoramic, Cone-beam computed tomography (CBCT) and CT scans. Odontogenic cysts based on histopathological and radiological examinations were grouped into

dentigerous cysts, odontogenic keratocysts, lateral periodontal cysts, glandular odontogenic cysts, calcifying odontogenic cysts, orthokeratinized odontogenic cysts and radicular cysts. Categories based on the management of odontogenic cysts are carried out conservatively and radically, namely enucleation, marsupialization and resection. Based on the recurrence was categorized as first and recurrent lesions.

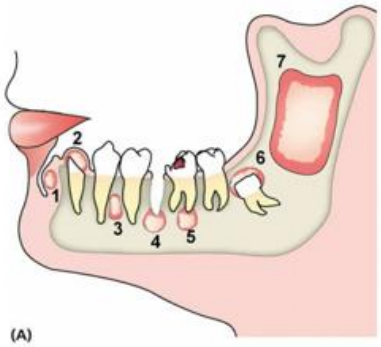

Figure 1. Odontogenic cyst. (A) 1. Gingival cyst 2. Eruption cyst 3. Lateral periodontal cyst 4. Residual cyst 5. Periapical (radicular) cyst 6. Dentigerous cyst 7. Odontogenic Keratocyst.[9]

RESULT

The results of data collection on the description of odontogenic cysts in patients at Oral and Maxillofacial Surgery Department at Hasan Sadikin General Hospital in the period January 2019 to December 2020 obtained as many as 30 patients who received treatment. The results of data collection on the description of odontogenic cysts in patients in Oral and Maxillofacial Surgery Department Hasan Sadikin Central General Hospital are as follows

The age of the majority of cyst patients was at the age of 16-30 years with 15 (50%) patients and followed by patients aged 0-15 years with a total of 8 (26.67%), 31-45 years which amounted to 6 (20%) patients, while the lowest number was at the age of over 45 years, there were 1 (3.33%) patients (Figure 1).

Based on gender, 18 (60%) patients were female and 12 (40%) were male (Figure 2). Based on the location of the cyst predilection, it was found that 13 patients occurred in the maxilla, and 17 patients occurred in the mandible (Figure 3). In the maxillary anterior there were 8 patients (26.67%) and the maxilla posterior were 5 patients (16.67%). The majority of cysts occurred in the mandible on the right and left in as many as 14 patients (46.67%), in the anterior as many as 3 patients (10%).

Investigations in the case of odontogenic cysts were carried out by radiographic examination. Figure 4 shows that the majority of investigations to diagnose odontogenic cysts were carried out with panoramic photos alone as many as 27 patients (90%) and with CBCT support as many in as 2 patients (6.67%) and CT scans in one patient (3.33%).

Based on the type of odontogenic cyst, 15 developmental cysts (50%) and 15 inflammatory cysts (50%) were found, with details of the most common cysts being radicular cysts in 15 cases (50%) (Figure 9), dentigerous cysts in 12 cases (40%), Odontogenic keratocyst in 2 cases (6.67%), calcifying odontogenic cyst in 1 case (3.33%), while there are no data on cases of orthokeratinized odontogenic cyst and lateral periodontal cyst (Figure 6).

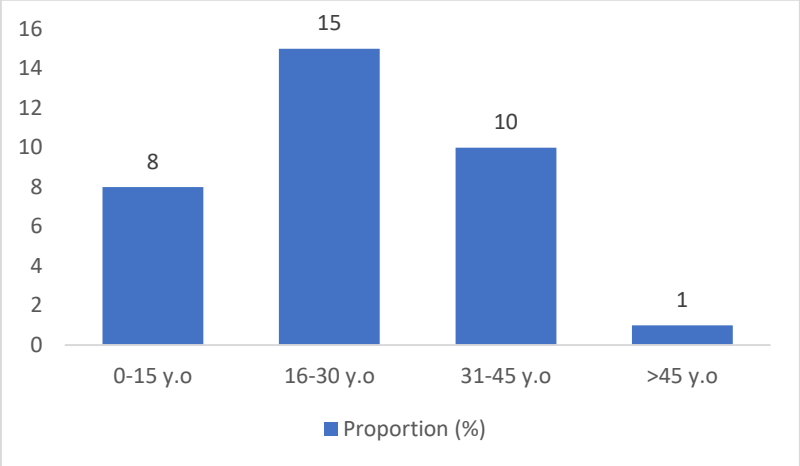

Figure 2. Age Distribution of patients with odontogenic cyst

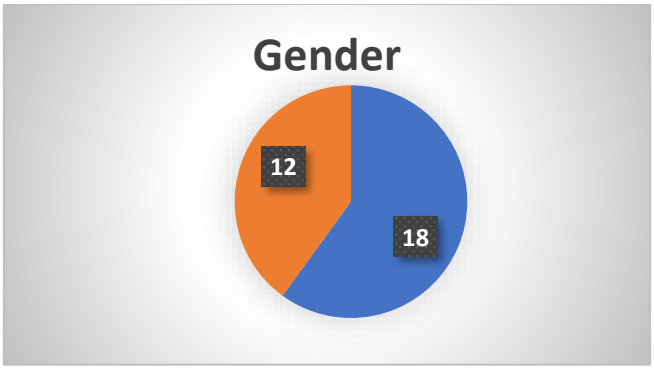

Figure 3. Gender Distribution of Odontogenic Cyst

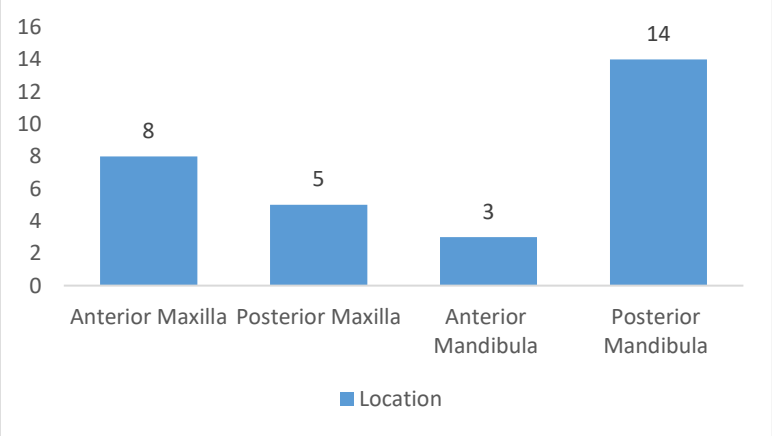

Figure 4. Distribution by Location Predilection of Odontogenic Cysts

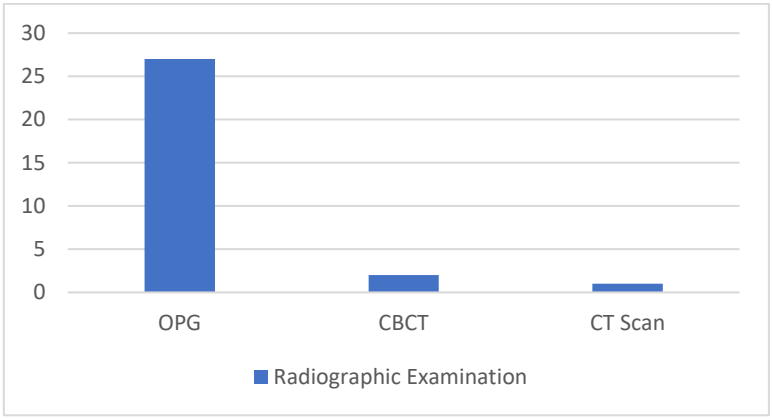

Figure 5. Distribution by Radiographic Examination of Odontogenic Cysts

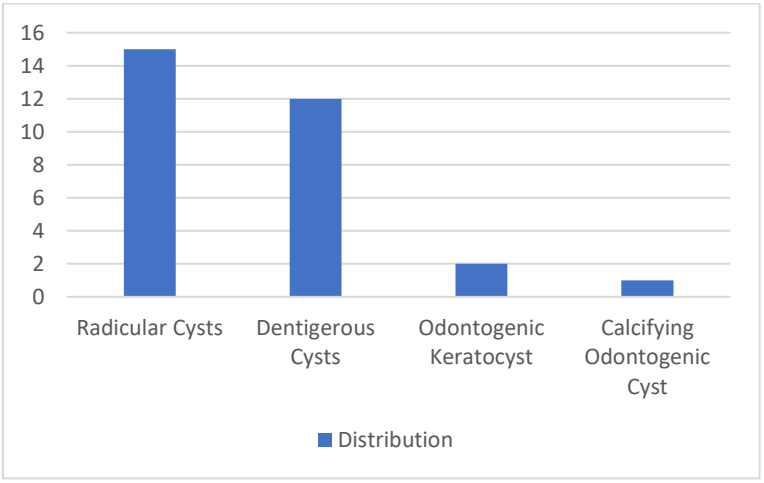

Figure 6. Histopathological Examination

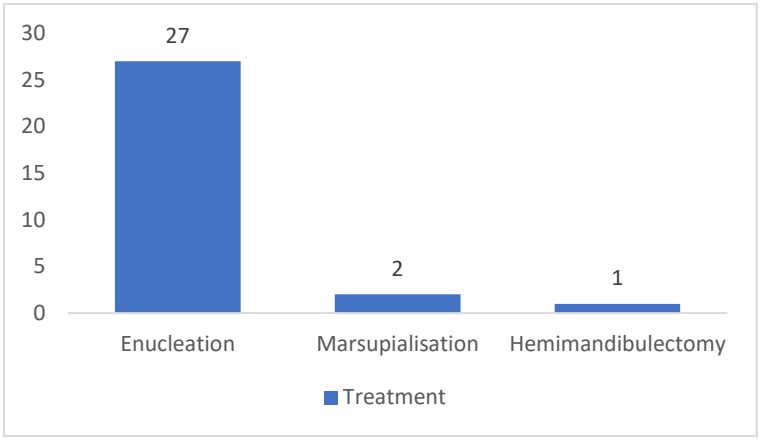

Figure 7. Treatment of Odontogenic Cysts

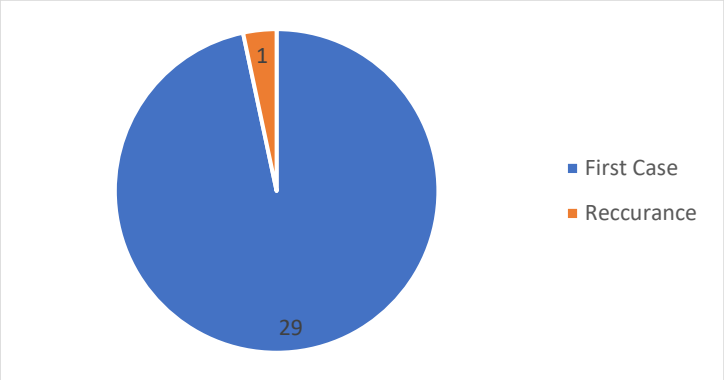

Figure 8. Distribution by Reccurance of Odontogenic Cyst

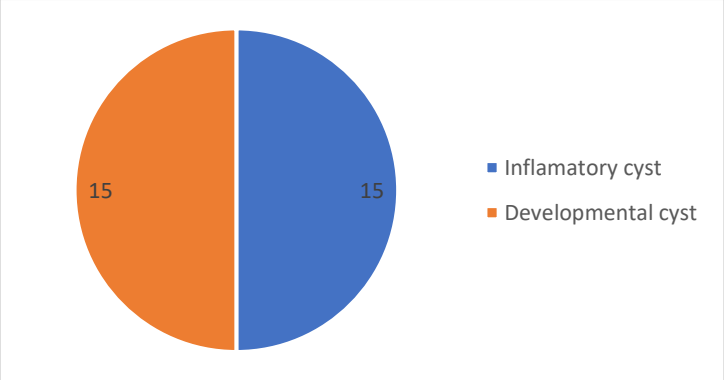

Figure 9. Distribution of odontogenic cyst

DISCUSSION

Odontogenic cysts and osseous lesions are often a challenge in diagnosis but the majority are easily classified. Diagnosis of odontogenic cyst lesions requires knowledge of basic clinical and radiological. The description of odontogenic cysts based on the results of radiological examinations and anatomical pathologies is very diverse and it is necessary to analyze the characteristics of odontogenic cysts that occur in patients at Oral and Maxillofacial Surgery Department, Hasan Sadikin General Hospital. Based on the results of data collection showed that patients suffering from oral cysts ini the period January 2019 to December 2020 based on the type of odontogenic cyst, out of 30 people (100%) who were examined and diagnosed with developmental cysts were 15 (50%) and 15 patients with inflammatory cysts (50%). The gender of the patients with the most cysts were 18 (60%) female and 12 (40%). Accordance to the literature which reports that odontogenic cysts are more common in women than in men, for example in the study of Savithri et al (2020), which stated that patients with odontogenic cysts based on gender were more common in women, namely 570 of 1019 population, of which 449 men were people. [21]

Based on the age distribution of patients with odontogenic cysts, this study concluded that young adults (16-30 years) and adults (31-45 years) had a higher prevalence than other ages because a total of 22 cases were found in both age ranges. This is related to the growth of third molars as a trigger for cysts, especially dentigerous cysts in adolescence to adulthood, according to Ji-won et al,

(2016) statement which states that there are 37% of third molars impacted on the mandible and 15% of maxillary third molars that have impacted and show existence Radiolucent appearance in the pericoronal area which indicates the presence of a dentigerous cyst.[6]

Distribution based on radiological examination and anatomical pathology showed that from all oral cavity cyst data, from 30 people (100%) who were examined and diagnosed with cysts, 14 (46.67%) people had radicular cysts, 12 (40%) people had cysts. dentigerous, 1 (3.33%) people had a periapical cyst, 2 (6.67%) had Odontogenic Keratocyst (OKC), and 1 (3.33%) had a calcifying odontogenic cyst. Data obtained from Hasan Sadikin General Hospital showed that the most common cysts were radicular cysts and the second most common were dentigerous cysts. In accordance with several studies on the prevalence of odotogenic cysts in various countries conducted by Kambalimat et al, reported that radicular cysts were the most common histologic feature (48.67%). Manor et al. (2012), found that 44% of cases in their study were developmental cysts and 48% were inflammatory cysts.[11] Radicular cyst is one of the jaw cysts that arise from the remnants of the Lalangsez epithelium in the periodontal ligament as a result of inflammation or chronic irritation from urinary tract infection. A root that begins with the formation of a periapical granuloma in which there are epithelial remnants [24]

Based on the location of the predilection for the occurrence of oral cysts in this study, 10 cases occurred in the maxilla and 20 cases occurred in the mandible. The distribution based on the location of the cysts in the majority of patients was found in the posterior mandible, as many as 14 (46.67%) patients, while the anterior mandible was the region with the least cysts because there were only 3 (10%) cases in patients. This is in line with the study of Bhat et al, which stated that odontogenic cysts were most commonly found in the posterior mandible, because in their study, in 125 cases, 53 (42.4%) cases were seen in the mandible followed by 41 (32.8%).) cases in the anterior maxilla, 16 (12.8%) cases in the posterior maxilla and 12 (9,6%) Distribution based on radiological examination and anatomical pathology showed that from all oral cavity cyst data, from 30 people (100%) who were examined and diagnosed with cysts, 14 (46.67%) people had radicular cysts, 12 (40%) people had dentigerous cyst, 1 (3.33%) people had a periapical cyst, 2 (6.67%) had OKC, and 1 (3.33%) had a calcifying odontogenic cyst. The data was obtained from Hasan Sadikin General Hospital showed that the most common cysts were radicular cysts and the second most common was dentigerous cysts. Accordance with several studies on the prevalence of odontogenic cysts in various countries conducted by Yilmaz and Yalcin (2021), reported that radicular cysts were the most common histologic feature (48.67%). There is found about 44% of cases in their study were developmental cysts and 48% were inflammatory cysts.[11] Radicular cyst is one of the jaw cysts that arise from the remnants of the malassez epithelium in the periodontal ligament as a result of inflammation or chronic irritation from oral infection. A root that begins with the formation of a periapical granuloma in which there are epithelial remnants

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CONCLUSION

Prevalence of oral cysts at Oral and Maxillofacial Surgery Department at Hasan Sadikin General Hospital in the period January 2019 to December 2020, that odontogenic cyst than more in female patients with a radicular cyst and location on maxilla region

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