

## Profile of ameloblastoma patients at Dr. Soetomo general hospital, Surabaya: A descriptive study



Muhammad Furqan Hidayat<sup>1</sup>, Marjono Dwi Wibowo<sup>2\*</sup>

### ABSTRACT

**Background:** Ameloblastoma is a rare odontogenic epithelial tumor affecting the jawbone (maxilla or mandible). According to the WHO in 2005, there are four different classifications of ameloblastoma: solid or multicystic, unicystic, peripheral, and desmoplastic. Despite being benign, ameloblastoma can seriously damage bones, resulting in deformity and even death. This research aims to know the profile of ameloblastoma due to limited data in Indonesia.

**Methods:** This study is an observational descriptive study. Cross-sectional data collection was used. Information was gathered from the medical records of patients with ameloblastoma treated at Dr. Soetomo general hospital, Surabaya between January 2018 and December 2022. A descriptive analysis was conducted to determine the frequency and proportion of each research variable.

**Results:** Forty-two ameloblastoma patients participated in the study. Patients with ameloblastoma ranged in age from 14 to 75, with a mean age of 39.6 (15.7) years. The majority of patients (57.1%) were female. The majority of the cases were mandibular ameloblastoma. Only 4.8% of ameloblastoma cases occurred in the maxilla, while 76.2% of ameloblastoma locations were found in the left mandible. Up to 97.61% of the surgeries conducted include extensive resection. Most patients (95.2%) with ameloblastoma had successful outcomes.

**Conclusion:** Although rare, the profile of ameloblastoma patients reveals that there are still incidences of fatality, necessitating further discussion of patient mortality risk factors.

**Keywords:** ameloblastoma, mortality, mandibular ameloblastoma, descriptive study.

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<sup>1</sup>Department of Surgery, Faculty of Medicine, Universitas Airlangga-Dr. Soetomo General Hospital, Surabaya, Indonesia;

<sup>2</sup>Head and Neck Surgery Division, Department of Surgery, Faculty of Medicine, Universitas Airlangga-Dr. Soetomo General Hospital, Surabaya, Indonesia.

\*Corresponding author:

Marjono Dwi Wibowo;  
Head and Neck Surgery Division,  
Department of Surgery, Faculty of  
Medicine, Universitas Airlangga-Dr.  
Soetomo General Hospital, Surabaya,  
Indonesia;  
[maryonodwi@gmail.com](mailto:maryonodwi@gmail.com)

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## INTRODUCTION

Rare odontogenic epithelial tumors that affect the jawbone (maxilla or mandible) are ameloblastoma. The World Health Organization (WHO) defines ameloblastoma as a locally invasive, polymorphic benign tumor with odontogenic epithelial growth over fibrous stroma. According to the WHO in 2005, there are four different classifications of ameloblastoma: solid or multicystic, unicystic, peripheral, and desmoplastic. Ameloblastoma of the solid or multicystic variety, which accounts for up to 80% of cases, usually develops in the posterior mandible, particularly in the corpus, ramus, and angulus.<sup>1</sup>

Adults between the ages of 30 and 60 are frequently diagnosed with ameloblastoma, and there is no variation in prevalence based on gender.<sup>1</sup> Radical surgery is the primary treatment for ameloblastoma. Ameloblastoma can result in serious bone injury, deformity, and

even death despite being benign. Early detection and accurate diagnosis can lessen postoperative discomfort, recovery time, and psychosocial effects.<sup>2</sup>

Ameloblastoma accounts for 1% of all oral and 11% of odontogenic tumors.<sup>3</sup> Mandibular ameloblastoma is four times more common than maxillary ameloblastoma. About 80% (975) of the 1207 documented cases were found in the mandible, with the remaining 19.2% (232) in the maxilla. Ameloblastoma was more prevalent in the posterior part of the jaws (69.8% of 336 cases).<sup>4</sup> Most ameloblastoma patients begin receiving treatment between 30 and 40. According to reports, Afro-Caribbean or Asian races are more likely to develop ameloblastoma. Research on the ameloblastoma clinical profile is still incredibly scarce in Indonesia. The researchers are interested in performing a profile study of ameloblastoma patients at Dr. Soetomo general hospital, Surabaya in 2018–2022.

## METHODS

This study is an observational descriptive study. Cross-sectional data collection was used. Information was gathered from the medical records of patients with ameloblastoma treated at Dr. Soetomo general hospital, Surabaya between January 2018 and December 2022. Secondary data (medical records and documents) were collected from Dr. Soetomo general hospital, Surabaya for the study. Age, gender, ameloblastoma location (maxilla/mandibula), ameloblastoma pathologic type, type of treatment, and clinical/radiologic measures were the variables that were looked at in this study.

After being properly processed, the descriptively examined data is subsequently presented in the form of a study report. To determine the frequency and proportion of each research variable, a descriptive analysis was conducted.

## RESULT

Forty-two ameloblastoma patients were included in the Dr. Soetomo general hospital, Surabaya trial between January 2018 and December 2022. Age, gender, location of the ameloblastoma, kind of ameloblastoma case, type of surgery, and result are the variables that will be descriptively assessed for features throughout the full sample of this study. Patients with ameloblastoma ranged in age from 14 to 75 years old, with a mean age of 39.6 (15.7). The age range from 31 to 40 years had the highest proportion of ameloblastoma patients (28.6%) (Table 1).

Women comprised most of the ameloblastoma patients at RSUD Dr. Soetomo Surabaya between January 2018 and December 2022 (57.1%) (Table 2). The position of the ameloblastoma is separated between the maxilla and the mandible, and in each region, it is again classified as left or right. It was discovered that the mandibular type predominated in the majority of patients with ameloblastoma instances. The left mandible held up to 76.2% of the location for ameloblastoma (Table 3). From January 2018 to December 2022, there were only 4.8% of ameloblastoma cases in the maxilla region at Dr. Soetomo general hospital, Surabaya.

The various ameloblastoma types identified in this study were divided into recurring and new cases. The distribution of new and recurrent ameloblastoma treated at RSUD Dr. Soetomo Surabaya is shown in Table 4. From January 2018 to December 2022, it was discovered that most ameloblastoma cases treated at RSUD Dr. Soetomo Surabaya (80.9%) were new cases, with just 19.1% being recurring cases.

Radical resection, segmental/conservative resection, and reconstruction just as a follow-up resection or surgery for recurrent patients were the three categories of surgery used in this study. The distribution of surgical procedures carried out on ameloblastoma patients is displayed in Table 5. Over the preceding five years, 97.61% of patients received extensive resection, while just 2.39% of patients received conservative care.

The majority of patients (95.2%) with ameloblastoma had successful outcomes, but 2 patients (4.8%) died (Table 6).

**Table 1. Age distribution**

Age	Frequency (N=42)	%
11-20 Years old	6	14,3%
21-30 Years old	7	16,7%
31-40 Years old	12	28,6%
41-50 Years old	6	14,3%
51-60 Years old	7	16,7%
>60 Years old	4	9,5%

**Table 2. Gender distribution**

Gender	Frequency (N=42)	%
Male	18	42,9%
Female	24	57,1%

**Table 3. Ameloblastoma location**

Ameloblastoma Location	Frequency (N=42)	%
Maxilla		
Right	0	0%
Left	2	4,8%
Mandibulla		
Right	8	19,0%
Left	32	76,2%

**Table 4. Case type**

Case type	Frequency (N=42)	%
Residive	8	19,1%
New	34	80,9%

**Table 5. Operation type**

Operation type	Frequency (N=42)	%
Radical	41	97,61%
Conservative	1	2,39%

**Table 6. Patient outcome**

Outcome	Frequency (N=42)	%
Death	2	4,8%
Alive	40	95,2%

## DISCUSSION

This study's 42 total samples will be descriptively examined according to age, gender, the location of the ameloblastoma, the type of ameloblastoma case, the type of surgery, and the outcome. Patients with ameloblastoma ranged in age from 14 to 75 years old, with a mean age of 39.6 ( $\pm 15.7$ ) years. The huge standard deviation of 15.7 years and the extremely wide range of maximum and minimum ages found in the study data (14 to 75 years) demonstrate how different the age of ameloblastoma patients is. In addition, women made up the majority of ameloblastoma patients. These findings support the study by Hendra et al., who stated that adults between the ages

of 30 and 60 are frequently diagnosed with ameloblastoma, and there is no difference in frequency between males and females.<sup>1</sup>

According to Girrardi et al., ameloblastoma affects the mandible four times more commonly than the maxilla. Approximately 80.8% (975) of the 1207 recorded cases were found in the mandible, with the remaining 19.2% (232) in the maxilla. Ameloblastoma was more prevalent in the posterior jaws (69.8% of 336 cases).<sup>4</sup> This is consistent with the study's findings, which showed that the mandibular type predominated in most patients with ameloblastoma cases. The left mandible held up to 76.2% of the spots for ameloblastoma. Just 4.8% of

cases of ameloblastoma occurred in the maxilla. Furthermore, new ameloblastoma cases were discovered; recurrent cases comprised roughly 19.1% of all cases. Ameloblastoma was classified by the World Health Organization (WHO) in 2005 as a benign, locally invasive, and polymorphic neoplasm that consisted of odontogenic epithelial growth in fibrous stroma despite its benign histology.<sup>3</sup> Ameloblastoma rarely exhibits malignant alterations while being locally invasive and having a high recurrence incidence. However, the disease's chronicity and locoregional lesion recurrence are significant clinical challenges and can happen years after surgical intervention to excise the lesion.<sup>5</sup>

Maximum eradication of ameloblastoma, particularly solid multicystic ameloblastoma types, is ensured by a radical resection strategy with sufficient margins, whether marginal or segmental. Additionally, it can reduce the chance of metastasis and the recurrence rate (0–10%). In this study, individuals with ameloblastoma were mostly treated with aggressive excision.<sup>6</sup> Despite having a benign histology, ameloblastoma is associated with considerable morbidity and mortality if not treated properly.<sup>6,7</sup> Malignant alterations in ameloblastoma are uncommon, but the disease's protracted nature and the lesions' potential for locoregional recurrence pose significant clinical difficulties. These complications can develop years after the tumors are surgically removed. Ameloblastoma also

doesn't have a particularly high fatality rate.<sup>5</sup> This aligns with the study's findings, which showed that just 4.8% of patients who experienced an outcome died. The limitation of this study is that it only uses data from a single hospital in Surabaya. Data from multiple centers is needed to represent a better ameloblastoma profile in Indonesia.

## CONCLUSION

This study displays the ameloblastoma patient profile at Dr. Soetomo general hospital, Surabaya from 2018 to 2023. The information can be used for ameloblastoma-related future research.

## ETHICAL CLEARANCE

Patient approval has been obtained in this study and fulfilled ethics approval from the Ethics Committee of RSUD Dr. Soetomo No. 1450/LOE/301.4.2/IX/2023

## CONFLICT OF INTEREST

No competing interests were declared.

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## AUTHOR CONTRIBUTION

All of the authors equally contributed to the study.

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