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Original Research Article

Deciphering histopathological patterns and biological behavior of ameloblastoma: Insights from regional cross-sectional analysis

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Abstract

Background: Ameloblastoma is an aggressive odontogenic tumor that is slow-growing and benign in nature. But due to its invasive characteristics and tendency to recur, it is considered as a localized malignant tumor. There exist various categories of this condition, each characterized by distinct clinical and histological attributes, displaying diverse histological patterns.
Aims and Objectives: The aims and objectives of the present study was to examine the age distribution, gender prevalence, primary oral location, clinical manifestation and to ascertain the histopathological patterns, biological attributes and assess different treatment approaches based on the histopathology report, patient monitoring, and recurrence of ameloblastoma cases that were diagnosed and treated at Kamineni Institute of Dental Sciences, Narketpally, Telangana.
Materials and Methods: The present retrospective study encompasses 64 cases of ameloblastoma collected over a span of 10 years, ranging from January 2014 to December 2023. Patient data, including follow-up periods of up to nine years were collected and analyzed using SPSS with significance set at $p < 0.05$.
Results: The study found that 47% of patients experienced painful jaw swelling with a slight female predominance (1.13:1). The unicystic pattern was the most common histopathological finding (53%), followed by the plexiform pattern (22%). Most cases (95.3%) were non-recurrent, while 4.7% were recurrent. Significant association **(**$p < 0.05$**)** was noted between gender, site & treatment with diagnosis. Significance was also observed with site & treatment when compared to recurrence.
Conclusion: The findings of the present retrospective study concluded that the unicystic type of ameloblastoma is prevalent among the regional population under investigation. The treatment approaches employed by clinicians, guided by histopathological diagnosis, have proven effective in delivering suitable treatment options to patients, resulting in favorable prognosis and minimal recurrence rates.

Keywords: Ameloblastoma, Biological behavior, Histopathological patterns.

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1. Introduction

Ameloblastoma is recognized as the second most prevalent odontogenic tumor.[1] The term is derived from the fusion of the ancient French word “amelo”, which refers to enamel, and the Greek term “blastos”, which denotes germ or bud.[2]

It is a tumor of odontogenic epithelium, which is locally invasive and grows slowly, primarily originates from enamel tissue that has not undergone differentiation.[3] This was initially identified by Cusack in 1827.[4] Later on, in 1885, the French physician Louis-Charles Malassez named it 'adamantinoma'.[5] However, in 1930, Ivey and Churchill renamed it 'ameloblastoma' as the previous term suggested the formation of hard tissue, which was not observed in this lesion.[2]

Robinson (1937) described ameloblastoma as a benign tumor that is “usually unicentric, non-functional, intermittent in growth, anatomically benign and clinically persistent”. The World Health Organization (1991) defined ameloblastoma as a benign but locally aggressive tumor with a high tendency to recur, consisting of proliferating odontogenic epithelium lying in a fibrous stroma.[6]

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According to WHO, now it is classified as conventional, unicystic, extraosseous/peripheral, and metastasizing ameloblastoma.[7] It may arise from the epithelial remnants of Malassez, which are mainly found in the mandible, and its growth is connected to the epithelium responsible for tooth development. Alternatively, it could result from genetic mutations affecting the MAPK pathway, with the BRAF p.V600E mutation being the most common.[8]

It is known for its aggressive nature and slow growth. Despite being benign, it is considered as a localized malignant tumor due to its invasive characteristics and tendency to recur. There are various types of ameloblastoma, each with distinct clinical and histological features. These include follicular, acanthomatous, plexiform, basal cell, granular, desmoplastic, peripheral, malignant and unicystic variants. The unicystic variant can further be classified into three subtypes: luminal, intraluminal, and mural. It is important to note that each variant exhibits different histological patterns and not all of them are aggressive in nature. Consequently, the treatment modalities based on histopathological diagnosis will assist clinicians in providing an appropriate treatment to patient with good prognosis.

The objective of the present study was to retrospectively analyze and evaluate the age distribution, prevalence among males and females, predominant oral site, clinical presentation, histopathological patterns, biological characteristics, and various treatment modalities based on histopathological diagnosis, patient follow-up, and recurrence of ameloblastoma cases diagnosed and treated at Kamineni Institute of Dental Sciences, Narketpally.

2. Materials and Methods

2.1. Study design

The present study was a cross-sectional retrospective study, which included a total of 64 histologically diagnosed cases of ameloblastoma, collected over a span of 10 years from January 2014 to December 2023. Clinical information regarding the age, gender, anatomical location of the lesion and histopathology was retrieved from the archives of the Department of Oral & Maxillofacial Pathology at Kamineni Institute of Dental Sciences, Narketpally. Additionally, data on the various treatment modalities employed and instances of recurrence were extracted from the medical records.

2.2. Inclusion criteria

1. Confirmed cases of ameloblastoma, verified through histopathological examination.
2. Individuals of all ages diagnosed with any variant of ameloblastoma.
3. All histological variants of ameloblastoma are included in the study.
4. Patients who underwent surgical treatment at the institution.
5. Comprehensive medical records and data of each patient.
6. Follow-up information for each patient.
7. Newly diagnosed cases identified within the designated study timeframe.
8. Patients from the surrounding local region.

2.3. Exclusion criteria

1. Patients with incomplete or partial case documentation.
2. Individuals with significant concurrent maxillofacial pathology that could confound study outcomes.
3. Patients who have not undergone surgical treatment.
4. Patients hailing from other regions and diagnosed with ameloblastoma.
5. Patients not turned up for follow-up.

2.4. Data analysis

Data was analyzed using the statistical package SPSS 26.0 (SPSS Inc., Chicago, IL) and level of significance was set at $p < 0.05$. Descriptive statistics were performed to assess the mean and standard deviation of the respective groups. Inferential statistics was done using Chi square test.

3. Results

The analysis and summarization of 64 patients diagnosed with various histological types of Ameloblastoma are presented through graphical illustrations and multifaceted analyses are presented as tables.

3.1. Age distribution

Among the 64 cases of ameloblastoma, age distribution showed that 22 patients (34.4%) were aged 15-30 years, 18 (28.1%) were 30-45, and 14 (21.9%) were 45-60. Additionally, 6 cases (9.4%) were aged 5-15, and 4 (6.2%) were in the 60-75 range (**Graph 1**). **Table 1** summarizes the age distribution with 28 individuals under 30 years; and 36 over 30 years. Statistical analysis indicated a significant correlation between age and diagnosis ($p = 0.024$), highlighting variations in ameloblastoma types. However, it did not show a significant association between age groups and recurrence ($p = 0.12$).

3.2. Gender distribution

Of the 64 cases examined, 34 (53.1%) were females and 30 (46.9%) were males (**Graph 2**). **Table 2** displays the distribution of diagnosis and recurrence by gender, showing that the follicular variant was exclusive to females, while the unicystic luminal type was predominantly found in males. A significant correlation between gender and diagnosis was identified ($p = 0.01$), but no significant relationship was observed between gender and recurrence ($p = 0.63$).

3.3. Site involvement

In approximately 96.9% (62 cases) mandible was most commonly affected while maxilla was involved in only about 3.1% (2 cases) (**Graph 3**).

3.4. Site distribution

The left posterior mandible was the most common site for ameloblastoma, accounting for 40.6% (26 cases), followed by the right posterior mandible at 37.5% (24 cases) and the anterior mandible at 15.6% (10 cases). The right posterior maxilla and right posterior gingiva of mandible each represented 3.1% (2 cases) (**Graph 4**). **Table 3** shows a significant relationship between site and diagnosis ($p = 0.0001$), indicating variations in ameloblastoma types by location. Among 64 cases, there were three recurrences: one in the anterior mandible, one in the right posterior gingiva of mandible, and one in the right posterior mandible. Overall, 61 cases were recurrence-free, with a significant correlation between site and recurrence ($p < 0.05$, specifically at 0.0001).

3.5. Clinical presentation

In the present study, approximately 47% of patients (30 cases) experienced painful swelling (**Figure 1**), while 34% (22 cases) had swelling without pain and 19% (12 cases) reported pain without swelling (**Graph 5**). Radiographically, the typical presentation of ameloblastoma was seen as a mixed radiolucent–radiopaque lesion (**Figure 2**). However, the most commonly diagnosed variant in the present study was unicystic ameloblastoma, which typically appeared as a unilocular radiolucency (**Figure 3**).

3.6. Histopathological patterns

Out of the various histopathological types, the most frequently encountered variant was unicystic ameloblastoma (**Figure 4**A-D), which was identified in 34 cases, accounting for 53% of total cases. Following this, the plexiform type was found in 14 cases (22%), the follicular type in 8 cases (13%), the acanthomatous type in 6 cases (9%), and the peripheral ameloblastoma in 2 cases (3%) (**Figure 5**A-D, **Graph 6**).

Among the variants of unicystic ameloblastoma, it was noted that the unicystic luminal variant (**Figure 4**A) was the most commonly encountered, comprising 18 cases (28.1%). This was succeeded by the intraluminal subtype (**Figure 4**B) with 10 cases (15.6%), the mural subtype (**Figure 4**C) with 4 cases (6.2%), and the plexiform unicystic subtype (**Figure 4**D) with 2 cases (3.1%) (**Graph 7**).

The treatment approach for histologically diagnosed cases of ameloblastoma varied depending on the specific subtype. In the case of conventional ameloblastoma and the mural variant of unicystic ameloblastoma, en bloc resection was carried out. On the other hand, for the luminal, intraluminal, and plexiform unicystic forms of ameloblastoma, enucleation followed by decompression was the chosen treatment method and conservative surgical excision was employed for the management of peripheral ameloblastoma. The chi-square test indicated a significant association between treatment and diagnosis ($p < 0.05$), highlighting notable differences in treatment types across various diagnoses. **Table 4** shows the comparison of treatment modalities across diagnoses and recurrence rates. Conservative surgical excision, en bloc resection, and enucleation with decompression each had one recurrence, totaling three. A significant association was found between treatment type and recurrence rate ($p = 0.0001$).

3.7. Biological behavior of ameloblastoma

Among the 64 cases analyzed, the majority were non-recurrent accounting for 95.3% (61 cases). Conversely, the remaining 4.7% (3 cases) had recurrent behavior (**Graph 8**). Notably, when examining the various patterns of ameloblastoma, it was observed that acanthomatous, peripheral, and unicystic intraluminal subtypes each exhibited a single case of recurrence (**Graph 9**).

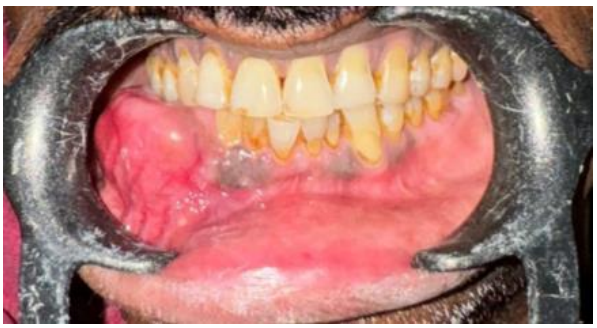


Figure 1: Clinical image of ameloblastoma showing swelling in the right posterior mandible.

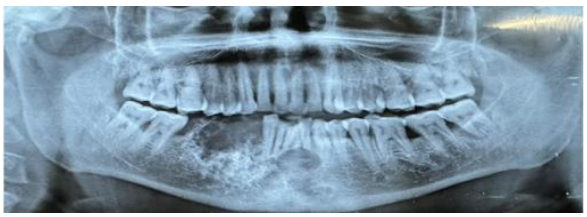


Figure 2: OPG showing a mixed radiolucent-radiopaque lesion of conventional ameloblastoma in the right posterior mandible.

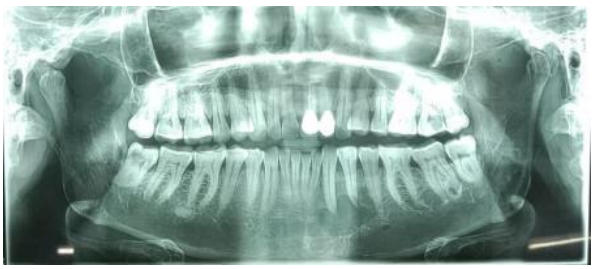


Figure 3: OPG showing unilocular radiolucency in relation to teeth 33 and 34 of unicystic ameloblastoma.

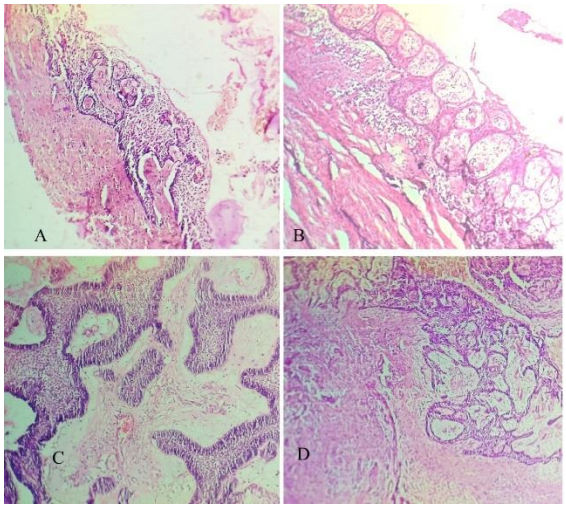


Figure 4: Illustrates different variants of unicystic ameloblastoma; **A):** Unicystic Luminal type showing fibrous cyst wall containing ameloblastic epithelium with stellate reticulum; **B):** Unicystic Intraluminal type showing presence of nodules of ameloblastic epithelium proliferating into the cystic lumen; **C):** Unicystic Mural type showing infiltration of the fibrous wall of the cyst by typical follicular or plexiform ameloblastoma; **D):** Plexiform Unicystic type showing tumor nodule protruding into the lumen with an edematous, plexiform arrangement.

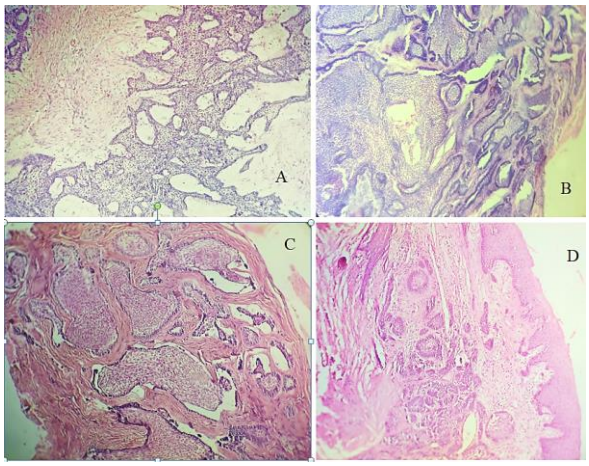
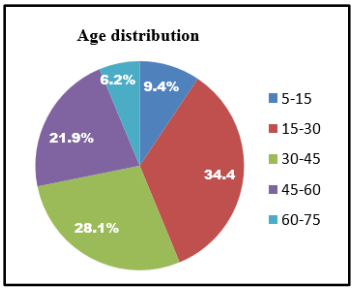
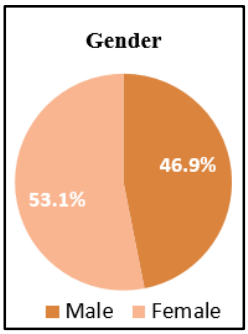


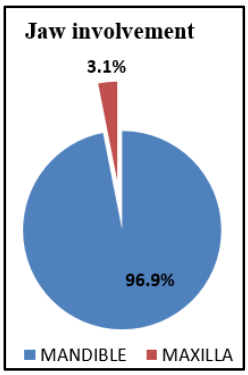
Figure 5: Histological types of ameloblastoma diagnosed in the present study; **A):** Plexiform Ameloblastoma type displaying elongated, interconnected cords or layers of odontogenic epithelium enclosed by columnar or cuboidal cells resembling ameloblasts; **B):** Follicular Ameloblastoma type exhibiting clusters or follicles of epithelium resembling the enamel organ and nests contain angular cells similar to the stellate reticulum, surrounded by tall columnar cells resembling ameloblasts; **C):** Acanthomatous Ameloblastoma showing extensive squamous metaplasia, often accompanied by keratin formation, in the central regions of the epithelial islands of a follicular ameloblastoma; **D):** Peripheral Ameloblastoma showing islands of ameloblastic epithelium beneath the surface epithelium.



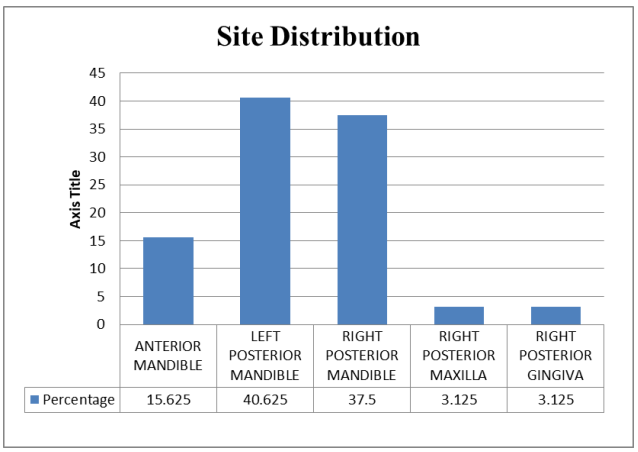
Graph 1: Age distribution of ameloblastoma showing a significant prevalence within the 15-30 age group.



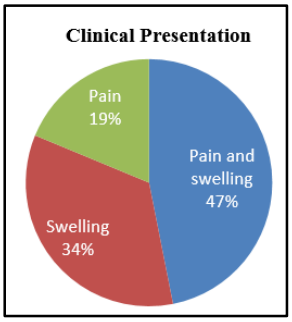
Graph 2: Gender distribution of ameloblastoma showing predominance in females.



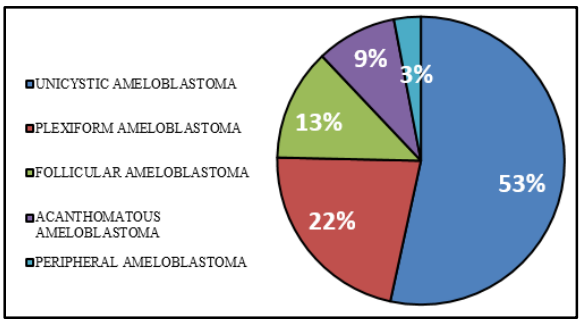
Graph 3: Jaw involvement of ameloblastoma showing greater frequency in the mandible.



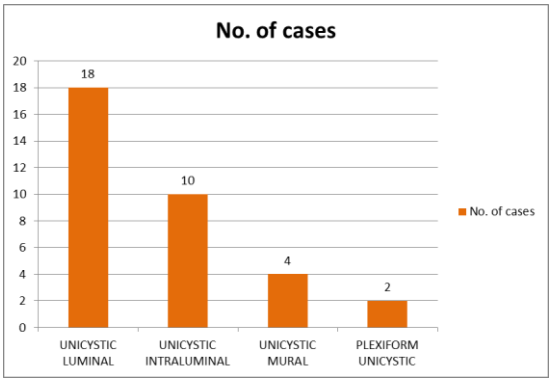
Graph 4: Site distribution of ameloblastoma showing higher prevalence in the left posterior mandible.



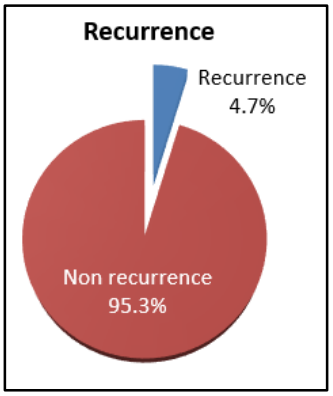
Graph 5: Clinical presentation of ameloblastoma showing pain and swelling as the predominant symptoms.



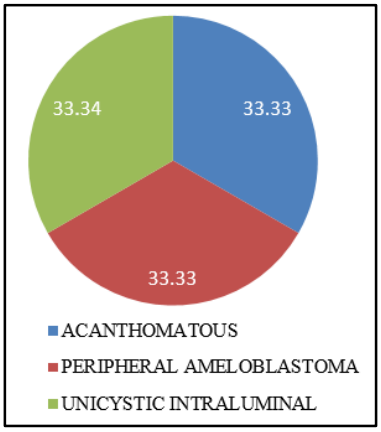
Graph 6: Distribution of various histopathological patterns of ameloblastoma showing unicystic ameloblastoma as the most prevalent type.



Graph 7: Unicystic variants of ameloblastoma showing unicystic luminal as the most frequently observed subtype.



Graph 8: Recurrence rate of ameloblastoma demonstrating 4.7% of cases as recurrence.



Graph 9: Recurrent cases of ameloblastoma displaying each case as a single recurrence.

Table 1: Distribution of ameloblastoma cases by age group

		Age groups		Total
		<30 Year	>30 Year	
Diagnosis	Acanthomatous ameloblastoma	0	6	6
	Follicular ameloblastoma	6	2	8
	Peripheral ameloblastoma	0	2	2
	Plexiform ameloblastoma	8	6	14
	Plexiform unicystic	0	2	2
	Unicystic intraluminal	4	6	10
	Unicystic luminal	10	8	18
	Unicystic mural	0	4	4
Total		28	36	64
P value		0.024*		

*p < 0.05 is considered to be significant

Table 2: Distribution of ameloblastoma cases by gender

		Gender		Total
		F	M	
Diagnosis	Acanthomatous ameloblastoma	4	2	6
	Follicular ameloblastoma	8	0	8
	Peripheral ameloblastoma	0	2	2
	Plexiform ameloblastoma	10	4	14
	Plexiform unicystic	0	2	2
	Unicystic intraluminal	4	6	10
	Unicystic luminal	6	12	18
	Unicystic mural	2	2	4
Total		34	30	64
P value		0.01*		

*p < 0.05 is considered to be significant

Table 3: Anatomical site and diagnosis of ameloblastoma

		Acanthomatous ameloblastoma	Follicular ameloblastoma	Peripheral ameloblastoma	Plexiform ameloblastoma	Plexiform unicystic	Unicystic intraluminal	Unicystic luminal	Unicystic mural	Total
Site	Anterior mandible	0	0	0	0	0	1	0	0	1
	Right posterir mandible	2	0	0	0	0	0	0	0	2
	Right posterior maxilla	0	0	0	0	0	0	2	0	2
	Anterior mandible	0	0	0	0	0	3	4	2	9
	Left posterior mandible	0	1	0	0	0	0	0	0	1
	Left posterior mandible	2	7	0	4	2	2	8	0	25
	Right posterior gingiva of mandible	0	0	2	0	0	0	0	0	2
	Right posterior mandible	2	0	0	10	0	4	4	2	22
Total		6	8	2	14	2	10	18	4	64
P Value		0.0001*								

*p < 0.05 is considered to be significant

Table 4: Treatment outcomes by diagnosis and recurrence

		Treatment			Total
		Conservative surgical excision	Enbloc resection	Enucleation followed by decompression	
Diagnosis	Acanthomatous ameloblastoma	0	6	0	6
	Follicular ameloblastoma	0	8	0	8
	Peripheral ameloblastoma	2	0	0	2

	Plexiform ameloblastoma	0	14	0	14
	Plexiform unicystic	0	0	2	2
	Unicystic intraluminal	0	0	10	10
	Unicystic luminal	0	0	18	18
	Unicystic mural	0	4	0	4
Total		2	32	30	64
P Value		0.0001*			
Recurrences	No	1	31	29	61
	Yes	1	1	1	3
Total		2	32	30	64
P Value		0.0001*			

*p < 0.05 is considered to be significant

4. Discussion

Ameloblastoma is the most prevalent odontogenic tumor with clinical significance. These tumors originate from odontogenic epithelium and manifest in three distinct types: Conventional solid or multicystic (Intraosseous), Unicystic & Peripheral (Extraosseous) posing a challenging classification among oral tumors. Despite their typically benign growth pattern, they have a tendency to invade neighboring tissues and, in rare instances, metastasize. These tumors demonstrate a persistent and gradual growth, extending into the marrow spaces with pseudopods, without concomitant absorption of the trabecular bone. As a result, the tumor boundaries are not easily discernible on radiographs or during surgery, often leading to frequent recurrence post incomplete surgical excision, highlighting a locally aggressive nature.[9]

The present study offers a comprehensive analysis of the clinicopathological features of ameloblastoma in a cohort of 64 patients, shedding light on various aspects of the tumor's behavior in the local population. Key findings related to age distribution, gender differences, site involvement, clinical presentation, histopathological patterns, treatment modalities, and recurrence rates significantly contribute to a broader understanding of this tumor's behavior in the local population.

4.1. Age distribution and implications for clinical practice

The results of the present study revealed that the majority of patients diagnosed with ameloblastoma (34.4%) were in the 15-30 age group, with a notable decrease in prevalence in older age groups. This highlights the importance of targeting younger individuals for screening and early detection, as tumors in this demographic may exhibit distinct growth patterns compared to those in older patients. A significant association was noted between age and the histopathological types of ameloblastoma across different age groups with acanthomatous, plexiform unicystic and unicystic mural, were restricted to the >30 year group. Additionally, follicular ameloblastoma was more common in the <30 year group whereas plexiform and unicystic types other than mural were found in both groups, suggesting that specific types of ameloblastoma are more common in particular age groups. However, no significant correlation between age and recurrence was observed in the present study, indicating that recurrence may be influenced by other factors, such as histological subtype or surgical technique, rather than age alone.

Similar findings were reported by Rajeshwar et al. (2013)[10] and Tatapudi et al. (2014)[11] who also observed a higher incidence of ameloblastoma in the same age group. In contrast, Rusdiana et al. (2013) reported a higher prevalence of ameloblastoma in patients aged 31-50 years in their study, whereas the present study found the highest number of cases in the 15-30 age group.[12]

4.2. Gender distribution and tumor behavior

In the present study, a slight female predominance (53.1%) was observed, suggesting potential biological or environmental influences. A significant correlation was found between gender and diagnosis (p = 0.01), particularly with respect to histological subtypes. Notably, the follicular variant was exclusively observed in females, while the unicystic luminal type was more prevalent in males. This finding raises important questions about the potential role of biological or environmental influences or genetic factors in the development of ameloblastoma. Further research is needed to explore these possible influences, as understanding the underlying causes of gender-specific differences could inform more personalized treatment strategies.

Similar findings were reported by Rusdiana et al. (2013), also observed a higher female predominance.[12] However, these findings contrast with those of Rajeshwar et al. (2013),[10] Ramakanth et al. (2022)[13] and Anyanechi et al. (2023)[14] who reported a male predominance, suggesting potential regional variations in tumor demographics. In addition, Geetha et al (2022) also found male predominance but they reported that follicular ameloblastoma as the most common subtype, with an equal distribution between males and females which is in contrast with the present study where follicular ameloblastoma is found to be exclusive to females.[15]

4.3. Site involvement and surgical planning

In the present study, the mandible was overwhelmingly the most common site affected by ameloblastoma, with 96.9% of cases involving the mandible. The left posterior mandible was the most frequently affected site, accounting for 40.6% of cases. These findings are consistent with previous studies that consistently report the mandible, particularly the posterior region, as the primary site for ameloblastoma.

Among the 64 cases, there were three recurrences: one in the anterior mandible, one in the right posterior gingiva of the mandible, and one in the right posterior mandible. Overall, 61 cases were recurrence-free, with a significant correlation between site and recurrence ($p < 0.05$, specifically $p = 0.0001$). This suggests that certain locations, such as the anterior mandible and right posterior mandible, may be more prone to incomplete excision or recurrence. These results emphasize the importance of meticulous surgical planning to ensure complete resection and minimize recurrence risk, particularly in high-risk regions.

Similar findings were reported by Anyanechi et al. (2023), who also identified the mandible as the most commonly affected site. [14] Furthermore, Shetty et al. (2022) observed a strong predilection for mandibular involvement, particularly in the posterior regions, which further supports the findings of the current study.[16]

4.4. Clinical presentation and tumor behavior

In the present study, 47% of patients reported painful swelling as the most common symptom, followed by swelling without pain (34%) and pain without swelling (19%). The predominance of painful swelling may suggest a more aggressive tumor behavior, potentially due to local invasion, and could indicate larger, more invasive tumors that require more urgent intervention. This finding underscores the importance of early detection and prompt intervention, especially in cases presenting with pain, which may signal a more aggressive or advanced tumor. In contrast, Rajeshwar et al. (2013) identified asymptomatic hard swelling as the primary clinical manifestation of the condition.[10]

4.5. Histopathological patterns and prevalence

In the present study, unicystic ameloblastoma was the most frequently encountered variant, comprising 53.1% of cases, followed by the plexiform type (21.8%) and the follicular type (12.5%). Within the unicystic category, the luminal subtype was the most common, accounting for 28.1% of cases. These findings are noteworthy, as unicystic ameloblastomas, particularly the luminal subtype, are generally considered to have a more favorable prognosis due to their less aggressive behavior compared to solid types. The high prevalence of unicystic ameloblastoma in this cohort may reflect regional or population-specific variations in the tumor's characteristics. This suggests that more conservative treatment options, such as enucleation with decompression, may be appropriate for many patients in this population, potentially leading to better long-term outcomes.

Similar findings were reported by Rajeshwar et al. (2013), who also found unicystic ameloblastoma to be the most common subtype.[10] In contrast, Giraddi et al. (2017) identified solid/multicystic ameloblastoma as the most common subtype, which differs from the current study's findings, where unicystic variants were more prevalent.[17] Additionally, Ramakanth et al. (2022) found follicular ameloblastoma to be the most common type (49%), followed by unicystic at 33.3%, which contrasts with the present study, where unicystic ameloblastoma, particularly the luminal subtype, was more commonly observed.[13] Similarly, Anyanechi et al. (2023) reported follicular ameloblastoma as the most common, followed by the plexiform subtype, further contrasting with the current study, where unicystic ameloblastoma, especially the luminal variant, was more frequently observed.[14]

4.6. Treatment modalities and recurrence

Treatment strategies in the present study varied depending on tumor subtype. Enucleation with decompression was primarily used for unicystic tumors, while more aggressive cases, such as the plexiform variant, were treated with en bloc resection. In terms of biological traits, the vast majority, comprising 95.3% (61 cases), were non-recurrent, while the remaining 4.7% (3 cases) exhibited recurrence. The recurrence might be attributed to several factors: inadequate clearance during en bloc resection in cases of acanthomatous ameloblastoma, residual remnants following conservative treatment involving enucleation and decompression in cases of unicystic intraluminal ameloblastoma, and incomplete surgical excision in cases of peripheral ameloblastoma.

In contrast, Rajeshwar et al. (2013), reported a higher recurrence rate associated with follicular ameloblastoma followed by unicystic which is in contrast to the present study, recurrence was observed across different subtypes, including acanthomatous, peripheral, and unicystic, highlighting the complexity of ameloblastoma management and the importance of subtype-specific treatment and careful postoperative monitoring.[10] On the other hand, Tatapudi et al. (2014)[11] and Geetha et al. (2022),[15] did not report recurrence, making this an important distinction from the present study, where recurrence data is a key aspect of the management strategy. These findings emphasize the need for tailored treatment strategies based on the specific histological subtype, with more radical surgical approaches, such as en bloc resection, recommended for aggressive forms to reduce the likelihood of recurrence.

Overall, the divergent outcomes observed in the present investigation compared to the research conducted by other scholars underscore the fluctuation in the occurrence and attributes of ameloblastoma across diverse geographical areas and populations. It is crucial to acknowledge that the

present study encompasses a distinct sample size in contrast to the other studies, potentially impacting the outcomes.

The variation in the predominant type of ameloblastoma identified in this research, in contrast to previous studies, may be ascribed to a range of factors including genetic variances, environmental influences, and disparities in diagnostic criteria and methodologies. Additionally, it is plausible that the distribution of ameloblastoma types may differ across various regions or populations.

The present study has revealed a significantly higher occurrence of unicystic ameloblastoma compared to previous studies, indicating that this particular subtype may be more prevalent within the specific population under investigation. This noteworthy discovery holds potential implications for the accurate diagnosis, treatment strategies, and prognosis within the region.

The variation in the prevalence of ameloblastoma between males and females noted in this research in contrast to previous studies is intriguing. The underlying reasons for this dissimilarity remain uncertain, as it could be attributed to biological elements like hormonal effects, or potentially affected by external factors like referral practices or healthcare accessibility.

The discrepancy in the recurrence rates between the present study and the research conducted by various authors could be attributed to differences in follow-up periods, treatment modalities, or patient characteristics. Further research is needed to explore these differences and determine the factors that contribute to recurrence rates in ameloblastoma.

Overall, these contrasting findings emphasize the need for further research and collaboration to better understand the epidemiology, pathogenesis, and management of ameloblastoma. It is crucial to consider regional and population-specific factors when studying this tumor to ensure accurate diagnosis, appropriate treatment, and improved patient outcomes.

5. Conclusion

The findings of the present retrospective study concluded that the unicystic type of ameloblastoma is prevalent among the regional population under investigation and the treatment decisions guided by histopathological analysis have enabled healthcare providers to administer suitable interventions with favorable outcomes and minimal risk of recurrence.

6. Ethical Committee Approval

The present study was approved by the Institution Ethics Committee and has been allotted the IEC number KIDS/IEC/OP/2024/07.

7. Source of Funding

None.

8. Conflict of Interest

None.

References

1. de Assis EM, Gomes HE, de Sousa FEM, Brener S, Leal RM, Souza PEA et al. Recurrent peripheral ameloblastoma in an elderly patient: A case report. Gerodontology. 2019;36(1):78–81.
2. Ivey RH, Churchill HR. The need of a standardized surgical and pathological classification of tumors and anomalies of dental origin. Am Assoc Dent Sch Trans 1930;7:240–5.
3. Masthan KM, Anitha N, Krupaa J, Manikkam S. Ameloblastoma. J Pharm Bioallied Sci. 2015;7(1):167–70.
4. Cusack JW. Report of the amputations of the lower jaw. Dubl Hosp Rec 1827;4:1–38.
5. Malassez L. Sur Le role des debris epitheliaux papdentaires. Arch Physiol Norm Pathol 1885;5:309–40.
6. Lomi M, Radhakrishnan S, Jimsha VK, Ramesh V, Daniel MJ. Ameloblastoma of the mandible: A case series. Int J Oral Health Dent. 2018;4(4):242–6.
7. Soluk-Tekkesin M, Wright JM. The World Health Organization Classification of Odontogenic Lesions: A Summary of the Changes of the 2022 (5th) Edition. Turk Patoloji Derg. 2022;38(2):168–84.
8. Pizer ME, Page DG, Svirsky JA. Thirteen-year follow-up of large recurrent unicystic ameloblastoma of the mandible in a 15-year-old boy. J Oral Maxillofac Surg 2002;60(2):211–5.
9. Iordanidis S, Makos C, Dimitrakopoulos J, Kariki H. Ameloblastoma of the maxilla. Case report Aust Dent J. 1999;44(1):51–5
10. Chawla R, Ramalingam K, Sarkar A, Muddiah S. Ninety-one cases of ameloblastoma in an Indian population: A comprehensive review. J Nat Sc Biol Med. 2013;4(2):310–5.
11. Tatapudi R, Samad S, Reddy R, Boddu N. Prevalence of ameloblastoma: A three-year retrospective study. J Indian Acad Oral Med Radiol. 2014;26(2):145–51.
12. Rusdiana, Sandini SU, Vitria EE, Santoso TI. Profile of ameloblastoma from a retrospective study in Jakarta, Indonesia. J Dent Indones. 2013;18(2):27–32.
13. Dandriyal R, Lal V, Giri KY, Bavanthabettu NI, Chaurasia A, Pant S. Ameloblastoma: Retrospective Study and Analysis of 102 Cases Over 10 Years, Single Centre, Institutional Experience. J Maxillofac Oral Surg. 2022;21(2):730–8.
14. Anyanechi CE, Shetty SS. Ameloblastoma of the jaws in adult: A retrospective review of local recurrent lesions based on the resection margin in the adjacent apparent healthy tissues. Heliyon. 2023;9(5):e16243. doi: 10.1016/j.heliyon.2023.e16243
15. Kumari MG, Kumar V, Kumar U, Dutta A, Abhinandan, Sufia. Retrospective analysis of Ameloblastoma: An institutional experience. Oral Maxillofac Pathol J. 2022;13(2):105–108.
16. Shetty UA, Pousya VS, Bhandary S, Gadkari SN, Paiwal K, Rajendrakumar PN. Ameloblastoma – A rigorous odontogenic tumours of the jaws. Int J Health Sci. 2022;6(5):8736–47.
17. Giraddi GB, Arora K, Saifi AM. Ameloblastoma: A retrospective analysis of 31 cases. J Oral Biol Craniofac Res. 2017;7(3):206-11.

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