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Clinicopathological and Radiographic Patterns of Pediatric Ameloblastoma in Lagos, Nigeria

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Abstract

Background: Pediatric ameloblastoma is an uncommon odontogenic tumor that demonstrates clinicopathologic characteristics distinct from adult cases. Precise delineation of demographic distribution, anatomic predilection, radiographic presentation, and histopathologic subtypes is essential for risk-adapted surgical planning and improved long-term outcomes. ***Objective:*** To characterize the demographic, clinical, radiographic, and histopathological features of ameloblastoma in children and adolescents treated at a tertiary referral center in Lagos State, Nigeria, and to evaluate predictors of biologic tumor type. ***Methods:*** A retrospective cross-sectional study was conducted among 63 patients ≤ 18 years diagnosed with ameloblastoma between 2013 and 2025. Data collected included age, sex, duration of symptoms, tumor site, radiographic appearance, and histopathologic classification according to the 2022 WHO criteria. Associations between biologic type [unicystic vs. conventional] and clinical variables were examined using chi-square or Fisher's exact tests. Binary logistic regression analysis was performed to identify independent predictors of conventional ameloblastoma among 59 cases with specified classification. ***Results:*** The majority of patients were aged 11–15 years [42.9%], followed by 16–18 years [38.1%]; no cases occurred below 6 years. Males predominated [63.5%]. Tumors overwhelmingly involved the mandible [90.5%], with maxillary lesions accounting for 3.2%. Conventional ameloblastoma constituted 49.2% of cases, unicystic ameloblastoma 44.4%, and 6.3% were unspecified. Plexiform architecture predominated among conventional tumors [25.4% of total cohort], whereas the mural variant was most frequent among unicystic lesions [22.2%]. Radiographic appearance demonstrated a strong association with biologic type: 96.4% of unicystic tumors were unilocular, while 96.8% of conventional tumors were multilocular [$p < 0.001$]. On multivariable analysis, increasing age [OR 1.328 per year; 95% CI 1.067–1.654; $p = 0.011$], male sex [OR 4.208; 95% CI 1.516–11.681; $p = 0.006$], and multilocular radiographic pattern [OR 133.2; 95% CI 12.61–1407.3; $p < 0.001$] independently predicted conventional ameloblastoma. Duration of symptoms was not significantly associated with biologic type**.** ***Conclusion:*** Pediatric ameloblastoma in this cohort demonstrated teenage predominance, significant male preponderance in conventional tumors, and marked mandibular localization. Conventional ameloblastoma slightly exceeded unicystic ameloblastoma. Multilocular radiographic appearance, older age, and male sex were strong independent predictors of conventional histology. These findings underscore the importance of integrating demographic and imaging features with histopathologic classification to guide surgical decision-making in pediatric patients.

Keywords: Pediatric ameloblastoma, odontogenic tumor, histopathology, Radiography.

INTRODUCTION

Ameloblastoma is the most common benign odontogenic tumor, arising from tooth-forming tissues, and represents a significant proportion of jaw tumors, accounting for 13–54% of all cases across age groups, with a peak incidence in the third and fourth decades of life [1]. Despite its overall prevalence, ameloblastoma comprises only approximately 1% of all oral tumors [2,3]. In pediatric populations, the tumor is relatively rare, representing merely 10–15% of reported cases [1,2,4], yet it poses unique clinical and therapeutic challenges due to differences in tumor behavior, craniofacial growth considerations, and recurrence patterns compared to adults. Anatomically, the mandible is affected in approximately 80% of cases, while the maxilla accounts for the remaining 20% [1,2]. Although ameloblastoma is histologically benign, it is locally aggressive and can cause significant destruction of jaw structures if not appropriately managed. The 2022 World Health Organization [WHO] classification categorizes ameloblastoma into four major subtypes: conventional, unicystic, extraosseous/peripheral, and metastasizing [2,5]. Among these, unicystic ameloblastomas are further subclassified based on the degree of mural infiltration into adjacent bone, a distinction that carries important implications for surgical planning and prognosis [4,5].

Pediatric ameloblastoma presents a particularly complex clinical scenario. Studies indicate that the unicystic subtype predominates in children, accounting for approximately 76.5% of cases [6,7]. Despite the relatively indolent histopathology, pediatric cases exhibit higher recurrence rates than adult cohorts, emphasizing the need for careful treatment planning and prolonged follow-up [6,7]. This observation highlights a critical gap in the literature: while the general characteristics of ameloblastoma are well described, evidence specific to pediatric populations—especially regarding subtype distribution, recurrence patterns, and optimal management strategies—remains limited.

At the molecular level, ameloblastoma pathogenesis involves multiple dysregulated signaling pathways, including sonic hedgehog [SHH], mitogen-activated protein kinase [MAPK], and WNT/β-catenin, which interact with gene mutations and cytogenetic alterations to drive oncogenic transformation of odontogenic epithelium and dental lamina remnants [8,9]. Understanding these pathways not only informs the biological behavior of the tumor but also has potential implications for targeted therapies, which remain largely unexplored in pediatric populations.

The locally aggressive nature and high recurrence potential of ameloblastoma significantly influence surgical management. Current recommendations suggest resection margins of at least 1 cm of clinically normal bone to minimize recurrence risk [10]. Radiographically, ameloblastomas typically present as multilocular, cyst-like radiolucencies with well-defined borders; however, in children, unilocular presentations are more common, underscoring the need for careful imaging assessment during diagnosis and treatment planning [11]. Clinically, the tumor usually manifests as a slowly enlarging jaw swelling that may result in cortical expansion, tooth displacement, and increased mobility [12].

Treatment strategies range from conservative approaches, such as enucleation and curettage, to more extensive surgical resections. In pediatric patients, clinicians must carefully balance the risk of recurrence against the potential adverse effects of aggressive surgery, including disruption of craniofacial growth, dental development, and long-term function [12]. Despite these considerations, there is a paucity of large, well-characterized pediatric case series, and current evidence is largely derived from adult studies or small pediatric cohorts. This gap underscores the urgent need for focused research on pediatric ameloblastoma, particularly studies that comprehensively evaluate clinical, radiographic, and histopathological features to guide evidence-based management. This study aimed to describe the demographic, clinical, radiographic, and histopathological characteristics of ameloblastoma in children and adolescents in Lagos State.

METHODS

Study Design and Setting

This study was designed as a retrospective cross-sectional review of pediatric ameloblastoma cases diagnosed at the Oral Pathology Department of the Lagos State University College of Medicine [LASUCOM], Ikeja, Nigeria. The Oral Pathology laboratory receives biopsy specimens from the Oral and Maxillofacial Surgery Clinic of Lagos State University Teaching Hospital [LASUTH], a tertiary referral center serving Lagos State and surrounding regions. All eligible cases diagnosed between January 2013 and June 2025 were included.

Case Identification and Eligibility Criteria

Laboratory records were systematically searched to identify all cases of ameloblastoma diagnosed in patients aged ≤ 18 years at the time of diagnosis. Sixty-three biopsy records that met the age and diagnosis criteria were initially identified. Each record was reviewed to ensure completeness and avoid duplication. Records were excluded if they contained incomplete essential demographic or clinical data, represented repeated biopsies from the same lesion, or corresponded to recurrent tumors previously diagnosed and treated. Following the application of these criteria, 59 unique primary patient biopsies were retained for the final analysis.

Data Collection and Variable Definition

Data were extracted from histopathology reports, laboratory records, and accompanying clinical request forms using a structured data-abstraction instrument. Extraction was performed by trained research personnel, and entries were cross-checked for accuracy before the statistical analysis.

The demographic variables included age at diagnosis [recorded in completed years] and sex. Age was analyzed as a continuous variable and categorized into three predefined groups [6–10, 11–15, and 16–18 years] for descriptive and comparative analyses. The clinical variables included the duration of symptoms before presentation, recorded in years, and the anatomical location of the lesion, categorized as mandible, maxilla, or not specified. The radiographic appearance was classified as unilocular or multilocular based on documented imaging reports. The histopathological variables included biological type [unicystic or conventional ameloblastoma] and histological variant, as reported in the original pathology diagnosis.

Ethical Considerations

Ethical approval for this study was obtained from the Lagos State University Teaching Hospital Institutional Review Board. This study adhered to the principles outlined in the Declaration of Helsinki. As this investigation involved a retrospective review of existing medical records, informed consent was waived by the ethics committee of our institution. All patient identifiers were removed before data analysis to ensure confidentiality of the data.

Statistical Analysis

Data were entered and analyzed using IBM SPSS Statistics for Windows, Version 26.0 [IBM Corp., Armonk, NY, USA]. Descriptive statistics were computed to summarize the demographic, clinical, radiographic, and histopathological characteristics. Continuous variables, including age and symptom duration, were reported as means with standard deviations and ranges, where applicable. Categorical variables, including sex, age group, lesion location, radiographic appearance, biological type, and histological variant, were presented as frequencies and percentages. Associations between categorical variables and biologic type [unicystic versus conventional] were assessed using Pearson's chi-square test when all expected cell counts were at least five. Fisher's exact test was used when the expected cell counts were less than five. Cases classified as unspecified were excluded from analyses involving biological type. Variable-specific exclusions were applied where necessary, including cases with unspecified anatomical sites for site analysis and cases with missing duration data for duration analysis. All statistical tests were two-sided, and a p-value of < 0.05 was considered statistically significant.

Binary logistic regression analysis was performed to identify independent predictors of conventional ameloblastoma. Only cases with a specified biological classification were included in this model. Biologic type was coded as a binary outcome variable [0 = unicystic; 1 = conventional cyst]. The independent variables entered into the model included age [continuous, per year increase], sex [male vs. female], radiographic appearance [multilocular vs. unilocular], and symptom duration [continuous, per year increase]. All predictors were entered simultaneously using the Enter method. Regression coefficients [β], standard errors, Wald chi-square statistics, odds ratios [OR], and corresponding 95% confidence intervals [CI] were calculated. Statistical significance was set at $p < 0.05$ for all analyses.

RESULTS

Table 1 shows demographic characteristics of pediatric patients diagnosed with ameloblastoma (n = 59). The age distribution shows that 12 patients (20.3%) were aged 6–10 years, 27 patients (45.8%) were aged 11–15 years, and 20 patients (33.9%) were aged 16–18 years, indicating that the majority of cases occurred during early to mid-adolescence. The sex distribution demonstrated a male predominance, with 37 males (62.7%) and 22 females (37.3%), corresponding to a male-to-female ratio of approximately 1.7:1. Regarding anatomical location, the mandible was the predominant site, accounting for 57 cases (96.6%), while the maxilla accounted for 2 cases (3.4%).

Table 2. Distribution of ameloblastoma cases according to biologic type and histologic variant among pediatric patients (n = 59). Two major biologic subtypes were identified: unicystic ameloblastoma, accounting for 28 cases (47.5%), and conventional ameloblastoma, representing 31 cases (52.5%). Within the unicystic category, the mural variant was the most frequent (20 cases, 33.9% of all tumors and 71.4% of unicystic lesions), followed by the luminal/intraluminal variant (8 cases, 13.6% of all tumors and 28.6% of unicystic lesions). Among conventional ameloblastomas, the plexiform variant predominated (16 cases, 27.1% of all tumors and 51.6% of conventional lesions), followed by the follicular subtype (8 cases, 13.6% of all tumors and 25.8% of conventional lesions). Less frequent variants included plexiform with acanthomatous differentiation (2 cases, 3.4%), while in 5 cases (8.5%) the specific histologic subtype was not specified. Overall, conventional ameloblastoma slightly predominated over the unicystic subtype in this pediatric cohort.

Table 3 summarizes the radiographic appearance stratified by biologic type among 59 cases with specified classification [28 unicystic and 31 conventional]. Among the unicystic ameloblastomas [n = 28], 27

[96.4%] presented as unilocular lesions and one [3.6%] presented as multilocular lesions. Among conventional ameloblastomas [n = 31], 30 [96.8%] were multilocular and one [3.2%] was unilocular. Percentages were calculated within each biological category.

Table 4 presents the duration of symptoms prior to clinical presentation among pediatric patients diagnosed with ameloblastoma (n = 59). The duration of symptoms ranged from 1 to 5 years, with a mean duration of 2.6 ± 1.3 years, indicating that most lesions were present for a prolonged period before clinical consultation. The most frequently reported duration was 2 years (18 cases, 30.5%), followed by 1 year and 3 years, each accounting for 14 cases (23.7%). A smaller proportion of patients presented after 5 years (13.6%) or 4 years (8.5%) of symptoms. Overall, 77.9% of patients reported symptom duration between 1 and 3 years.

Table 5 presents the age and sex distribution stratified by biologic type among the 59 cases with a specified classification. For unicystic ameloblastoma [n = 28], nine cases [32.1%] occurred in the 6–10 years age group [five males, four females], 12 cases [42.9%] in the 11–15 years group [five males, seven females], and seven cases [25.0%] in the 16–18 years group [four males, three females]. The total sex distribution within the unicystic category was 14 males [50.0%] and 14 females [50.0%]. For conventional ameloblastoma [n = 31], three cases [9.7%] occurred in the 6–10 years age group [two males, one female], 12 cases [38.7%] in the 11–15 years group [nine males, three females], and 16 cases [51.6%] in the 16–18 years group [13 males, three females]. The total sex distribution within the conventional category was 24 males [77.4%] and 7 females [22.6%]. Percentages were calculated within each biological category.

Table 6 presents the bivariate analysis examining the association between demographic, clinical, and histopathologic factors and the biologic type of ameloblastoma among 59 pediatric patients. Age distribution differed significantly between biologic types (χ^2 = 6.82, p = 0.033), with unicystic ameloblastoma occurring more frequently in younger children, particularly those aged 6–10 years (9 cases, 32.1%), whereas conventional ameloblastoma was more common among older adolescents aged 16–18 years (16 cases, 51.6%). A statistically significant association was also observed with sex (χ^2 = 4.85, p = 0.028), as conventional ameloblastoma occurred predominantly in males (24 cases, 77.4%), while unicystic lesions showed equal distribution between males and females (14 cases each, 50.0%). Anatomical site was not significantly associated with biologic type (χ^2 = 0.092, p = 1.000), with both variants occurring predominantly in the mandible (25 cases, 89.3% of unicystic lesions; 28 cases, 90.3% of conventional lesions). Radiographic appearance demonstrated the strongest association with biologic type (χ^2 = 51.24, p < 0.001); most unicystic lesions were unilocular (27 cases, 96.4%), whereas the majority of conventional lesions were multilocular (30 cases, 96.8%). Duration of symptoms did not show a statistically significant association with biologic type (χ^2 = 0.80, p = 0.371), with most cases presenting within 1–2 years (13 cases, 46.4% of unicystic lesions; 18 cases, 58.1% of conventional lesions) or 3–5 years (13 cases, 46.4% and 41.9%, respectively). Histologic variant distribution differed significantly between biologic types (χ^2 = 38.47, p < 0.001), with mural variants predominating among unicystic lesions (20 cases, 71.4%) and plexiform variants predominating among conventional ameloblastomas (16 cases, 51.6%). Additional variants among conventional lesions included follicular (8 cases, 25.8%), plexiform with acanthomatous differentiation (2 cases, 6.5%), and cases where the histologic subtype was not specified (5 cases, 16.1%), while luminal/intraluminal variants occurred exclusively among unicystic lesions (8 cases, 28.6%).

Table 7 presents the results of the binary logistic regression analysis, including 59 cases with specified biologic types [31 conventional; 28 unicystic]. Age was associated with an odds ratio [OR] of 1.328 per year increase [β = 0.284; standard error = 0.112; Wald χ^2 = 6.43; p = 0.011; 95% CI: 1.067–1.654]. Male sex [vs female] demonstrated an OR of 4.208 [β = 1.437; standard error = 0.521; Wald χ^2 = 7.61; p = 0.006; 95% CI: 1.516–11.681]. Multilocular radiographic appearance [vs. unilocular] showed an OR of 133.2 [β = 4.892; standard error = 1.203; Wald χ^2 = 16.53; p < 0.001; 95% CI: 12.61–1407.3]. Duration of symptoms [per year increase] yielded an OR of 1.201 [β = 0.183; standard error = 0.167; Wald χ^2 = 1.20; P = 0.273; 95% CI: 0.866–1.665]

Table 1: Demographic Characteristics of Pediatric Patients with Ameloblastoma [n = 59]

Variable	Category	Frequency [n]	Percentage [%]
Age group [years]	6–10	12	20.3
	11–15	27	45.8
	16–18	20	33.9
	Total	**59**	**100**
Sex	Male	37	62.7
	Female	22	37.3
	Total	**59**	**100**
Anatomic site	Mandible	57	96.6
	Maxilla	2	3.4

	Total	**59**	**100**

Table 2: Distribution of Cases by Biologic Type and Histologic Variant [n = 59]

Biologic Type	Histologic Variant	Frequency [n]	Percentage [%]
Unicystic Ameloblastoma	Mural	20	33.9
	Luminal/Intraluminal	8	13.6
	Subtotal	**28**	**47.5**
Conventional	Plexiform	16	27.1
	Follicular	8	13.6
	Plexiform and Acanthomatous	2	3.4
	None specified	5	8.5
	Subtotal	**31**	**52.5**
Total	—	**59**	**100**

Table 3: Radiographic Appearance According to Biologic Type [n = 59]

Biologic Type	Radiographic Appearance	Frequency [n]	Percentage within Biologic Type [%]
Unicystic [n = 28]	Unilocular	27	96.4
	Multilocular	1	3.6
Conventional [n = 31]	Multilocular	30	96.8
	Unilocular	1	3.2

Table 4: Duration of Symptoms Prior to Presentation [n = 59]

Duration [years]	Frequency [n]	Percentage [%]
1	14	23.7
2	18	30.5
3	14	23.7
4	5	8.5
5	8	13.6
Total	**59**	**100**

Mean duration: 2.6 years
Standard deviation: 1.3 years
Range: 1–5 years

Table 5: Age and Sex Distribution by Biologic Type [n = 59]

Biologic Type	Age Group [years]	Male	Female	Total n [%]
Unicystic [n = 28]	6–10	5	4	9 [32.1]
	11–15	5	7	12 [42.9]
	16–18	4	3	7 [25.0]
	Subtotal	**14**	**14**	**28 [100]**
Conventional [n = 31]	6–10	2	1	3 [9.7]
	11–15	9	3	12 [38.7]
	16–18	13	3	16 [51.6]
	Subtotal	**24**	**7**	**31 [100]**

Table 6: Bivariate Analysis of Factors Associated with Biologic Type of Ameloblastoma

Variable	Category	Unicystic [n=28]	Conventional [n=31]	Total [N=59]	Test Value *	p-value
Age Group	6-10 years	9 [32.1%]	3 [9.7%]	12	6.82	0.033
	11-15 years	12 [42.9%]	12 [38.7%]	24		
	16-18 years	7 [25.0%]	16 [51.6%]	23		
Sex	Male	14 [50.0%]	24 [77.4%]	38	4.85	0.028
	Female	14 [50.0%]	7 [22.6%]	21		
Site	Mandible	25 [89.3%]	28 [90.3%]	53	0.092	1.000
	Maxilla	1 [3.6%]	1 [3.2%]	2		
	Not Found	2 [7.1%]	2 [6.5%]	4		
	Unilocular	27 [96.4%]	1 [3.2%]	28	51.24	<0.001

Radiographic Appearance	Multilocular	1 [3.6%]	30 [96.8%]	31		
Duration	1-2 years	13 [46.4%]	18 [58.1%]	31	0.80	0.371
	3-5 years	13 [46.4%]	13 [41.9%]	26		
	Not specified	2 [7.1%]	0 [0.0%]	2		
Histologic Variant	Plexiform	0 [0.0%]	16 [51.6%]	16	38.47	<0.001
	Follicular	0 [0.0%]	8 [25.8%]	8		
	Mural	20 [71.4%]	0 [0.0%]	16		
	Luminal/Intraluminal	8 [28.6%]	0 [0.0%]	8		
	Plexiform and Acanthomatous	0 [0.0%]	2 [6.5%]	2		
	None specified	0 [0.0%]	5 [16.1%]	5		

- Chi Square or Fishers Exact

Table 7: Logistic Regression Analysis of Factors Associated with Conventional [vs. Unicystic] Ameloblastoma [n = 59]

Variable	Coefficient [β]	Standard Error	Wald χ^2	p-value	Odds Ratio	95% Confidence Interval
Age [per year increase]	0.284	0.112	6.43	0.011	1.328	1.067–1.654
Sex [Male vs Female]	1.437	0.521	7.61	0.006	4.208	1.516–11.681
Radiographic appearance [Multilocular vs Unilocular]	4.892	1.203	16.53	<0.001	133.2	12.61–1407.3
Duration [per year increase]	0.183	0.167	1.20	0.273	1.201	0.866–1.665
Constant	-6.847	1.892	13.10	<0.001	0.001	—

DISCUSSION

In this retrospective cohort study of 59 children and adolescents with histologically confirmed ameloblastoma, we observed that the disease predominantly affected older children and teenagers. The highest proportion of cases occurred in the 11–15-year age group (45.8%), followed by 16–18 years (40.7%), with no cases recorded below 6 years. Within the 59 cases with specified biologic classification, increasing age was significantly associated with conventional ameloblastoma on both bivariate analysis ($p = 0.033$) and multivariable logistic regression (OR 1.328 per year increase; 95% CI: 1.067–1.654; $p = 0.011$). There was an overall male predominance (64.4%), and male sex independently predicted conventional ameloblastoma (OR 4.208; 95% CI: 1.516–11.681; $p = 0.006$).

The tumors overwhelmingly involved the mandible (96.6%), with only 3.4% occurring in the maxilla. Radiographically, lesion patterns were strongly associated with biologic type: 96.4% of unicystic tumors were unilocular, whereas 96.8% of conventional tumors were multilocular ($p < 0.001$). These findings add precision to the understanding of pediatric ameloblastoma in our environment and underscore the importance of integrating age, sex, and radiographic architecture into preoperative risk stratification (1, 14).

Our age distribution aligns with previous pediatric series reporting peak incidence in the early to mid-teenage years (11, 14, 16). A prior review documented a mean age of 14.8 years and a male-to-female ratio of approximately 1.6:1 (16). A broader pediatric literature encompassing 233 well-documented cases similarly showed a slight male preponderance (53.6%) (11, 16). While gender predilection has historically been described as weak, our regression analysis suggests that in this cohort, male sex significantly increased the likelihood of conventional disease. This may reflect population-specific patterns or referral dynamics and warrants further investigation in multicenter African cohorts (11, 16). Consistent with established epidemiologic trends, the mandible demonstrated overwhelming predominance, accounting for 96.6% of tumors in our total cohort, paralleling reports of greater than 90% mandibular involvement in several pediatric series (15, 18, 19). The posterior mandible remains the most commonly affected site in children, a pattern attributed to odontogenic epithelial remnants associated with developing molars (1, 15, 17–19). In contrast to some Western pediatric cohorts where unicystic lesions predominate, African pediatric series frequently report higher proportions of solid/multicystic tumors (2, 7, 8, 14, 21, 24). Under the 2022 WHO classification, these correspond to conventional ameloblastomas (13). Our finding that conventional ameloblastoma slightly exceeded unicystic ameloblastoma supports this regional trend and reinforces the need for careful surgical planning in the African pediatric population.

Histopathologically, conventional ameloblastoma constituted 52.5% of the cases, while unicystic ameloblastoma comprised 47.5%. Within the unicystic category, the mural variant was the most common (33.9% of all tumors and 71.4% of unicystic), whereas plexiform architecture predominated among conventional tumors (27.1% of all tumors and 51.6% of conventional lesions). These distributions are clinically significant. Mural unicystic ameloblastomas exhibit epithelial proliferation penetrating the fibrous wall and may behave similarly to conventional tumors in terms of invasiveness and recurrence risk (16, 21). Several studies have demonstrated higher recurrence rates following

simple enucleation for mural lesions than for luminal or intraluminal variants (16, 17, 21–23). Our data further demonstrated a statistically significant association between histologic variants and biologic categories ($p < 0.001$), reinforcing that histologic architecture is not merely descriptive but prognostically relevant. These findings support pathology-driven treatment algorithms and careful intraoperative margin assessment (7, 16,17). Radiographically, our findings diverged from the traditional notion that imaging patterns substantially overlap between the biological types. In contrast to prior reports indicating that unilocular and multilocular appearances may be seen across both conventional and unicystic lesions (7,15,16), our cohort demonstrated near-perfect segregation: almost all unicystic tumors were unilocular (96.4%), whereas almost all conventional tumors were multilocular (96.8%). Radiographic appearance showed the strongest association with biologic type in both bivariate analysis ($\chi^2 = 51.24$; $p < 0.001$) and multivariable regression (OR 133.2; 95% CI: 12.61–1407.3; $p < 0.001$). Although the wide confidence interval reflects sample size constraints, the magnitude of the association suggests that multilocularity in this population is highly predictive of conventional disease. Nevertheless, histopathological confirmation remains indispensable, particularly given rare exceptions (one unilocular conventional and one multilocular unicystic lesion in this series), which underscore the risk of relying solely on imaging (7, 16, 17).

Symptom duration ranged from 1 to 5 years, with a mean of 2.6 ± 1.3 years among cases with specified data. Despite this relatively prolonged interval before presentation, the duration was not significantly associated with the biologic type in either bivariate or multivariate analyses ($p = 0.371$ and $p = 0.273$, respectively). This finding suggests that while delayed presentation remains a clinical concern, particularly in resource-limited settings, it may not independently determine the tumor subtype. However, intrinsic tumor biology and host factors may play more decisive roles. Nevertheless, the protracted duration highlights persistent barriers to early diagnosis, including limited access to specialist care and delayed referral pathways (14).

Strengths and Limitations

This study benefits from a relatively large single-institution pediatric cohort analyzed using the 2022 WHO classification framework [13], with comprehensive integration of demographic, radiographic, and histopathological data. The inclusion of multivariable logistic regression strengthens the inference regarding the independent predictors of biological type. Limitations include its retrospective design, possible referral bias inherent to a tertiary center, incomplete documentation in a small subset of cases, and the absence of long-term recurrence or survival data. The wide confidence interval for radiographic predictors reflects the limited sample size and underscores the need for larger multicenter analyses.

CONCLUSION

Pediatric ameloblastoma in this cohort demonstrated a predominance in teenagers, a significant male preponderance in conventional disease, and marked mandibular localization. Conventional ameloblastoma slightly exceeded unicystic ameloblastoma, consistent with African pediatric trends. Increasing age, male sex, and multilocular radiographic appearance independently predicted conventional histology, whereas symptom duration did not predict it. Plexiform and mural variants predominated in their respective biological categories. These findings reinforce the central role of histopathological classification in guiding surgical management and highlight the value of integrating demographic and radiographic predictors into risk-adapted treatment strategies.

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