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ORIGINAL ARTICLE

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Sociodemographic and clinical characteristics of 380 cases of odontogenic lesions in a Brazilian population

Abstract:

Objective: Describe the sociodemographic and clinical characteristics related to odontogenic cysts and tumors in a population from the state of Espírito Santo, Brazil. **Methods:** All cases of odontogenic cysts and tumors diagnosed at the Oral Pathological Anatomy Service (SAP) of the *Universidade Federal do Espírito Santo* (UFES) between 2004 and 2022 were selected. The lesions were categorized according to the 2022 WHO classification. The frequency of cysts and tumors was calculated and the following information was collected: age, sex and skin color of the patients, presence of signs and symptoms, and specific lesion data such as radiographic appearance, location, size, association with unerupted teeth, tooth displacement and root resorption, whether the lesion corresponds to a recurrence, and treatment modality. **Results:** Cysts were more frequent than odontogenic tumors, especially radicular cysts. Ameloblastomas and cemento-ossifying fibroma were the most common odontogenic tumors. **Conclusion:** This study contributes to a better understanding and differentiation of odontogenic lesions, supporting dentists in the diagnostic process and treatment of these pathologies.

Keywords: Odontogenic cyst, Odontogenic tumor, Oral pathology, Cross-sectional study.

INTRODUCTION

Odontogenic lesions are an important group of oral and maxillofacial pathologies, which arise from epithelial and/or ectomesenchymal remnants of odontogenesis[1]. These lesions have been the subject of studies because of their broad diversity of sociodemographic, clinical, morphological, and molecular characteristics and variable biological behavior[2].

Conflict of interest statement
The paper presents a characterization of the sociodemographic and clinical aspects of odontogenic cysts and tumors in a Brazilian population, with the aim of contributing to greater knowledge among dentists for the diagnostic process and treatment of these lesions.

Odontogenic cysts (OCs) are the most common lesions affecting the maxillomandibular complex and can be classified into developmental and inflammatory OC[3]. Odontogenic tumors (OTs) are classified according to the neoplastic tissue component as epithelial, mixed, or ectomesenchymal tumor[3]. Studies investigating the frequency of diagnosis of OCs and OTs at Brazilian pathological anatomy services found a higher prevalence of cystic lesions compared to tumors in the populations evaluated[4-6].

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The World Health Organization (WHO) classification of OCs and OTs is already in its fifth edition. Each edition has seen changes regarding the emergence of new entities, the classification as a cyst or tumor, the epithelial, ectomesenchymal or mixed origin, the nature (benign or malignant), the categorization of distinct histological types, and the addition of new clinicopathological and molecular features resulting from scientific evidence accumulated over the years[3].

Some odontogenic lesions can make tooth eruption difficult or completely impair it[7] and can cause the loss of pulp vitality[8], root resorption, and tooth displacement[9]. An aggressive and destructive behavior in the gnathic bones has also been reported in some cases[10].

Understanding the clinicopathological characteristics of odontogenic lesions is fundamental for the early diagnosis, differential diagnosis, and initiation of the most appropriate treatment. It is important to emphasize that some clinical parameters may vary according to geographic region and ethnic group[11]. Within this context, the present study describes 380 cases of OC and OT in a Brazilian population, characterizing them according to sociodemographic and clinical features.

METHODS

The study was approved by the Institutional Ethics Committee (CAAE: 74513823.0.0000.5060) and was conducted in accordance with the Declaration of Helsinki. This was a descriptive, analytical, retrospective cross-sectional study of all cases of OC and OT diagnosed and stored at the Oral Pathological Anatomy Service (SAP) of the *Universidade Federal do Espírito Santo* (UFES) over the period from 2004 to 2022. These cases were categorized into different types of cysts and tumors following the latest WHO classification[3].

Cases with insufficient information regarding sociodemographic and clinical aspects were excluded. Odontogenic keratocyst (OK) associated with nevoid basal cell carcinoma syndrome or cases with the same histopathological diagnosis in different anatomical locations were excluded.

Sociodemographic and clinical data were obtained from the anatomopathological request forms and patient records. The sociodemographic data collected included the age, sex, and skin color of the patients. Clinical information consisted of the presence of signs and symptoms, as well as specific lesion data such as radiographic appearance, location, size, association with unerupted teeth, tooth displacement and root resorption, whether the lesion corresponded to a recurrence, and the surgical technique used in cases submitted to excisional biopsy. The data were analyzed descriptively.

RESULTS

A total of 3,376 lesions were diagnosed in the oral and maxillofacial region over the period from 2004 to 2022. The largest number of diagnoses was made between 2013 and 2019 and OC cases (8.67%, n=293) were more frequent than OT cases (2.57%, n=87) (Table 1).

Sociodemographic and clinical data of inflammatory odontogenic cysts

Radicular cysts (RCs) were more frequent (n=166) than collateral cysts (CCs) (n=14). There were nine cases of residual RC. Among CCs, two (14.28%) were buccal bifurcation cysts and nine (64.28%) were paradental cysts. The type or location was not specified in three CC cases (21.42%).

Table 1. Cases of odontogenic lesions diagnosed at the Oral Pathological Anatomy Service (SAP) of *Universidade Federal do Espírito Santo* over the period from 2004 to 2022.

Year	Lesions in the oral and maxillofacial region (100%)	Odontogenic cysts (%)	Odontogenic tumors (%)
2004	80	6 (7.5)	3 (3.75)
2005	129	17 (13.17)	2 (1.55)
2006	128	12 (9.37)	2 (1.56)
2007	130	13 (10)	2 (1.53)
2008	107	11 (10.28)	5 (4.67)
2009	95	15 (15.78)	5 (5.26)
2010	128	6 (4.68)	3 (2.34)
2011	175	17 (9.71)	4 (2.28)
2012	122	6 (4.91)	2 (1.63)
2013	200	16 (8)	5 (2.5)
2014	241	15 (6.22)	9 (3.73)
2015	288	36 (12.5)	15 (5.20)
2016	321	27 (8.41)	12 (3.73)
2017	338	33 (9.76)	4 (1.18)
2018	342	26 (7.60)	7 (2.04)
2019	334	15 (4.49)	4 (1.19)
2020	12	0	0
2021	69	4 (5.79)	1 (1.44)
2022	137	18 (13.13)	2 (1.45)
Total	3,376	293 (8.67)	87 (2.57)

The mean age of patients affected by RCs was 43.93 (9 to 83 years) and that of patients affected by CCs was 31.61 (8 to 66 years). Age was not reported in 20 RC cases and in one CC case. RCs equally affected males and females, while there was a predominance of males among CC cases (64.28%, n=9). White skin color predominated among RC (41.56%, n=69) and CC (42.85%, n=6) cases. This information was not available in 30 cases of RC.

The clinical and radiographic data are presented in Table 2.

Pain was reported in only one CC case.

Among the inflammatory OCs, one RC was associated with tooth displacement and five cases with root resorption and with impacted or semi-impacted teeth. Among CC cases, 50% were associated with unerupted teeth.

When indicated, the surgical technique used for RCs was enucleation or curettage, followed or not by apicoectomy and tooth extraction combined with removal of the lesion. In some cases, decompression of the RC was performed prior to enucleation. Enucleation or curettage was used for CCs. No cases of recurrence were reported.

Table 2. Clinical and radiographic data of inflammatory odontogenic cysts.

Variables	RC (n=166) (%)	CC (n=14) (%)
Location		
Anterior mandible	20 (12.04)	0
Posterior mandible	37 (22.28)	11 (78.57)
Anterior maxilla	43 (25.90)	0
Posterior maxilla	24 (14.45)	2 (14.28)
Anteroposterior mandible	3 (1.80)	0
Anteroposterior maxilla	15 (9.03)	0
Not reported	24 (14.45)	1 (7.14)
Size (cm)		
Mean	1.90	1.31
Range	0.07–6	0.4–2
Not reported	85	5
Radiographic appearance (Locularity)		
Unilocular	166 (100)	14 (100)
Multilocular	0	0
Radiographic appearance (Radiodensity)		
Radiolucent	166 (100)	14 (100)
Radiopaque	0	0
Mixed	0	0

RC: radicular cyst; CC: collateral cyst.

Sociodemographic and clinical data of developmental odontogenic cysts

Odontogenic keratocyst (OK; n=70) and dentigerous cyst (DC; n=32) were the most common. The sample also included cases of glandular odontogenic cyst (GOC; n=7), calcifying odontogenic cyst (COC; n=2), and botryoid odontogenic cyst (BOC; n=2). Among DCs, one case was an eruption cyst, the soft tissue counterpart of DC. The lowest mean age (22.67 years, range: 1 to 77 years) was observed for DC, followed by OK (31.91 years, range: 8 to 84 years) BOC (37 years, range: 13 to 61 years), GOC (54.42 years, range: 46 to 81 years), and COC (57 years). Age was not reported in some cases of DC, COC, and OK.

There was a predominance of males in DC (65.62%, n=21), COCs (100%, n=2), BOCs (100%, n=2), and OKs (55.71%, n=39), while GOCs were more common among females (57.14%; n=4). Patients with white skin color were the most affected, corresponding to 40.62% (n=13) of DCs, 50% (n=1) of COCs, 42.85% (n=3) of GOCs, 50% (n=1) of BOCs, and 55.71% (n=39) of OKs. Information on sex was not available in some OK cases and skin color was not reported in some cases of DC and OK.

The clinical and radiographic data are presented in Table 3.

Painful symptoms were more common among OK cases.

Regarding imaging findings, five OKs, one BOC and one DC were associated with tooth displacement. Root resorption was observed in four OKs and one COC. An association with unerupted teeth was found in cases of DC and OK.

Enucleation alone or combined with decompression and marsupialization, enucleation with curettage, curettage alone, and even partial resection were the surgical techniques used in cases of developmental OCs. All cases submitted to enucleation with curettage were OKs and those submitted to partial resection were GOCs. However, this information was available in only 15 cases. Cases of recurrent lesions were found among GOCs (42.85%, n=3) and OKs (4.28%, n=4).

Sociodemographic and clinical data of benign odontogenic tumors

Ameloblastoma (AMB) was the most common OT of epithelial origin (69.38%, n=34). The mean age of patients with unicystic ameloblastoma (UA; 27.66 years, range: 8 to 61 years) was lower than that of patients with AMB (34.12 years, range: 11 to 78 years) and adenomatoid odontogenic tumor (AOT; 38 years). In general,

Table 3. Clinical and radiographic data of developmental odontogenic cysts.

Variables	DC (n=32) (%)	COC (n=2) (%)	GOC (n=7) (%)	BOC (n=2) (%)	OK (n=70) (%)
Location					
Anterior mandible	2 (6.25)	0	0	1 (50)	6 (8.57)
Posterior mandible	18 (56.25)	0	3 (42.85)	1 (50)	38 (54.28)
Anterior maxilla	5 (15.62)	1 (50)	0	0	7 (10.0)
Posterior maxilla	2 (6.25)	0	0	0	7 (10.0)
Anteroposterior mandible	2 (6.25)	1 (50)	4 (57.14)	0	5 (7.14)
Anteroposterior maxilla	0	0	0	0	3 (4.28)
Hemimaxilla	0	0	0	0	1 (1.42)
Not reported	3 (9.37)	0	0	0	3 (4.28)
Size (cm)					
Mean	1.58	4.3	2.32	1.5	3.26
Range	0.04–5	4.3	0.3–4.5	1.5	0.3–10
Not reported	19	1	3	1	47
Radiographic appearance (Locularity)					
Unilocular	32 (100)	0	0	1 (50)	4 (5.71)
Multilocular	0	0	3 (42.85)	0	8 (11.42)
Not reported	0	2 (100)	4 (57.14)	1 (50)	58 (82.85)
Radiographic appearance (Radiodensity)					
Radiolucent	32 (100)	1 (50)	7 (100)	1 (50)	70 (100)
Radiopaque	0	0	0	0	0
Mixed	0	0	0	0	0
Not reported	0	1 (50)	0	1 (50)	0

DC: dentigerous cyst; COC: calcifying odontogenic cyst; GOC: glandular odontogenic cyst; BOC: botryoid odontogenic cyst; OK: odontogenic keratocyst.

there was a predominance of these tumors in females, corresponding to 61.8% (n=21) of AMB cases, 61.5% (n=8) of UA cases, and one case of AOT. Calcifying epithelial odontogenic tumor (CEOT) occurred in a male patient. AMBs were more common in patients with white skin color (32.4%, n=11) and UAs in patients with brown skin color (46.2%, n=6). Among AMB cases, there were nine recurrent AMBs (26.47%) and four recurrent UAs (30.76%). Information on skin color was not available in cases of AMB, UA and CEOT. shows the clinical and radiographic characteristics of these tumors. Symptoms were reported only in some cases of AMB (14.7%, n=5) and UA (7.69%; n=1). This information was missing for the majority of tumors. The clinical and radiographic data are presented in Table 4.

Tooth displacement was present in four cases of AMB and two cases of UA; root resorption was found in eight cases of AMB and three cases of UA. Four cases of UA and one case of AMB were associated with unerupted teeth. This information was reported for a few cases.

The surgical techniques used were varied. Cases of AMB were submitted to segmental resection followed by peripheral osteotomy, partial resections, and enucleation with curettage. Enucleation was also reported for UA and CEOT.

Cemento-ossifying fibroma (COF) was the most common mesenchymal OT. There was a wide age range among cases, with the lowest mean age in myxoma (31.55 years, range: 17 to 58 years) and COF (39.7 years, range: 14 to 54 years). Odontogenic fibroma was diagnosed in a 35-year-old patient and cementoblastoma in a 42-year-old patient. Ten cases (83.33%) of COF and all other mesenchymal tumors affected females. Six cases (50%) of COF occurred in patients with white skin color, cementoblastoma occurred in a black patient, and the myxoma cases were equally distributed between brown and black patients. Age data were missing in two cases of COF and data on skin color in one case of COF and in the odontogenic fibroma case. One case of COF was a recurrence.

Table 5 shows the clinical and radiographic characteristics of mesenchymal OTs. Symptoms were reported in the COF and myxoma cases.

Tooth displacement and root resorption were observed in the myxoma cases. One COF case was

Table 4. Clinical and radiographic data of benign epithelial odontogenic tumors.

Variables	AMB (n=34) (%)	UA (n=13) (%)	AOT (n=1) (%)	CEOT (n=1) (%)
Location				
Anterior mandible	4 (11.8)	2 (15.4)	1 (100)	0
Posterior mandible	18 (52.9)	8 (61.5)	0	1
Anterior maxilla	0	0	0	0
Posterior maxilla	3 (8.8)	0	0	0
Hemimaxilla	0	0	0	0
Hemimandible	8 (23.6)	2 (15.4)	0	
Not reported	1 (2.9)	1 (7.70)	0	0
Size (cm)				
Mean	5.01	2.1	0	1.8
Range	0.6–20	0.2–6	0	1.8
Not reported	0	0	1 (100)	0
Radiographic appearance (Locularity)				
Unilocular	10 (29.4)	8 (61.5)	0	0
Multilocular	13 (38.2)	3 (23.1)	0	0
Not reported	11 (32.4)	2 (15.4)	1 (100)	1 (100)
Radiographic appearance (Radiodensity)				
Radiolucent	34 (100)	11 (84.6)	0	0
Radiopaque	0	0	0	0
Mixed	0	0	1 (100)	0
Not reported	0	2 (15.4)	0	1 (100)

AMB: ameloblastoma; UA: unicystic ameloblastoma; AOT: adenomatoid odontogenic tumor; CEOT: calcifying epithelial odontogenic tumor.

associated with tooth displacement and one with root resorption. There were no reports of cases associated with unerupted teeth. The surgical technique was reported in only one myxoma case, which was treated by enucleation.

The most frequent mixed OT was compound odontoma (OD; 100%, n=6). Younger patients were commonly affected, with the lowest mean age being observed for compound OD (14.2 years, range: 5 to 21 years), followed by developing OD (22.5 years, range: 1 to 29 years) and ameloblastic fibroma (28 years). Age was not reported in the one case of complex OD. Compound OD was more common among females, while the other tumors occurred in males. These tumors were diagnosed in individuals with brown, black and white skin color, with compound OD being evenly distributed. There was no information on recurrent tumors.

Table 6 shows the clinical and radiographic data of mixed OTs. None of the cases reported symptoms.

These tumors were not associated with tooth displacement. Root resorption was observed in the ameloblastic fibroma case. An association with unerupted teeth was found for the complex OD, three compound ODs, and one developing OD. Regarding surgical technique, the ODs were submitted to enucleation but no information was available for the ameloblastic fibroma case.

Sociodemographic and clinical data of malignant odontogenic tumors

Two ameloblastic carcinomas were diagnosed in women, one of them with black skin color. The mean age was 30.5 years. Both tumors affected the posterior mandible, were accompanied by swelling, and were asymptomatic. Size and radiographic appearance were not reported. There was no information on recurrent tumors and incisional biopsies were performed in both cases. One case was associated with tooth displacement but there was no association with root resorption or unerupted teeth. The patients were referred for head and neck surgery.

Sociodemographic and clinical data of hybrid lesions

Two hybrid lesions were diagnosed, one DC associated with OD and one COC associated with OD. The first affected a 70-year-old white woman. She was asymptomatic and there was no information on location

Table 5. Clinical and radiographic data of benign mesenchymal odontogenic tumors.

Variables	Cementoblastoma (n=1) (%)	COF (n=12) (%)	Odontogenic fibroma (n=1) (%)	Myxoma (n=4) (%)
Location				
Anterior mandible	0	2 (16.66)	0	0
Posterior mandible	1 (100)	6 (50)	1 (100)	0
Anterior maxilla	0	2 (16.66)	0	0
Posterior maxilla	0	2 (16.66)	0	2 (50)
Anteroposterior mandible	0	0	0	0
Anteroposterior maxilla	0	0	0	2 (50)
Hemimaxilla	0	0	0	0
Not reported	0	0	0	0
Size (cm)				
Mean	0	1.36	0	2.65
Range	0	1–1.8	0	2.3–3
Not reported	1	6	1	2
Radiographic appearance (Locularity)				
Unilocular	0	0	0	0
Multilocular	0	0	0	4 (100)
Not reported	1 (100)	12 (100)	1 (100)	0
Radiographic appearance (Radiodensity)				
Radiolucent	0	1 (8.33)	0	0
Radiopaque	1 (100)	2 (16.66)	0	0
Mixed	0	1 (8.33)	0	1 (25)
Not reported	0	8 (66.66)	1 (100)	3 (75)

COF: cemento-ossifying fibroma.

or size. The COC/OD was diagnosed in a 12-year-old black boy. The lesion was also asymptomatic, was located in the anteroposterior maxilla, and measured 2.0 cm. The lesions exhibited a mixed radiographic appearance and were associated with unerupted teeth. Neither of them was a recurrence. The surgical techniques used were not reported.

DISCUSSION

The present study described the frequency of odontogenic lesions in a population from the state of Espírito Santo, Brazil, and reported the main features related to their diagnosis. The results showed a higher frequency of OCs compared to OTs, as well as a higher frequency of inflammatory OCs compared to developmental OCs. Studies published over the years have also demonstrated a higher frequency of OCs compared to OTs at oral and maxillofacial pathology services in the southern and southeastern regions of Brazil[4-6].

Radicular cysts were the most frequent lesions in the present study, followed by OKs and DCs, corroborating studies in the literature that involved populations from Minas Gerais[4], Pernambuco[12], and Santa Catarina[13]. These cysts were also the most common odontogenic lesions in studies conducted with children and adolescents[6] and young patients between 20–30 years of age[5].

The OTs most frequently reported in studies conducted in the southeastern and southern regions of Brazil were ODs and AMBs[4,5]. The latter were also the most common tumors in a 22-year study conducted in the northeastern region of Brazil, with the conventional type corresponding to the largest number of cases[14], followed by OD. These findings agree with the present study in which AMB was the most commonly diagnosed tumor when compared to the other tumors. Interestingly, COF was the second most common tumor, followed by OD. It is worth mentioning that COF began to be classified as a mesenchymal OT only in the 2017 WHO classification[15], a fact that may explain its absence in previous epidemiological surveys.

In the case of inflammatory OCs, there was a wide variation in the affected age range, with a higher

Table 6. Clinical and radiographic data of benign mixed odontogenic tumors.

Variables	Compound OD (n=6) (%)	Complex OD (n=1) (%)	Developing OD (n=2) (%)	Ameloblastic fibroma (n=1) (%)
Location				
Anterior mandible	1 (16.66)	0	0	0
Posterior mandible	2 (33.33)	1 (100)	1 (50)	1 (100)
Anterior maxilla	3 (50)	0	0	0
Posterior maxilla	0	0	0	0
Anteroposterior mandible	0	0	0	0
Anteroposterior maxilla	0	0	1 (50)	0
Hemimaxilla	0	0	0	0
Not reported	0	0	0	0
Size (cm)				
Mean	1.0	0	3	1.0
Range	1.0	0	3	1.0
Not reported	5	1	1	0
Radiographic appearance (Locularity)				
Unilocular	0	0	0	0
Multilocular	0	0	0	1 (100)
Not reported	6 (100)	1 (100)	2 (100)	0
Radiographic appearance (Radiodensity)				
Radiolucent	0	0	0	1 (100)
Radiopaque	3 (50)	1 (100)	1 (50)	0
Mixed	1 (16.66)	0	0	0
Not reported	2 (33.33)	0	0	0

OD: odontoma.

mean age for RCs, as also reported by Kammer et al.[13] for a sample of lesions diagnosed at a service in southern Brazil. These authors also reported a male predilection of CC. The higher frequency of RCs in the anterior maxilla and of CCs in the posterior mandible agrees with the results of Du et al.[16]. The greater exposure of the anterior maxilla to trauma is one of the causes of pulp necrosis and the development of periapical lesions[17]. Furthermore, the predilection of CC for the posterior mandible may be related to the higher frequency of partially impacted teeth in this region, especially third molars, which are more commonly associated with paradental cysts[16,18].

The literature reports cases of RC with greater dimensions[8], which is rare for CC. In the present study, larger RCs were associated with tooth displacement and root resorption. Regarding surgical techniques, the cases characterized here agree with the literature in which enucleation and curettage are the most indicated techniques[3,8,16].

Among developmental OCs, the lowest mean age was observed among DC and OK cases and the posterior mandible was the most affected site. These data corroborate literature findings showing that impaction of teeth is more common in this region, especially the third molars of young patients[1,18,19]. It is well established that OKs preferentially affect the posterior region of the mandible[2,5,20]. Studies have reported a male predilection of DC and OK[3,12,16]. Furthermore, OKs were among the lesions with the largest dimensions, a fact that reinforces their different biological behavior compared to other OCs[20]. There was a predominance of multilocular radiolucent appearance of OK and GOC, a feature reported in the literature[9,20].

An association with tooth displacement and unerupted teeth has been reported[3,18,21], which was more frequent in OKs and DCs than in the other developmental OCs. Root resorption was more common in OKs and COCs, as also reported by other authors[3,20]. Recurrent cases were observed among GOCs and OKs. According to the literature, the behavior of some OKs and GOCs can differ from that of other development OCs, including a potentially aggressive growth and high recurrence rates[3]. Therefore, combined or less conservative surgical techniques have been recommended for the treatment of some of these cysts, such as enucleation with curettage

and partial resection[20]. In the present sample, these techniques were used only in cases of OK and GOC.

Regarding benign epithelial OTs, UA and AMB affected patients with the lowest mean age, corroborating other studies[22,23]. A higher frequency of AMBs was observed, which mainly involved the posterior region of the mandible, as demonstrated in other surveys[14,22,23]. According to Santos et al.[23], multilocular and unilocular radiolucent appearances are the most common in AMB and UA, respectively. Studies have also shown a higher frequency of tooth displacement and root resorption in AMB cases and an association of UAs with unerupted teeth[3,23]. As expected, AMBs had the largest dimensions and the highest number of recurrent cases. These findings are probably related to the greater growth potential, invasiveness, and aggressiveness of these tumors[3]. This behavior would explain the more radical treatment modalities that are commonly indicated in these cases[24] and that were reported in this study.

Cemento-ossifying fibroma was the most commonly diagnosed benign mesenchymal OT. However, before 2017, this tumor was classified in the group of fibro-osseous lesions and not as an odontogenic neoplasm, in consequence, few studies included it in their results. In a study of 544 OTs in the Chilean population, this tumor was also the most frequent, along with ODs and AMBs[25]. These variations could be attributed to differences in research methodologies and sample sizes. According to the latest WHO classification[3], COF more frequently affects women and is commonly found in the posterior region of the mandible, similar to the other tumors of this group. The findings of the present study are consistent with these characteristics. However, in contrast to the literature[3], the myxoma cases of the present study predominated in the maxilla. In addition to the presence of symptoms, other features observed for myxomas and COFs in this study would explain the potential aggressiveness of these tumors[3]. Myxomas exhibited a multilocular appearance and greater dimensions; myxomas and COFs were associated with tooth displacement and root resorption.

Compound ODs were the most common benign mixed OTs. The mean age of the patients was the lowest among all odontogenic lesions studied. A preference of ODs for young age groups has been reported by other authors[14,22,26]. A female predilection and common radiopaque appearance have also been described Ramos et al.[26]. de Medeiros et al.[14] reported the anterior maxilla to be the most affected site. In the present study, half of the compound ODs were located in the anterior maxilla. Odontomas are often related to disorders of the dentition[27] and half of the sample of the present study was associated with impacted teeth.

Odontomas may be associated with other odontogenic lesions, particularly with DC[28]. In the present sample, two lesions were associated with an OD, one COC and one DC. Other studies have also described the association of OD with DC[29,30] and COC[30,31]. These pathologies may represent hybrid lesions or simply an area of differentiation from the odontogenic epithelium of the tumor. In agreement with the literature, the lesions had a mixed radiographic appearance and were associated with unerupted teeth[28].

Malignant odontogenic neoplasms are very rare. Ameloblastic carcinoma accounts for <2% of all OTs and for 30% of malignant OTs[3]. This tumor is rarely diagnosed at oral and maxillofacial pathology services in Brazil[5,14]. Ameloblastic carcinoma was the only malignant neoplasm detected in the present sample and the characteristics of the two cases were compatible with those reported in the literature[3].

The skin color of patients affected by odontogenic lesions varied between white, brown and black. In Brazil, at the individual level, there is significant dissociation of skin color and genomic ancestry, once its population is formed by extensive admixture between Amerindians, Europeans and Africans[32].

Despite the important results obtained, the study has some limitations due to its retrospective design, limiting the clinical information for analysis and because it is based on data from just one service. Furthermore, forms with missing or incomplete information, the loss of medical records, and the lack of complementary tests must be mentioned. We highlight the need for more careful and judicious collection and recording of sociodemographic and clinical data by health professionals, especially dentists.

The WHO classification undergoes constant modifications due to the recognition of new entities or changes in the categories of odontogenic lesions. In view of this, studies aimed at describing the characteristics of these lesions will always be important to update the epidemiological profile of this group of pathologies. Rees et al.[33] published the first study regarding the epidemiological features of both OC and OT based on the 2022 WHO classification. This study was the first brazilian retrospective analysis to determine the epidemiological features of OC and OT based on this same classification.

CONCLUSION

RCs, OKs and AMBs were the odontogenic lesions most commonly diagnosed in a population from the state of Espirito Santo over a period of 19 years.

The sociodemographic and clinical characteristics found for each type of cyst and tumor are in accordance with the classical literature. Odontogenic cysts and tumors are characterized by broad clinicopathological diversity and their diagnosis therefore requires a combination of clinical, imaging, and histopathological features, contributing to refining the accuracy of differential diagnoses, leading to more effective therapeutic interventions.

AUTHORS' CONTRIBUTION

NMGS: conceptualization, data curation, investigation – review & editing, writing – original draft. MVZPS: conceptualization, investigation, writing – review & editing. GSV: data curation, investigation. DRCB: supervision, visualization, writing – review & editing. LPB: supervision, visualization, writing – review & editing. DNS: supervision, visualization, writing – review & editing. SLAV: supervision, visualization, writing – review & editing. ACGH: conceptualization, methodology, project administration, supervision, visualization, writing – review & editing.

CONFLICT OF INTEREST STATEMENT

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