

## Original Research

# Clinicopathologic Analysis Of Odontogenic Cysts & Odontogenic Tumours

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### ABSTRACT

**Background:** Cysts in the oral and maxillofacial region can be classified as either odontogenic or non-odontogenic based on the origin of the cyst's epithelial lining. The present study was clinico- pathological analysis of odontogenic cysts and tumors.

**Materials & Methods:** 104 cases of odontogenic cysts and tumours of both genders were analyzed for the location in the maxilla and mandible. The type and number of cysts, as well as lesion location, were noted. Tumor histopathologic type was recorded.

**Results:** Out of 104 patients, 54 were males and 50 were females. Common cyst was radicular cyst in 28, residual cyst in 4, gingival cyst in 6, Botryoid odontogenic cyst in 4, dentigerous cyst in 5, OKC in 10, and lateral periodontal cyst in 3 cases. Maxillary anterior region was involved in 11 cases, and posterior region in 9, mandibular anterior region in 12 and posterior region in 28 cases. The difference was significant ( $P < 0.05$ ). Tumors in ant maxilla, ant mandible, post. max and post. mandible were Ameloblastoma in 1, 2, 5 and 12. AOT was seen in 1, 1, 1 and 0. CEOT was seen in 2, 1, 0, and 1. Odontogenic fibroma was seen in 0, 0, 1 and 1. Cementoblastoma was seen in 0, 0, 0, and 1 case. Odontoma was seen in 2, 2, 3 and 5 cases respectively. The difference was significant ( $P < 0.05$ ).

**Conclusion:** Radicular cyst was most common odontogenic cyst. Ameloblastoma was commonly occurring odontogenic tumour. The majority of cases involved the mandibular posterior region.

**Keywords:** odontogenic, Ameloblastoma, Radicular cyst

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### Introduction

Cysts in the oral and maxillofacial region can be classified as either odontogenic or nonodontogenic based on the origin of the cyst's epithelial lining.<sup>1</sup> While odontogenic cysts are formed from the epithelial component of the odontogenic apparatus or its remains that are embedded in the bone or gingival tissue, non-odontogenic cysts are derived from the ectoderm involved in the development of face tissue.<sup>2</sup> Odontogenic cysts are frequently linked to the dental lamina (cell rests of Serres), the enamel organ, and the Malassez epithelial rests.<sup>3</sup> The two criteria used to classify odontogenic cysts are whether they have an inflammatory or developmental origin. The cause of developing cysts is uncertain, but inflammatory cysts are linked to inflammation.<sup>4</sup> In addition to their aggressive behavior and propensity to recur, some odontogenic cysts might display characteristics of odontogenic tumors. To guarantee the most effective course of treatment, surgically removed tissue should be thoroughly examined histopathologically and categorized.<sup>5</sup>

Odontogenic tumors (OT) are widespread, complicated lesions in the gnathic bones that pose a difficulty for diagnosis and treatment. These are tumors that originate from the epithelium and/or ectomesenchymal tissues that give rise to teeth.<sup>6</sup> Most of these lesions are real neoplasms, and a small number may occasionally behave malignantly. Other lesions, known as hamartomas, may appear as tumor-like abnormalities. Additionally, research has demonstrated that there are regional differences in the frequency and distribution of these entities.<sup>7</sup> The present study was clinico- pathological analysis of odontogenic cysts and tumors.

### Materials & Methods

The present study consisted of 104 cases of odontogenic cysts and tumours of both genders. All gave their written consent to participate in the study. Data such as name, age, gender etc. was recorded. Radiographs were analyzed for the location, peripheral shape, and pathologies associated with lesions; the maxilla and mandible were divided into anterior and posterior anatomic regions.

Hematoxylin/eosin-stained slides of odontogenic cysts or nonspecific cysts were examined; the type and number of cysts, as well as lesion location, were noted. Tumor size, radiographic findings and histopathologic type was recorded. Data thus obtained

were subjected to statistical analysis. P value < 0.05 was considered significant.

**Results**

**Table :I Distribution of patients**

Total- 104		
Gender	Male	Female
Number	54	50

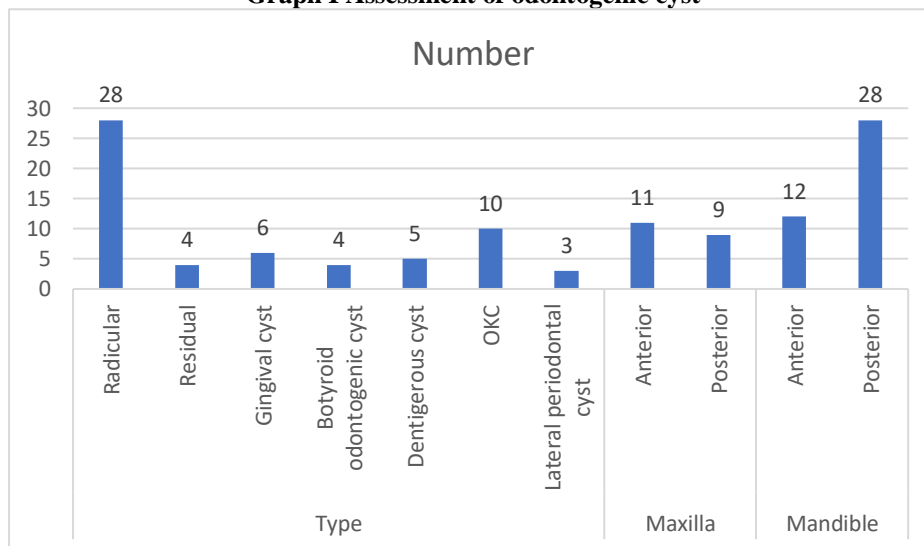
Table: I shows that out of 104 patients, 54 were males and 50 were females.

**Table: II Assessment of odontogenic cyst**

Parameters	Variables	Number	P value
Type	Radicular	28	0.05
	Residual	4	
	Gingival cyst	6	
	Botyroid odontogenic cyst	4	
	Dentigerous cyst	5	
	OKC	10	
	Lateral periodontal cyst	3	
Maxilla	Anterior	11	0.47
	Posterior	9	
Mandible	Anterior	12	0.05
	Posterior	28	

Table II, graph I shows that common cyst was radicular cyst in 28, residual cyst in 4, gingival cyst in 6, Botyroid odontogenic cyst in 4, dentigerous cyst in 5, OKC in 10, and lateral periodontal cyst in 3 cases. Maxillary anterior region was involved in 11 cases, and posterior region in 9, mandibular anterior region in 12 and posterior region in 28 cases. The difference was significant (P< 0.05).

**Graph I Assessment of odontogenic cyst**



**Table III Assessment of odontogenic tumors**

Tumors	Ant maxilla	Ant mandible	Post maxilla	Post mandible	Total	P value
Ameloblastoma	1	2	5	12	20	0.05
AOT	1	1	1	0	3	
CEOT	2	1	0	1	4	
Odontogenic	0	0	1	1	2	

fibroma						
Cementoblastoma	0	0	0	1	1	
Odontoma	2	2	3	5	12	

Table II, graph I shows that tumors in ant maxilla, ant mandible, post. max and post. mandible were Ameloblastoma in 1, 2, 5 and 12. AOT was seen in 1, 1, 1 and 0. CEOT was seen in 2, 1, 0, and 1. Odontogenic fibroma was seen in 0, 0, 1 and 1. Cementoblastoma was seen in 0, 0, 0, and 1 case. Odontoma was seen in 2, 2, 3 and 5 cases respectively. The difference was significant ( $P < 0.05$ ).

### Discussion

According to the current classification, odontogenic epithelium—regardless of ectomesenchyme involvement—is the origin of epithelial OT.<sup>8</sup> Although there are many different types of tumors in this group, ameloblastoma is the most important because to its high incidence and severe clinical features.<sup>9</sup> However, when these tumors affect both odontogenic epithelium and ectomesenchyme, they are classified as mixed odontogenic tumors. Therefore, these may or may not demonstrate the development of mineralized dental tissue.<sup>10</sup> Odontomas are more common in this group and are considered developmental changes rather than true neoplasms. In addition, ectomesenchymal OTs—which are composed of ectomesenchyme components—exist.<sup>11</sup> The present study was clinicopathological analysis of odontogenic cysts and tumors.

We found that out of 104 patients, 54 were males and 50 were females. Ebenezer et al<sup>12</sup> recorded the relative frequency of different types of odontogenic tumors. Age, gender and site prevalence were studied. Of the 107 cases collected, with full records, 60 (56%) were odontomas. The second most common was ameloblastoma (14%), followed by Keratocystic odontogenic tumour (13%). The rest of the tumours formed 17% of the total.

We found that common cyst was radicular cyst in 28, residual cyst in 4, gingival cyst in 6, Botryoid odontogenic cyst in 4, dentigerous cyst in 5, OKC in 10, and lateral periodontal cyst in 3 cases. Maxillary anterior region was involved in 11 cases, and posterior region in 9, mandibular anterior region in 12 and posterior region in 28 cases. Ansari et al<sup>13</sup> investigated and reported on the prevalence, frequency, sex distribution, geographical distribution, and clinicopathological features of odontogenic cysts. In 847 cases, 12 odontogenic cysts were identified, accounting for 10.9% of all lesions biopsied during the investigation (7748). The majority of the patients (57.3%) were male, and their average age was 28.2 years. In total, there were 1.34 times as many men as women. Radicular cysts accounted for 54.54% of all histological types, with gingival, residual, lateral periodontal, odontogenic keratocyst, dentigerous, and botryoid odontogenic cysts ranking next.

We found that tumors in ant maxilla, ant mandible, post. max and post. mandible were Ameloblastoma in 1, 2, 5 and 12. AOT was seen in 1, 1, 1 and 0. CEOT was seen in 2, 1, 0, and 1. Odontogenic fibroma was seen in 0, 0, 1 and 1. Cementoblastoma was seen in 0, 0, 0, and 1 case. Odontoma was seen in 2, 2, 3 and 5 cases respectively. In their investigation, Bassey GO et al<sup>14</sup> saw 146 patients in total, ranging in age from 5 to 70 years (mean  $30.5 \pm 12.9$ ). With 50 females (34.2%) and 96 males (65.8%), the male to female ratio was nearly 2:1. Malignant tumors made up 22, 13.7%, and benign tumors made up 124, 86.3%. Squamous cell carcinoma was the most common malignant tumor found, whereas ameloblastoma was the most common benign tumor (53, 36.3%). Ameloblastoma peaked in the fourth decade of life, while squamous cell carcinoma peaked in the sixth and seventh decades. The most frequent manifestation was jaw swellings (98, 67.1%), which were followed by pain (23, 15.9). The mean duration of symptoms at presentation was  $23.32 \pm 15.72$  months, with a range of 1 to 96 months. The difference in the prevalence and clinicopathologic characteristics of odontogenic cysts and tumors in different parts of the world denotes that the incidence of these lesions possibly is related to the racial and environmental factors.<sup>15-17</sup>

Due to the limited number of odontogenic cysts and tumors observed in this study, further studies are recommended to find out the relative frequency of odontogenic tumors and cysts in our country.

### Conclusion

Authors found that radicular cyst was most common odontogenic cyst. Ameloblastoma was commonly occurring odontogenic tumour. The majority of cases involved the mandibular posterior region.

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