

# Assessment Of Distribution Of Odontogenic Cysts In Indian Population

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## **Abstract**

**Background:** *The present study was conducted to assess distribution of odontogenic cysts in Indian population.*

**Materials & Methods:** *280 odontogenic cysts was retrieved from the department. Hematoxylin/eosin-stained slides of OCs or nonspecific cyst diagnoses were evaluated and selected.*

**Results:** *Common odontogenic cysts were adult gingival cyst (15), COC (9), dentigerous cyst (21), paradental cyst (9), OKC (42), lateral periodontal cyst (1), glandular odontogenic cyst (1), radicular cyst (168) and residual cyst (14). Maximum cases were seen in age group 21-30 years (80). The difference was significant ( $P < 0.05$ ).*

**Conclusion:** *Maximum cases were seen in age group 21-30 years and common odontogenic cysts were radicular cyst and OKC.*

**Key words:** *Cyst, radicular cyst, Odontogenic keratocyst*

## **1. INTRODUCTION**

A cyst is defined as a pathologic cavity containing fluid, semi-fluid or gaseous contents that are not created by the accumulation of pus; frequently but not always, is lined by epithelium.<sup>3</sup> Odontogenic cyst (OC) is divided into two groups on the basis of their origin:

developmental and inflammatory.<sup>1</sup> Developmental odontogenic cysts encompass keratocyst, dentigerous cyst, calcifying odontogenic cyst, lateral periodontal cyst, sialo odontogenic cyst, and eruption and gingival cysts. The inflammatory type includes radicular, residual and paradental cysts.<sup>2</sup>

Odontogenic cysts are frequently encountered in dental practice and constitute an important aspect of oral and maxillofacial pathology.<sup>3</sup> An odontogenic cyst is formed by activation of odontogenic cell rests entrapped within the bone tissue or gingival tissue of the jaws, such as the epithelial remains of Malassez, the dental lamina (cell rests of Serres), or the enamel organ. Inflammatory odontogenic cysts are formed due to activation of these cell rests by an inflammatory process.<sup>4</sup> Developmental and inflammatory odontogenic cysts are epithelial in origin, exhibiting slow growth and a tendency towards expansion.<sup>5</sup> However, despite their benign biological behavior, these lesions can reach a marked size if they are not diagnosed quickly and treated appropriately. Therefore, their correct diagnosis is essential for prompt and appropriate surgical treatment and adequate follow-up.<sup>6</sup> The present study was conducted to assess distribution of odontogenic cysts in Indian population.

## 2. MATERIALS & METHODS

The present retrospective study comprised of 280 odontogenic cysts reported to the department of Oral pathology in last 4 years of both genders. The written consent of all patients was obtained after explaining the purpose of the study.

Data pertaining to cases such as name, age, gender etc. was retrieved from the department. Hematoxylin/eosin-stained slides of OCs or nonspecific cyst diagnoses were evaluated and selected according to the 2005 World Health Organization (WHO) histologic classification. Anatomic site such as anterior and posterior for each mandible and maxilla was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

## 3. RESULTS

Table I Distribution of patients

| <b>Total- 280</b> |              |                |
|-------------------|--------------|----------------|
| <b>Gender</b>     | <b>Males</b> | <b>Females</b> |
| Number            | 175          | 105            |

Table I, graph I shows that out of 280 patients, males were 175 and females were 105.

Graph I Distribution of patients

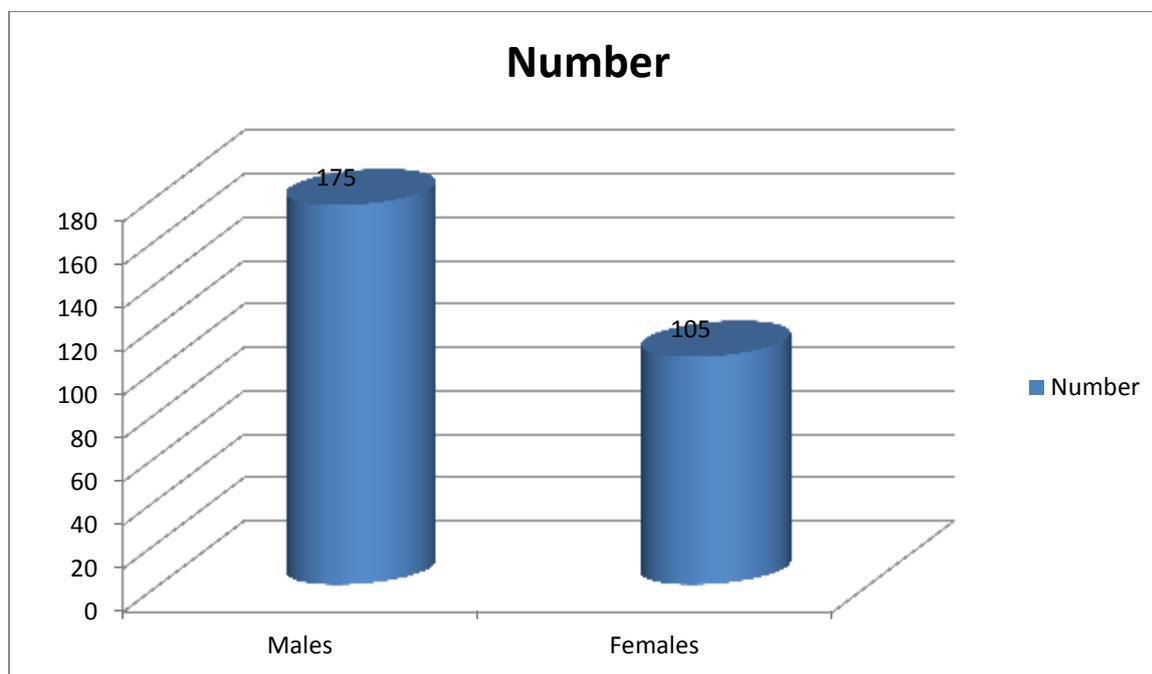


Table II Distribution of odontogenic cysts according to age

| Cysts                      | 1-10 | 11-20 | 21-30 | 31-40 | 41-50 | >50 | P value |
|----------------------------|------|-------|-------|-------|-------|-----|---------|
| Adult gingival cyst        | 0    | 4     | 5     | 4     | 2     | 0   | 0.02    |
| COC                        | 0    | 3     | 4     | 1     | 0     | 1   | 0.02    |
| Dentigerous cyst           | 5    | 8     | 8     | 0     | 0     | 0   | 0.01    |
| Paradental cyst            | 0    | 0     | 4     | 3     | 2     | 0   | 0.02    |
| OKC                        | 3    | 10    | 13    | 2     | 13    | 1   | 0.05    |
| Lateral periodontal cyst   | 0    | 0     | 0     | 0     | 0     | 1   | 0.98    |
| Glandular odontogenic cyst | 0    | 0     | 0     | 0     | 0     | 1   | 0.92    |
| Radicular                  | 3    | 45    | 42    | 51    | 16    | 11  | 0.09    |
| Residual                   | 0    | 2     | 4     | 7     | 1     | 0   | 0.03    |
| Total                      | 11   | 72    | 80    | 68    | 34    | 15  |         |

Table II shows that common odontogenic cysts were adult gingival cyst (15), COC (9), dentigerous cyst (21), paradental cyst (9), OKC (42), lateral periodontal cyst (1), glandular odontogenic cyst (1), radicular cyst (168) and residual cyst (14). Maximum cases were seen in age group 21-30 years (80). The difference was significant ( $P < 0.05$ ).

Table III Location of cysts

| Cysts               | Maxilla  |           | Mandible |           | P value |
|---------------------|----------|-----------|----------|-----------|---------|
|                     | Anterior | Posterior | Anterior | Posterior |         |
| Adult gingival cyst | 10       | 2         | -        | 3         | 0.02    |
| COC                 | -        | 2         | -        | 7         | 0.02    |

|                            |    |    |    |    |      |
|----------------------------|----|----|----|----|------|
| Dentigerous cyst           | 2  | 3  | 5  | 11 | 0.01 |
| Paradental cyst            | -  | 4  | -  | 5  | 0.02 |
| OKC                        | 6  | 13 | 3  | 20 | 0.05 |
| Lateral periodontal cyst   | -  | 1  | -  | -  | 0.98 |
| Glandular odontogenic cyst | -  | 1  | -  | 1  | 0.92 |
| Radicular                  | 63 | 25 | 33 | 45 | 0.09 |
| Residual                   | 3  | 4  | 1  | 6  | 0.03 |
| Total                      | 84 | 55 | 42 | 98 |      |

Table III shows that maximum cases were seen in posterior mandible (98) followed by anterior maxilla (84), posterior maxilla (55) and anterior mandible (42). The difference was significant ( $P < 0.05$ ).

### 3. DISCUSSION

Various conditions such as odontogenic cysts and tumors are originated from tissue remnants of the tooth forming apparatus or are the result of inflammation.<sup>7,8</sup> An odontogenic cyst is formed by activation of odontogenic cell rests entrapped within the bone tissue or gingival tissue of the jaws, such as the epithelial remains of Malassez, the dental lamina (cell rests of Serres) and enamel organ. Inflammatory odontogenic cysts are formed due to activation of these cell rests by an inflammatory process.<sup>9</sup> The growth is slow and has a tendency towards expansion. Moreover, some of these lesions have shown neoplastic alterations or aggressive clinical behaviour and tend to recur.<sup>10</sup> Therefore, their correct diagnosis is essential for prompt and appropriate surgical treatment and adequate follow-up.<sup>11</sup> The present study was conducted to assess distribution of odontogenic cysts in Indian population.

In present study, out of 280 patients, males were 175 and females were 105. Common odontogenic cysts were adult gingival cyst (15), COC (9), dentigerous cyst (21), paradental cyst (9), OKC (42), lateral periodontal cyst (1), glandular odontogenic cyst (1), radicular cyst (168) and residual cyst (14). Maximum cases were seen in age group 21-30 years (80). Afreen et al<sup>12</sup> in 7-year study, 106 cases were diagnosed as odontogenic cysts with the overall prevalence of 13.9%. The prevalence of radicular cyst was 58.4%, dentigerous cyst (22.6%), odontogenic keratocyst (10.3%), calcifying odontogenic cyst (0.009%), lateral periodontal cyst (0.04%) and residual cyst (0.02%). Fifty six percentage of odontogenic cyst were observed in males and 43.3% were seen in females, with a female: male ratio of 1:1.3. Majority of the cases showed prevalence in the third, fourth and fifth decades. Mandible, particularly the posterior region (40.5%), followed by the posterior region of the maxilla (28.3%) were most common anatomic sites of the odontogenic cyst.

We found that maximum cases were seen in posterior mandible (98) followed by anterior maxilla (84), posterior maxilla (55) and anterior mandible (42). Selvamani et al<sup>13</sup> in their study of the 2275 biopsy reports analyzed, 194 cases (8.5%) were jaw cysts, including odontogenic (6.7%) and nonodontogenic cysts (0.25%). Odontogenic cysts included 69.3% radicular, 20.3% dentigerous, 5.2% keratinizing odontogenic, 3.3% residual, and 1.9% other cysts, such as lateral periodontal, botryoid odontogenic, and gingival cysts. The most frequent clinical manifestation was swelling, followed by a combination of pain and swelling. Age,

gender, and location were related to the etiopathologic characteristics of the cyst type. A definitive diagnosis can be made on the basis of clinical, radiological, and histological findings, which makes a good interdepartmental relationship between the clinicians and pathologists essential. Knowledge of the biological and histological behavior of the odontogenic cysts is required for their early detection and treatment.

Kambalimath et al<sup>14</sup> found that the diagnosis of odontogenic cyst accounted in 150 cases and accounted for 15.31 % of all lesions biopsied throughout the period. Mean age of the patient was 32.2 years, and 58 % were males. The overall male to female ratio was 1.38:1. Radicular cyst was most prevalent histological type (48.67 %) followed by dentigerous cyst, odontogenic keratocyst, lateral periodontal cyst, paradental cyst, residual cyst, adult gingival cyst, glandular odontogenic cyst, calcifying odontogenic cyst. The most common locations of the odontogenic cysts were the mandibular (49.33 %) and posterior region (33.33 %).

The shortcoming of the study is small sample size.

#### 4. CONCLUSION

Authors found that maximum cases were seen in age group 21-30 years and common odontogenic cysts were radicular cyst and OKC.

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