

# Prevalence of Unilocular Radiolucencies among a Subset of Indian Population - A Retrospective Study

Jayanth Kumar Vadivel\*

Department of Oral Medicine and Radiology, Saveetha University, Chennai, India.

## ABSTRACT

### INTRODUCTION

Unilocular appearance usually indicates a benign, slow-growing condition that is not aggressive. Corticated / non-corticated borders, regular / irregular borders, root displacement, root resorption, mandibular canal displacement, and lingual cortex expansion are all radiographic findings that are equally important. Aggressive benign or malignant lesions are more likely to have uneven and non-corticated borders, lingual cortex growth, resorption of surrounding tooth roots, and erosion of the mandibular canal, resulting in paresthesia.

### MATERIALS AND METHODS

It is a single centre retrospective study in a private dental institution, Chennai. The samples were taken from the patients who checked in from June 2019 to March 2021, Reported to the dental hospital with halitosis. The data was collected, verified, tabulated and analysed using SPSS by IBM version 2.0, the Chi square Test was performed to compare the data and check for its distribution.

### RESULTS AND DISCUSSION

From the study results we can observe that unilocular radiolucencies are more prevalent in males. It was seen that unilocular radiolucencies are more common in the mandible compared to the maxilla. The most common unilocular lesion was periapical cyst followed by dentigerous cyst.

### CONCLUSION

This study concludes that unilocular radiolucencies are not as common as multilocular radiolucencies and periapical cyst being the most common type of unilocular radiolucency seen.

### KEYWORDS

Unilocular radiolucencies, Periapical cyst, Mandible, Radicular cyst, OPG, Innovative technology

*Corresponding Author:*

*Jayanth Kumar Vadivel,  
Department of Oral Medicine and  
Radiology, Saveetha University,  
Chennai, India;  
Email: doctorjayanth@gmail  
.com*

*How to Cite This Article:*

*Vadivel JK. Prevalence of  
Unilocular Radiolucencies  
among a Subset of Indian  
Population - A Retrospective  
Study. J Evid Based Med  
Healthc 2022;9(05):14.*

*Received: 08-Mar-2022;  
Manuscript No: JEBMH-22-51187;  
Editor assigned: 11-Mar-2022;  
PreQC No. JEBMH-22-51187(PQ);  
Reviewed: 25-Mar-2022;  
QC No. JEBMH-22-51187;  
Revised: 30-Mar-2022;  
Manuscript No. JEBMH-22-51187;  
Published: 05-April-2022;  
DOI: 10.18410/  
jebmh/2022/9.5.14*

*Copyright © 2022 Vadivel JK.  
This is an open access article  
distributed under Creative  
Commons Attribution License  
[Attribution 4.0 International  
(CC BY 4.0)]*

## INTRODUCTION

Cysts are cavities in the body that are filled with fluid, semisolid, or gaseous substance. Odontogenic cysts are cysts that grow within the jaws from the remnants of the odontogenic apparatus (OCs).<sup>1</sup> Based on their pathophysiology, the WHO has categorised OCs into developing and inflammatory cysts. Radicular cysts, residual cysts, and paradental cysts are inflammatory cysts, whereas dentigerous cyst, odontogenic keratocyst (OKC), calcifying OCs, newborn and adult gingival cysts, and glandular OCs are developmental cysts. These cysts can cause substantial jaw swelling, as well as pain and discomfort. They can sometimes cause severe jaw destruction without causing visible jaw swelling, and they can be detected by accident.<sup>2</sup> Some developing cysts have aggressive behaviour and a high recurrence rate, necessitating frequent monitoring. The primary idea for diagnosing any lesion is to combine clinical and radiographic evidence to form a tentative diagnosis, which is then confirmed by histological analysis. For the same lesion, radiographic interpretation can differ, and vice versa.<sup>3</sup> Unilocular look usually indicates a benign, slow-growing, non-aggressive process. Corticated / non-corticated borders, regular / irregular borders, root displacement, root resorption, mandibular canal displacement, and lingual cortex enlargement are all important concomitant radiography findings. The uneven and non-corticated margins of aggressive benign or malignant lesions, as well as the expansion of the lingual cortex, are all characteristics of aggressive benign or malignant lesions.<sup>4</sup>

The primary idea for diagnosing any lesion is to combine clinical and radiographic evidence to form a tentative diagnosis, which is then confirmed by histological analysis. For the same lesion, radiographic interpretation can differ, and vice versa.<sup>5</sup> Unilocular look usually indicates a benign, slow-growing, non-aggressive process. Corticated/non-corticated borders, regular / irregular borders, root displacement, root resorption, mandibular canal displacement, and lingual cortex enlargement are all important concomitant radiography findings.<sup>6</sup> The uneven and non-corticated margins of aggressive benign or malignant lesions, as well as the expansion of the lingual cortex, are all characteristics of aggressive benign or malignant lesions.<sup>7</sup> Our team has extensive knowledge and research experience that has translate into high quality publications.<sup>8-26</sup>

## MATERIALS AND METHOD

This retrospective cross-sectional study evaluated the records of patients who visited the University Dental Hospital from June 2019 - March 2021. The

study was approved by the Institutional Ethical Committee.

## Data Collection

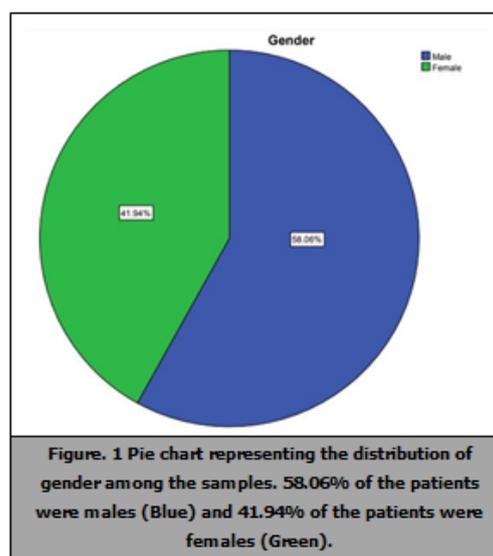
After reviewing 86000 patient records, between June 2019 and March 2021, 93 patients were included for the study. Various demographic variables such as age and gender were recorded along with their dental status. Also the systemic status of the disease was recorded.

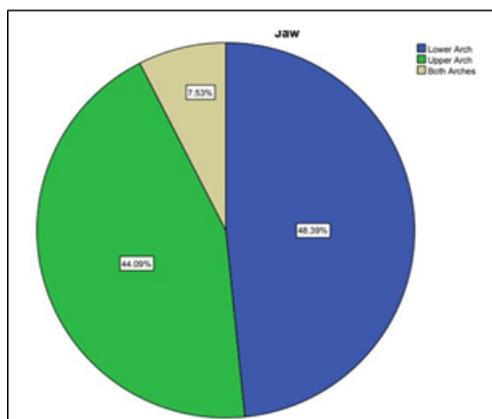
## Statistical Analysis

The data obtained were tabulated in Microsoft Excel 2007 Software and then exported to Statistical Package for the Social Sciences (SPSS) (Chicago, USA) for statistical analysis. Descriptive Statistics, crosstabs and Chi-Square tests were performed on the data sets.

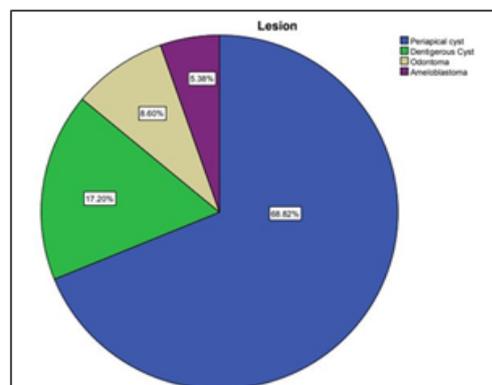
## RESULTS

The results of this study show that 93 patients that reported to the Dental OP were diagnosed with unilocular radiolucency. Among the 93 patients 58 % were male and remaining 42 % were females (Figure 1). This unilocular radiolucency showed more prevalence in the lower arch (48 %) compared to the upper arch (44 %) (Figure 2). Periodical cyst was seen to be the most common lesion followed by dentigerous cyst, odontoma and ameloblastoma (Figures 3 and 4).

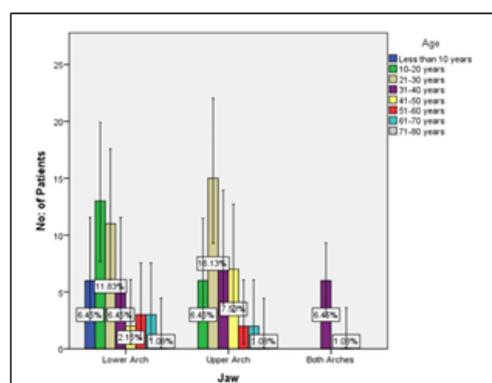




**Figure 2.** Pie chart representing the prevalence of unilocular radiolucency's in the oral cavity. 44.09% of the patients presented with unilocular radiolucency's in the upper jaw (Green), 48.39% of the patients presented with unilocular radiolucency's in the lower jaw (Blue), and 7.53% of the patients presented with unilocular radiolucency's in both jaws (Beige).



**Figure 3.** Pie chart representing the most common unilocular radiolucency. 68.82% of the patients were diagnosed with periapical cyst (Blue), 17.20% of the patients were diagnosed with dentigerous cyst (Green), 8.06% of the patients were diagnosed with odontoma (Beige) and 5.38% of the patients were diagnosed with ameloblastoma (Purple).



**Figure 4.** Bar graph representing the association of arch, age and total number of patients with unilocular radiolucency. X-Axis represents the total number of patients and the Y-axis represents the type of arch.

### DISCUSSION

In our study it is evident that male's edge over the females in the distribution of the total number of patients diagnosed with unilocular radiolucency's. Most of the studies show male predominance while there are a few studies which also show equal distribution of odontogenic cysts, radicular cyst among males and females. In the above study it is evident that out of the multiple age groups, patients between 21 - 30 are seen to most commonly affected by pathologies with unilocular radiolucency, the second most common age group is 31 - 40 which gives the mean age to be 32 years which is similar to other studies in Brazil, Chile and India.<sup>27</sup> Swelling was the most common clinical complaint, followed by pain and swelling. The presence of swelling with or without pain while few cases were asymptomatic pain is one of the common presentations of odontogenic cysts. Cases which are asymptomatic are usually discovered on routine radiographs.<sup>28</sup>

In the above study it was clear that periodical cyst was the common lesion which was correlating with many articles as periodical cysts or inflammatory cysts are common unilocular lesions in the oral cavity.<sup>29</sup> The study shows that the Indian population shows very similar outcomes in relation to gender prevalence and most common lesions with South American countries like Brazil, Chile.

Location wise, the unilocular radiolucency's were more common in the mandible than in the maxilla. One case had multiple cysts and was located in both the maxilla and mandible. They were more common in the posterior region than in the anterior region.<sup>30</sup> This is in accordance with our study. The radiographic presentation varied from unilocular to multilocular in a number of cases. It showed a periodical radiolucency suggestive of inflammatory origin. The presence of impacted teeth was seen in most of the cases and indicated that the cyst was developmental in nature.<sup>31</sup>

### CONCLUSION

This study concludes that unilocular radiolucency are not as common as multilocular radiolucency and periapical cyst being the most common type of unilocular radiolucency seen with the most affected age group being 21 - 40 with a mean age of 32 years.

### REFERENCES

- Mohanty S, Gulati U, Mediratta A, et al. Unilocular radiolucencies of anterior mandible in young patients: A 10 year retrospective study. Natl J Maxillofac Surg 2013;4(1):66-72.

2. White SC, Pharoah MJ. White and Pharoah's Oral Radiology E-Book: Principles and Interpretation. Elsevier Health Sci 2018;672.
3. Urs AB, Arora S, Singh H. Intra-osseous jaw lesions in paediatric patients: a retrospective study. *J Clin Diagn Res* 2014;8(3):216–220.
4. Reichart PA, Philipsen HP, Sonner S. Ameloblastoma: Biological profile of 3677 cases. *European Journal of Cancer Part B: Oral Oncol* 1995;33:86–99.
5. Eversole R, Su L, ElMofty S. Benign fibro-osseous lesions of the craniofacial complex. A review. *Head Neck Pathol* 2008;2(3):177–202.
6. Kaplan I, Buchner A, Calderon S, et al. Radiological and clinical features of calcifying epithelial odontogenic tumour. *Dentomaxillofacial Radiology* 2001;30:22–8.
7. Siar CH, Lau SH, Ng KH. Ameloblastoma of the Jaws: A Retrospective Analysis of 340 Cases in a Malaysian Population. *J Oral Maxillofac Surg.* 2012; 70:608–15. [Crossref][googlescholar][Indexed].
8. Patil SR, Maragathavalli G, Ramesh DNS, et al. Assessment of Maximum Bite Force in Pre-Treatment and Post Treatment Patients of Oral Submucous Fibrosis: A Prospective Clinical Study. *J Hard Tissue Biol* 2021;30:211–6.
9. Sivakumar A, Nalabothu P, Thanh HN, et al. A Comparison of Craniofacial Characteristics between Two Different Adult Populations with Class II Malocclusion-A Cross-Sectional Retrospective Study. *Biology* 2021;14:10(5).
10. Uma Maheswari TN, Nivedhitha MS, Ramani P. Expression profile of salivary micro RNA-21 and 31 in oral potentially malignant disorders. *Braz Oral Res* 2020;10: 34:e002.
11. Avinash CKA, Tejasvi MLA, Maragathavalli G, et al. Impact of ERCC1 gene polymorphisms on response to cisplatin based therapy in oral squamous cell carcinoma (OSCC) patients. *Indian J Pathol Microbiol* 2020; 63: 538.
12. Chaitanya NC, Muthukrishnan A, Rao KP, et al. Oral Mucositis Severity Assessment by Supplementation of High Dose Ascorbic Acid During Chemo and/or Radiotherapy of Oro-Pharyngeal Cancers--A Pilot Project. *Indian J Pharm Educ Res.* 2018;52(3):532–539.
13. Gudipani RK, Alam MK, Patil SR, Karobari MI. Measurement of the Maximum Occlusal Bite Force and its Relation to the Caries Spectrum of First Permanent Molars in Early Permanent Dentition. *J Clin Pediatr Dent.* 2020; 44(6):423–8
14. Chaturvedula BB, Muthukrishnan A, Bhuvanaraghan A, et al. Dens invaginatus: a review and orthodontic implications. *Br Dent J* 2021;230(6):345–50.
15. Ezhilarasan D, Apoorva VS, Ashok Vardhan N. Syzygium cumini extract induced reactive oxygen species-mediated apoptosis in human oral squamous carcinoma cells. *J Oral Pathol Med* 2019;48(2):115–21.
16. Sharma P, Mehta M, Dhanjal DS, et al. Emerging trends in the novel drug delivery approaches for the treatment of lung cancer. *Chem Biol Interact* 2019;25:309:108720.
17. Perumalsamy H, Sankarapandian K, Veerappan K, et al. In silico and in vitro analysis of coumarin derivative induced anticancer effects by undergoing intrinsic pathway mediated apoptosis in human stomach cancer. *Phytomedicine.* 2018;15(46):119–30.
18. Rajeshkumar S, Menon S, Venkat Kumar S, et al. Antibacterial and antioxidant potential of biosynthesized copper nanoparticles mediated through *Cissus arnotiana* plant extract. *J Photochem Photobiol B.* 2019;197:111531.
19. Mehta M, Dhanjal DS, Paudel KR, et al. Cellular signalling pathways mediating the pathogenesis of chronic inflammatory respiratory diseases: an update. *Inflammopharmacology.* 2020;28(4):795–817.
20. Rajakumari R, Volova T, Oluwafemi OS, et al. Nano formulated proanthocyanidins as an effective wound healing component. *Mater Sci Eng C Mater Biol Appl* 2020 ;106:110056
21. PradeepKumar AR, Shemesh H, Nivedhitha MS, et al. Diagnosis of Vertical Root Fractures by Cone-beam Computed Tomography in Root-filled Teeth with Confirmation by Direct Visualization: A Systematic Review and Meta-Analysis. *J Endod* 2021;47(8):1198–214.
22. Ramani P, Tilakaratne WM, Sukumaran G, et al. Critical appraisal of different triggering pathways for the pathobiology of pemphigus vulgaris-A review. *Oral Dis* 2021;21.
23. Ezhilarasan D, Lakshmi T, Subha M, et al. The ambiguous role of sirtuins in head and neck squamous cell carcinoma. *Oral Dis* 2021; 11.
24. Sarode SC, Gondivkar S, Sarode GS, et al. Hybrid oral potentially malignant disorder: A neglected fact in oral submucous fibrosis. *Oral Oncol* 2021;16:105390.

25. Kavarthapu A, Gurumoorthy K. Linking chronic periodontitis and oral cancer: A review. *Oral Oncol* 2021;14:105375.
26. Preethi KA, Lakshmanan G, Sekar D. Antagomir technology in the treatment of different types of cancer. *Epigenomics* 2021;13(7):481–4.
27. Kambalimath DH, Kambalimath HV, Agrawal SM, et al. Prevalence and distribution of odontogenic cyst in Indian population: a 10 year retrospective study. *J Maxillofac Oral Surg* 2014;13(1):10–5.
28. Sharifian MJ, Khalili M. Odontogenic cysts: a retrospective study of 1227 cases in an Iranian population from 1987 to 2007. *J Oral Sci* 2011;53(3):361–7.
29. Varinauskas V, Gervickas A, Kavoliūniene O. Analysis of odontogenic cysts of the jaws. *Medicina*. 2006;42(3):201–7.
30. Deepthi PV, Beena VT, Padmakumar SK, et al. A study of 1177 odontogenic lesions in a South Kerala population. *J Oral Maxillofac. Pathol* 2016;20:202.
31. Prockt AP, Schebela CR, Maito FDM, et al. Odontogenic Cysts: Analysis of 680 Cases in Brazil. *Head and Neck Pathology* 2008;2: 150–6.