

PREVALENCE OF UNILOCLAR RADIOCLUCENCIES AMONG A SUBSET OF INDIAN POPULATION - A RETROSPECTIVE STUDY

Type of study: Retrospective study

Running Title: Prevalence of unilocular radiolucencies among a subset of Indian population

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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 .

Key words: Unilocular radiolucencies, Periapical cyst, Mandible, Radicular cyst, OPG, Innovative technology

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)(1). 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(2). 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(3). 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(4).

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(5). 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(6). 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(7). Our team has extensive knowledge and research experience that has translate into high quality publications(8),(9),(10),(11),(12),(13),(14),(8),(15–20),(21–25),(26)

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 shows 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 (Fig 1). These unilocular radiolucencies showed more prevalence in the lower arch (48%) compared to the upper arch (44%) (Fig. 2). Periapical cyst was seen to be the most common lesion followed by dentigerous cyst, odontoma and ameloblastoma (Fig. 3).

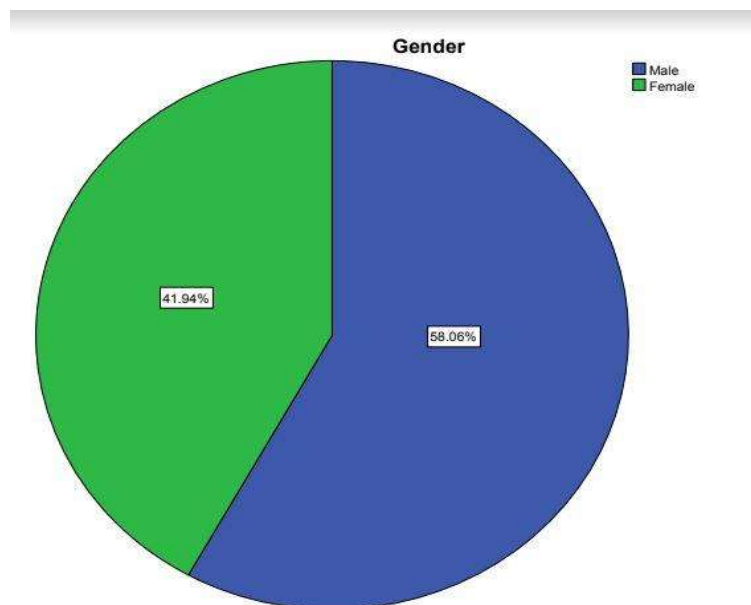


Fig 1 Pie chart representing the distribution of gender among the samples. 58.06% of the patients were males (Blue) and 41.94% of the patients were females (Green).

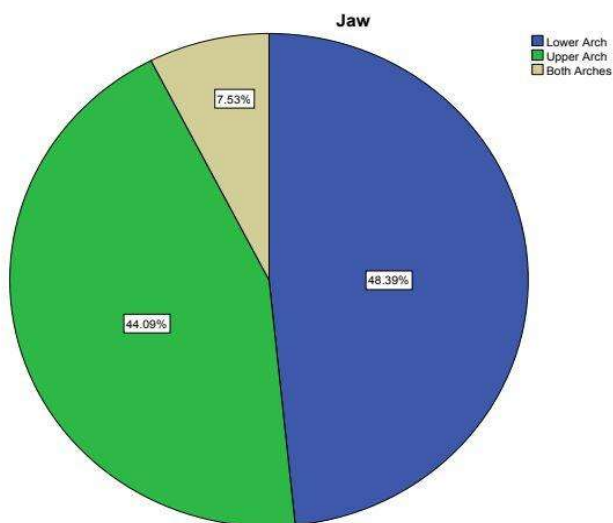


Fig2: Pie chart representing the prevalence of unilocular radiolucencies in the oral cavity. 44.09% of the patients presented with unilocular radiolucencies in the upper jaw (Green), 48.39% of the patients presented with unilocular radiolucencies in the lower jaw (Blue), and 7.53% of the patients presented with unilocular radiolucencies in both jaws (Beige).

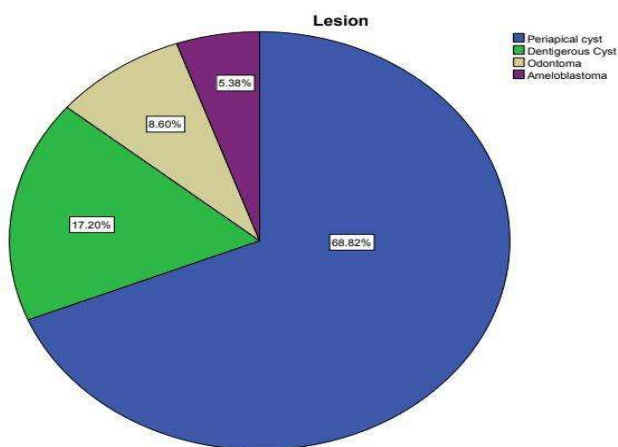


Fig 3 Pie chart representing the most common unilocular radiolucency. 68.82% of the patients were diagnosed with periapical cyst (Blue), 17.20% of the patients were diagnosed with dentigerous cyst (Green), 8.06% of the patients were diagnosed with odontoma (Beige) and 5.38% of the patients were diagnosed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

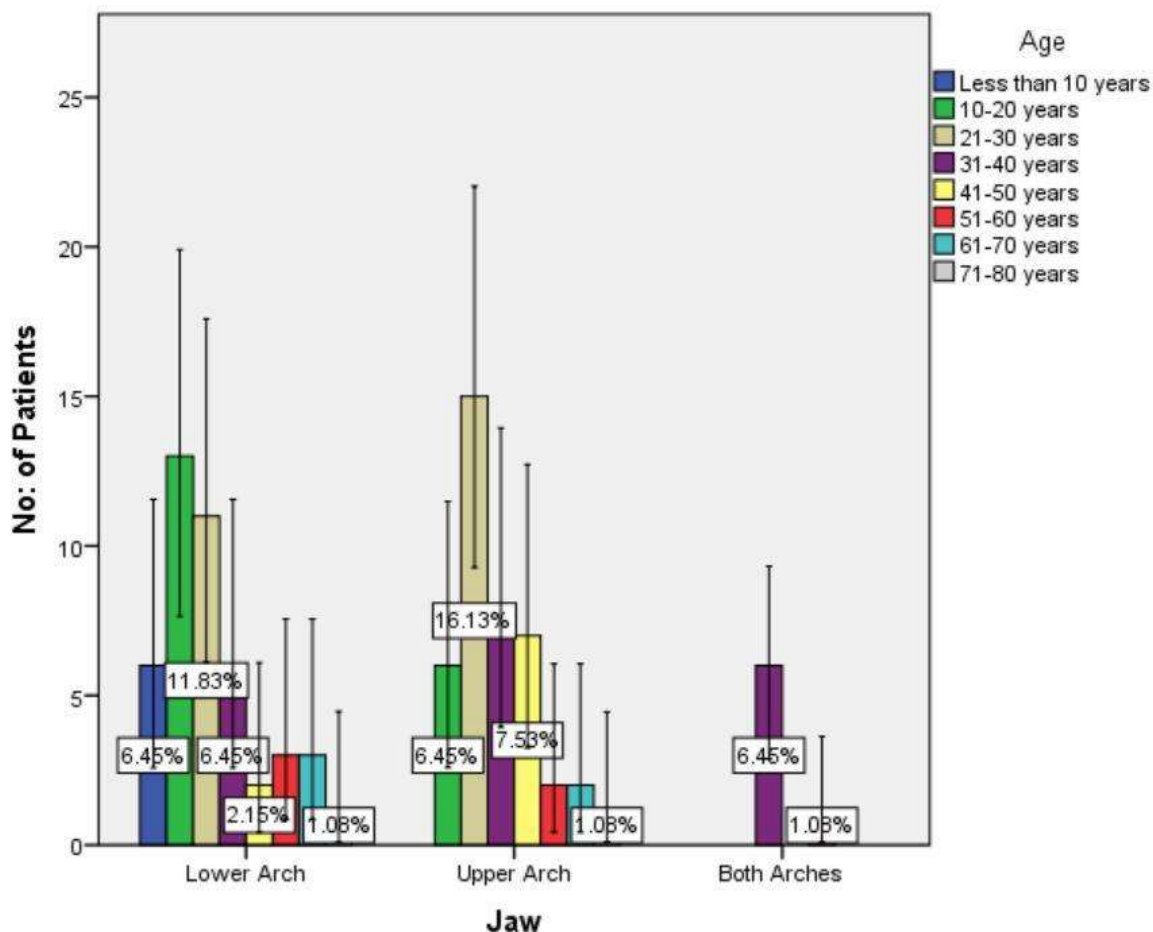


Fig 4 Bar graph representing the association of arch,age and total number of patients with unilocular radiolucency. X- axis represents the total number of patients and the Y- axis represents the type of arch.

DISCUSSION:

In our study it is evident that males edge over the females in the distribution of the total number of patients diagnosed with unilocular radiolucencies. 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(27). Swelling was the most common clinical complaint, followed by pain and swelling. The presence of swelling with or without g 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(28).

In the above study it was clear that periapical cyst was the common lesion which was correlating with many articles as periapical cysts or inflammatory cysts are common unilocular lesions in the oral cavity(29). 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 radiolucencies 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(30). This is in accordance with our study. The radiographic presentation varied from unilocular to multilocular in a number of cases. It showed a periapical 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(31). Our team has extensive knowledge and research experience that has translate into high quality publications(32–43)

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 with the most affected age group being 21-40 with a mean age of 32 years.

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AUTHOR CONTRIBUTIONS:

Santhosh Bala contributed to data collection, analysis and interpretation and drafting of the article. Sangavi R and Adimapalu Hima sandeep contributed to the critical revision of the article.

CONFLICT OF INTEREST:

No potential conflict of interest relevant to this article was reported.

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