# Prevalence of Radiopaque Lesions in the Panoramic Radiographs Taken At Private Dental College - A Retrospective Study

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**ABSTRACT**

**AIM**
The aim of this study is to find out the prevalence of radioopaque lesions seen in panaromic radiographs and evaluate the different radiographic techniques used for the identification.

**INTRODUCTION**
The rootcanal system encourages the colonisation and proliferation of microbes and the bacteria and their products provides stimulus for inflammation of the region. Radioopaque lesions presents itself in a localized area of bone sclerosis that forms in response to a low - grade inflammatory stimulus. Radiographic examination shows an area of opacification surrounding the apex of the inflamed tooth. This study was done to evaluate the prevalence of radiopaque lesions in the dental clinic

**MATERIALS AND METHOD**
The study was conducted in Saveetha Dental College and Hospitals, with patients visiting for a period between march 2021 and june 2021. Two examiners were involved in the study. Total of 66 patients took part in the study out of with 34 were male and 32 were females. The obtained data was entered in Ms Excel spreadsheet and the tabulated data was subjected to statistical software IBM SPSS version 20.0. Descriptive inferential statistics were done. Chisquare test applied and the p value was set at $p < 0.05$.

**RESULTS**
The most common type of radiographic investigation used was RVG followed by OPG and CBCT. On comparing gender and area of radioopaque lesions, study revealed that 10 female patients and 38 male patients had radioopaque lesions in the upper anterior tooth region. 2 female and 1 male patient showed radio opaque lesions in the upper posterior region. 1 female and 9 male patient showed in the lower anterior region and 1 female and 4 male patients showed in the lower posterior region.

**KEYWORDS**
Radioopacity, Panoramic radiograph

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## INTRODUCTION

Following pulp necrosis, the root - canal system encourages the colonization and proliferation of microbes.[1] The low intensity, chronic stimulus provided by bacteria and their pro - ducts allows for the maintenance of inflammation in the periodical region.[2] Chronic periodical lesions bearing a proliferative character, represented by granulomas and periodical cysts, are the result of this process.[3] The slow growth of these lesions results in bone resorption that is visible radio graphically.

Condensing osteitis or focal sclerosing osteomyelitis or focal sclerosing osteitis presents as a localized area of bone sclerosis that forms in response to a low-grade inflammatory stimulus.[4] The inflammation usually arises from a tooth with pulpitis caused by a large carious lesion or deep restoration or pulpal necrosis. The condition occurs over a broad age range, with a predilection for young patients and the premolar / molar region of the mandible.[4] clinically, no expansion is evident. Radiographic examination shows an area of pacification surrounding the apex of the inflamed tooth.[5]

The most common radiopaque lesion in the jaws is CO, which occurs in 4 % – 7% of the general population.[6] The typical feature of CO consists of a uniform dense radiopaque mass that is adjacent to the apex of the tooth and has well - defined margins and a vague transition to the surrounding bone that occurs in combination with the apical loss of lamina dura and widening of the periodontal ligament space.[7] Unlike CO, idiopathic sclerosis is often unrelated to pathologic lesions of the dental pulp and it is neither an inflammatory nor neoplastic process. Condensing osteitis is commonly identified in the mandible and is most frequently associated with the mandibular first molar and female patients.[8] Other common sites of CO can also occur in edentulous areas, with teeth that received root canal, and in carious, inflamed, or necrotic pulps.[9] Thus, this study was done to evaluate the prevalence of radiopaque lesions in the dental clinic

## MATERIALS AND METHOD

The study was conducted in Saveetha Dental College and Hospitals, with patients visiting for a period between March 2021 and June 2021. The data was collected by reviewing the case sheets. The study setting was approved by the Institutional ethics committee SDC/SIHEC/2020/DIASDATA/0619-0320. Two examiners were involved in the study. Total of 66 patients took part in the study out of with 34 were male and 32 were females. Patient gender, type of radiographic investigation records and region of involvement were collected. Telephonic and photographic cross verification of data was done by two examiners. If there was no response from the patient, the particular data was excluded. The dependent variables and independent variables were set. The obtained data was entered in Ms Excel spread sheet and the tabulated data was subjected to statistical software IBM SPSS version 20.0. Descriptive inferential statistics were done. Chisquare test applied and the p value was set at $p < 0.05$.

## RESULTS

This study results reveal radio opaque lesions are seen with more frequency in males when compared to females. The most common regions in the oral cavities showing radio opaque lesions was in the upper anterior tooth region, followed by lower anterior tooth region and lower posterior tooth region. The most common type of radiographic investigation used was RVG followed by OPG and CBCT. On comparing gender and area of radioopaque lesions, study revealed that 10 female patients and 38 male patients had radioopaque lesions in the upper anterior tooth region. 2 female and 1 male patients showed radio opaque lesions in the upper posterior region. 1 female and 9 male patient showed in the lower anterior region and 1 female and 4 male patients showed in the lower posterior region (Figures 1 and 2).

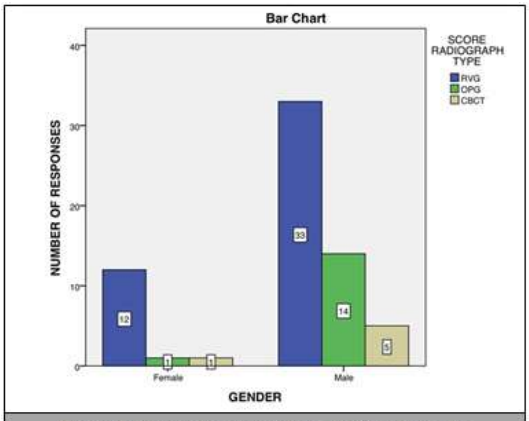


Figure 1. Comparison between Gender and Type of Radiographic Investigation Used.

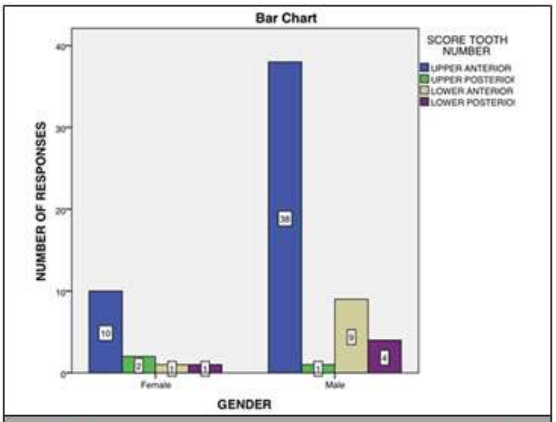


Figure 2. Comparison between Gender and the Region of Radio Opacity in the Oral Cavity.

## DISCUSSION

The study shows that radio - opaque lesions are seen with more frequency in males. According to the study by DP Tavres, et al males have shown a gender prediliction to radio opaque lesions as 54 % percent of the patients were male.[10] As per various literatures there was no gender prediliction for radioopaque lesions in the oral cavity

Out of the radiographic Methods most commonly used radiographs were RVG followed by OPG and CBCT. A systematic approach to the evaluation of radiopaque jaw lesions is necessary to diagnose the lesion or at least provide a meaningful differential diagnosis.[11] Use of two dimensional radiographs like RVG and OPG proved to be of significance in the diagnosis of radio opaque lesions in the oral cavity.[12] Clinical examination was also equally important in the diagnosis of the pathological evidence.[13] Radiopaque lesions and lesions of mixed density are less frequent than radiolucent lesions of the oral cavity. They comprise a spectrum of odontogenic and non - odontogenic lesions.[14] Careful correlation of clinical presentation, panoramic radiographs, cone beam computed tomography, and histopathology are the cornerstones for appropriate lesion characterization.[15] A useful approach is to first analyze the absence or presence of a relationship of the lesion to the teeth.[19] The relation may be either near the tooth apex or crown of the tooth. Other lesions may or may not show any specific anatomical location. After analysis of the primary location of the lesion, additional criteria that may help in further imaging characterization are lesion demarcation and morphology, involvement of the cortex and periosteum, and soft tissue changes.[16] In routine clinical practice, RVG, OPG and CBCT is sufficient for appropriate lesion characterization, although magnetic resonance imaging may be useful in selected cases. The primary evaluation is done using two dimensional radiographic techniques like RVG and OPG. The confirmatory evaluation is done using CBCT which is a three dimensional radiograph and histological evaluation.[17]

The study also showed increased prevalence of radio opaque lesion in the upper anterior tooth region in males. Study by Joel K. Cure, et al stated that most odontogenic radio opaque lesions were present in the mandibular tooth region and mostly was due to the involvement of impacted teeth. Whereas there are various lesions that involve multiple areas of the odotogencie origin and involves multiple teeth.[18]

The most common treatment for these lesions like cemetoblastoma, cementoossifying fibroma, etc. involves removal of the involved tooth. Further studies are being done for the prevention of these disorders and more importance to dental hygiene is being given. Further methods for easier identification and detection of these lesions are to be advocated in clinical practice and easier methods of management are to the incorporated.

## CONCLUSION

This study reveals that most radio opaque lesions were seen in males and out of which most radio opaque lesions were present in the upper anterior tooth region with a prevalence of 57.5 %. The most common radiographic investigation used was RVG and followed by OPG for the diagnosis of radio opaque lesions.

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